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Sexual Orientation Disclosure and Concealment: A Model-Driven Meta-Analysis

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Empirical literature examining lesbian, gay, and bisexual (LGB) sexual orientation disclosure and concealment is prolific. Theoretical literature on disclosure and concealment of non-visible stigmatized identities, such as a sexual minority identity, have argued that disclosure is associated with improved social and health outcomes whereas concealment is associated with negative social and health outcomes. Empirical findings examining the relationships between LGB disclosure and concealment and outcome variables, however, have conflicted. This study clarified conflicting empirical findings utilizing model-based meta-analysis. Utilizing a total of 583 correlations from a database of 157 studies, random-effects modeling was used to determine the weighted mean relationship between disclosure and support-related and outcome variables. Demographic and methodological variables identified in previous empirical literature were also tested as moderating variables in the relationship between disclosure and support-related and outcome variables. Finally, support-related variables were tested as mediators in the disclosure—outcome relationship. Results of this study indicated that, despite conflicting findings in past research, disclosure is a beneficial process and statistically significantly associated with increased social support and improved mental/physical health and work/school outcomes. Moderation findings indicated that publication year of empirical

studies explained mixed findings in the relationship between disclosure and mental health outcomes. Finally, results from the meta-analytic path analyses indicated that general social support and disclosure confidant acceptance mediated the disclosure—outcome relationship providing empirical evidence for the importance of support-related variables that comes from disclosing one's LGB sexual orientation. Findings from this meta-analysis offer important implications to theory, research, clinical practice, and public policy.

To Mom, Dad, Rob, Debbiesiu, and Lynne, for helping me to see in myself all the great things you saw and continue to see in me. Thank you.

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CHAPTER 1

INTRODUCTION

Disclosing one's sexual minority identity—frequently termed "coming out"—is a fundamental aspect of life for lesbian, gay, and bisexual (LGB) people. Within each new interaction and interpersonal relationship, sexual minority individuals are faced with the decision of disclosing or concealing their sexual orientation. Since one's LGB identity is inherently non-visible, the decision to disclose or conceal can be complex as it is influenced by a number of considerations—specifically, will this person reject me if they know of my LGB identity? Or, will I be treated differently or receive differential services if they know of my LGB identity? Alternatively, disclosure can—and often does—elicit accepting and affirming responses. Such affirmations are critical in cultivating meaningful relationships and social support networks and establishing overall life satisfaction and well-being. Thus, LGB people can be faced with a complex decision since overall health and relationships—both current and future—are in jeopardy.

Current understanding of LGB disclosure and concealment has been grounded in a series of important theoretical contributions. Starting with Goffman's (1963) seminal work on the management of a stigmatized identity, Goffman laid the groundwork for future LGB researchers to begin to consider the difficulties and challenges LGB people face in disclosing a sexual minority identity to others. With the declassification of homosexuality as being a mental disorder in 1973 research in the late 1970's began to focus on the mental health needs of LGB people. What transpired was one of the first developmental theoretical conceptualizations of LGB identity development (Cass, 1979). In Cass's model, she identified disclosure as being a central developmental process in

identity development and the establishment of social relationships. Much later, Pachankis (2007) offered a theoretical model identifying the cognitive, affective, and behavioral consequences of concealing a non-visible stigmatized identity. Shortly after, Chaudoir and Fisher (2010) proposed their disclosure process model. This model implicated disclosure as being predictive of positive outcomes as well as identified mediating processes in the disclosure—outcome relationship.

Utilizing these theoretical frameworks, empirical research on LGB disclosure and concealment has been prolific. Interestingly, however, despite sound theoretical arguments regarding the benefits of disclosure and harm of concealment, empirical literature has generated mixed findings (Huebner & Davis, 2005; Szymanski & Sung, 2010). Many research reports have noted that disclosure is associated with an array of positive outcomes, including increased social support and decreased psychological distress (Lehavot & Simoni, 2011). Several other reports, however, have found disclosure to statistically significantly correlate with increased psychological distress, increased suicidality, and increased substance use (Rosario, Schrimshaw, & Hunter, 2006). To date, no researcher has sought to clarify and/or explain these mixed findings.

Clarification of mixed empirical findings can be attained through moderation and mediation analyses and is important in contributing to theoretical and empirical literature. Specifically, with knowledge of demographic and/or methodological variables that moderate the disclosure—outcome relationship, particular demographic groups can be targeted for intervention studies that assist with the coming-out process. For example, should moderation results reveal that the relationship between disclosure and mental health outcomes is stronger for LGB youth than adults, researchers can focus intervention

efforts on helping LGB youth work through the coming-out process and identify specific barriers to disclosure that LGB youth experience. Attending to specific demographic groups identified through moderation analysis is also important because it helps tailor intervention packages and saves on limited economic resources by not providing intervention work to demographic groups that would not benefit from it. Further, identification of support-related mediating variables can allow mental health professionals to work with their LGB clients on building meaningful support.

Study Aims

The purpose of this study is three-fold. First, utilizing a theoretically grounded approach, I will quantitatively synthesize the empirical relationship between LGB disclosure and support-related and outcome variables using model-driven meta-analysis (Becker, 2001). Second, I will clarify mixed findings in LGB disclosure outcome literature through the testing of theoretically-derived demographic (i.e., age, gender, and sexual orientation) and methodological (i.e., publication year and disclosure/concealment measurement) moderating variables. Finally, I will test the extent to which support-related variables mediate the relationship between disclosure and outcome variables. Findings from this model-based meta-analysis will provide researchers with a more complex and comprehensive understanding of LGB disclosure. Identification of moderating variables in the disclosure—outcome relationship will also potentially help researchers and mental health practitioners to identify "at-risk" subgroups of the LGB community (e.g., LGB youth) that demonstrate negative outcomes from disclosure or concealment. This study will also benefit LGB individuals currently struggling with the

decision of disclosing their sexual orientation as it will provide a more thorough understanding of what can happen when one discloses her or his sexual identity.

Model-driven meta-analysis is the quantitative synthesis of all existing empirical findings grounded in a theoretical framework. The use of meta-analysis as a statistical method includes many strengths. First, meta-analysis permits the testing of variables that can explain mixed findings across empirical studies (Cooper, Hedges, & Valentine, 2009). Meta-analysis is able to do this because it utilizes information from all available studies conducted on a specific phenomenon (i.e., disclosure in the current study). Second, because of the inclusiveness of data, meta-analysis has increased statistical power, relative to independent studies, to detect statistically significant findings. Third, meta-analysis is particularly helpful in examining and identifying moderating variables that may explain mixed empirical findings throughout the literature. Finally, the use of random effects modeling allows meta-analytic findings to be generalized beyond studies included in the database (Cooper, 2009). Considering these strengths—as well as the many inconsistencies found within LGB disclosure empirical research—meta-analysis is the most appropriate methodological approach for this study and will offer a significant contribution to LGB disclosure and concealment empirical research.

CHAPTER 2

LITERATURE REVIEW

Do lesbian, gay, and bisexual (LGB) individuals live healthier and happier lives after disclosing their sexual orientation? Researchers have identified positive social and overall health outcomes associated with disclosure (Balsam & Mohr, 2007). However, negative mental health (Lehavot & Simoni, 2011), physical health (Huebner and Davis, 2005), and work/school outcomes (Waldo, 1999) have also been found. To date, no investigation has sought to clarify these mixed findings through a theoretically grounded model-driven meta-analysis. Moderating variables and mediating processes that determine disclosure's relationship with mental health, physical health, and work/school outcomes are not yet empirically confirmed. These limitations directly affect LGB individuals considering, or in the process of, disclosure. Identifying moderating variables is important because it can elucidate how the disclosure process may differ depending upon an LGB person's demographic characteristics, such as race/ ethnicity, gender, or sexual orientation. Further, examining moderating variables will assess whether or not difference in the outcomes of disclosure are related to how researchers measure the construct of disclosure or concealment. Finally, identifying mediating process in the disclosure-outcome relationship will help researchers and interventionists pinpoint exactly what coping processes may decrease the potential negative effects associated with disclosure or concealment. In short, researchers, mental health practitioners, and community agencies lack empirical data to guide their creation of interventions that help LGB people navigate the coming-out process. This study will address these limitations through the implementation of a theory-driven model-based meta-analysis (Becker, 2001)

Disclosing one's sexual minority identity—frequently termed "coming out"—is a fundamental part of life for LGB people. Disclosure to others is often considered critical to overall health and well-being as it allows a person to be her or his authentic self, be affirmed and accepted, and develop meaningful social relationships. Empirical findings examining LGB disclosure have noted positive outcomes. Several authors have found that those who are open about their sexual orientation have a larger social support network (Lehavot & Simoni, 2011; Shilo & Savaya, 2011), are less likely to suffer from mental distress (Ayala & Coleman, 2000; Velez, Moradi, & Brewster, 2013), and report more positive work/school outcomes. Conversely, those who conceal their sexual orientation report decreased life satisfaction (Balsam & Mohr, 2007; Shilo & Savaya, 2011) and increased physical health problems (Ullrich, Lutgendorf, Stapleton, & Horowitz, 2004). Disclosure of one's LGB identity appears to greatly benefit the individual.

Although researchers have largely found positive outcomes associated with disclosure, inconsistencies in this relationship exist. For example, in a sample of LGB youth, Rosario et al. (2006) found that disclosure was statistically significantly related to negative mental health outcomes. Further, Huebner and Davis (2005) found increased levels of cortisol (an indicator of physiological distress) among those who disclosed their sexual orientation at work as compared to those who did not disclose. Consistently high levels of cortisol have been linked with decreased physical health and mental health (Kirschbaum & Hellhammer, 1989).

The presence of mixed findings within disclosure literature generated three overarching aims to be addressed in this study. The first aim was to resolve mixed

empirical findings in LGB disclosure literature through model-driven meta-analysis. The second aim was to identify demographic and/or moderating variables through the use of moderation analysis to help explain existing mixed findings. The final aim was to examine whether the disclosure—outcome relationship was a mediated relationship through the use of meta-analytic path analysis. To address these questions, I examined theoretical literature regarding disclosure and concealment for possible factors that might determine how LGB disclosure/concealment relate to outcomes.

Operationally Defining Disclosure and Concealment

Before presenting theoretical literature on disclosure and concealment, it is important to operationally define these two constructs. Defining these two constructs is methodologically important as past research have not been unified as to whether disclosure and concealment are a unidimensional construct or two independent constructs. Meidlinger and Hope (2014) defined disclosure as 'the active indication of one's sexual orientation through speech or action' (p. 490) while concealment is 'the active avoidance of this disclosure' (p. 490). The act of disclosure can occur both verbally and non-verbally. Verbal disclosures can be both direct and indirect; for example, a direct disclosure can include telling another person that you are gay/lesbian/bisexual whereas an indirect verbal disclosure could include mentioning your weekend plans with your romantic partner. Non-verbal disclosures, however, can include LGB-related symbols (e.g., wearing a rainbow pin) or posting a picture of one's romantic partner on a social networking website. A large portion of empirical literature on LGB disclosure and concealment has conceptualized these two constructs to be unidimensional such that greater disclosure implies less concealment suggesting a continuous variable

(e.g., Balsam & Mohr, 2007). A smaller body of empirical literature, however, has argued that disclosure and concealment can function simultaneously and independently of one another. For example, a person can have already disclosed his or her sexual orientation to one's parents but conceal aspects of their LGB-lifestyle (e.g., dating same-sex individuals or attending gay-pride parades). Despite the conceptual differences in these terminologies, attention to these differences in empirical literature has only recently begun (e.g., Jackson and Mohr, 2016) and the majority of empirical reports have used these terms interchangeably.

In addition to the terms disclosure and concealment, the process of revealing or hiding one's sexual orientation has been defined by other terms. Of the more common colloquial phrases, the terms 'out of the closet' or 'outness' and 'in the closet' or 'closeted' have widely been used to conceptualize and define disclosure and concealment. These terminologies have frequently been used interchangeably in both empirical research and common speech; however, differences in their definitions do exist. For example, the term disclosure describes the action of revealing one's sexual orientation whereas 'outness' or 'being out' is more of a state of being. The same can be said for concealment which better describes an action to hide one's sexual orientation versus 'being in the closet' or 'closeted' which is more of a state of being. For the purpose of this study, disclosure and concealment will be conceptualized as a unidimensional construct, which mirrors the majority of empirical reports. Therefore, when the word 'disclosure', which will encompass other colloquial terms mentioned above, is presented (e.g., increased disclosure is associated with decreased psychological distress) it is implied that increased concealment, which will encompass other colloquial

terms mentioned above, is associated with increased psychological distress. In light of a small, but growing, body of empirical literature that suggests disclosure and concealment are independent constructs, moderation analysis of the two constructs will be conducted to empirically clarify the unidimensional versus independent construct debate.

Theoretical Models of Disclosure and Concealment

The theoretical and empirical study of disclosure and concealment has been of interest to scientists long before the study of LGB disclosure and concealment. Starting with Goffman's (1963) seminal book explicating peoples' management of a "spoiled identity", researchers have examined the role of identity disclosure and concealment in an array of populations including people with mental illness (Corrigan & Rao, 2012), sexual assault survivors (Ullman, 1996), and HIV+ individuals (Kalichman, DiMarco, Austin, Luke, & DiFonzo, 2003). Below, I describe in greater detail some of the leading theoretical models on disclosure and concealment that have shaped this area of study and relate to this study's examination of LGB disclosure and concealment and their relationship to outcome variables.

Goffman

One of the first researchers to examine the management of a stigmatized identity was Goffman (1963). In his book, Goffman conceptualized a stigmatized identity as an identity which is not accepted by society and constantly adjusted and managed in order to garner social acceptance. Goffman proposed three different types of stigmatized identities which include physical stigmas, group identity stigmas, and stigmas of character.

Physical stigmas include physical deformities of the body such as an amputee. Group identity stigma is a stigma the derives from being a member of a discredited group which can include race, national origin, or religion. Stigma of character are traits viewed as unacceptable by society such as drug/alcohol addiction or a sexual minority identity.

Goffman further categorizes these stigmatized identities into two overarching groups—discredited and discreditable. Discredited identities are those in which a stigma is visibly seen (e.g., skin color). For discredited people, Goffman notes that a central task in managing a discredited identity is dealing with tensions that arise in interactions between the discredited and those without a stigma. Discreditable identities, however, are those in which the stigma is hidden and nonvisible (e.g., sexual minority identity). Goffman states that the management of a discreditable identity is far more complex because the discreditable person must negotiate interactions with those who naïvely accept him or her without knowledge of his or her discreditable identity who also hold prejudice beliefs against people who carry the discreditable identity. Therefore, the management of undisclosed discrediting information becomes a central issue within interpersonal interactions.

Goffman outlines several strategies people use to control the amount of information revealed regarding one's stigmatized identity. In the first strategy, Goffman notes the use of complete concealment of a stigmatized identity. Within this strategy, people engage in several techniques to completely conceal their stigmatized identity which can include the use of disidentifiers (i.e., mannerisms or behaviors that distance one's affiliation with a stigmatized group). For LGB people, the use of disidentifiers can include the making of anti-LGB jokes to come across as being heterosexual. A second

strategy of information control is selective disclosure to a small group of confidants. Although some disclosure is part of this strategy, individuals who selectively disclose must constantly negotiate and manage the distance and closeness within each relationship. People who use this strategy often experience disconnectedness in social relationships and remain largely isolated from others. A third strategy of information control is voluntarily disclosing one's stigma to the world. Such disclosure can include the wearing of stigmatized symbols (e.g., rainbow pin for LGB people) and purposeful slips (e.g., using same-sex pronoun to talk about one's romantic partner). Goffman notes that for people who utilize this strategy of information control, the task transforms from information management to tension management (i.e., managing prejudice and discrimination from people).

Cass Model

One of the earliest, and arguably most influential model of sexual orientation disclosure, is Cass's (1979) homosexual identity formation model. Drawing from a developmental perspective, Cass argued that disclosure is a necessary and fundamental component of LGB identity formation. Proposing a linear-based six-stage model, Cass outlined the following stages LGB people progress through in the formation of their identity: (1) Identity Confusion, (2) Identity Comparison, (3) Identity Tolerance, (4) Identity Acceptance, (5) Identity Pride, (6) Identity Synthesis. Below, I discuss these stages in greater detail.

Identity confusion is the first stage of Cass's homosexual identity formation model. A central aspect of this first stage is the recognition that one may be lesbian, gay, or bisexual. This recognition can present itself in perceiving one's thoughts and/or

behaviors as lesbian, gay, or bisexual coupled with feelings of shame or unacceptance of these thoughts and behaviors. People within the identity confusion stage also begin to seek out information on being lesbian, gay, or bisexual.

The second stage of Cass's model is identity comparison. People in this stage begin to accept the possibility of their lesbian, gay, or bisexual identity and no longer view themselves as being heterosexual. Cass notes that negative feelings regarding one's lesbian, gay, or bisexual identity begin to diminish as these individuals start to view themselves as a sexual minority. Although personal acceptance of one's lesbian, gay, or bisexual identity develops during this stage, Cass notes that people within the identity comparison stage can still engage in heterosexual or covert behaviors—such as heterosexual marriage or anonymous same-sex encounters—as a way of hiding their identity from others.

Following the identity comparison stage, sexual minority people enter the identity tolerance stage. In this stage, lesbian, gay, and bisexual people further accept the possibility of their sexual minority identity and begin to seek out social and emotional connections with other sexual minority people. Such social and emotional connection can include socialization at LGB bars, clubs, and social groups as well as friendships with LGB people.

Identity acceptance follows that identity comparison stage. Within this stage, sexual minority people full accept their sexual minority identity and no longer consider the possibility that they are heterosexual. With a greater acceptance of their LGB identity, individuals in this stage become increasingly involved in the LGB community and become less involved with the heterosexual community. Cass notes that people in the

identity acceptance stage can also develop feelings of anger toward people and society who do not accept LGB people.

The fifth stage of Cass's homosexual identity model is identity pride. Cass views identity pride as a progression of the identity acceptance stage from the perspective that LGB people within this stage become further immersed in the LGB culture and community and further distanced from the heterosexual culture and community. With a greater sense of pride regarding their sexual minority identity, LGB people in this stage can become more confrontational with non-accepting individuals and establishments. Cass also notes that people within this stage begin to disclose their sexual minority identity to heterosexual people such as family members and coworkers.

The sixth and final stage of Cass's model is identity synthesis. Unlike previous stages in which one's sexual minority identity is the focal identity, individuals within this stage begin to integrate their LGB identity with other aspects of their identity. Although one's sexual minority identity still remains important, it is no longer a guiding force in the building of relationships with others. This identity synthesis also permits LGB individuals to develop supportive social relationships with heterosexual people.

Identity Management Theory

Building upon Goffman's (1963) theory on stigmatized identities, Woods (1993) sought to expand and clarify the behavior strategies that gay men utilize in the disclosure and nondisclosure of their sexual orientation. Unlike previous theoretical and empirical research which viewed disclosure and nondisclosure as dichotomous variables, Woods found through qualitative research of gay educators that three distinct behavioral

strategies emerged. These included counterfeiting a false heterosexual identity, avoiding the topic of sexual orientation all together, and integrating one's gay identity into the work environment.

Woods described that counterfeiting is a behavioral strategy in which a gay man constructs a false heterosexual identity when interacting with other heterosexual people. This counterfeiting could manifest in behaviors such as changing gender pronouns from 'he' to 'she' when talking about romantic relationships or altering mannerisms that may be associated being gay. Unlike counterfeiting, the avoidance strategy does not attempt to construct a heterosexual identity; rather, individuals who utilize avoidance reveal nothing about themselves come across as being asexual. Avoidance strategies can manifest through dodging conversation related to sexuality, turning conversations away from oneself and focusing on the other, and not attending social events. Finally, the behavioral strategy of integration entails the revealing of one's sexual orientation and managing the consequences that come from it. Woods describes that integrative behavioral strategies can include overt revealing of one's sexual orientation such as telling others about one's sexual orientation or indirect revelations such as demonstrating interest in donating to a gay or lesbian charity.

Cognitive-Affective-Behavioral Model

In the attempt to develop a more comprehensive and unifying understanding of the effects of concealing a stigmatized identity, Pachankis (2007) put forth the cognitive-affective-behavioral model of stigma concealment. According to Pachankis, the act of stigma concealment enacts negative cognitive, affective, and behavioral processes that

adversely impact the individual concealing his or her stigmatized identity. I discuss each of these processes briefly below.

Regarding the negative cognitive implications of concealing a stigmatized identity, Pachankis notes that concealment can create internal preoccupation, vigilance, and suspiciousness. Pachankis regards preoccupation as a type of thought suppression in which the concealer actively avoids disclosure—verbal or nonverbal—of his or her identity. This type of preoccupation has negative consequences and can result in thought intrusion and subsequent disordered thinking. The second type of cognitive implication is vigilance of stigma discovery. Out of fear of one's stigmatized identity being discovered, the concealer can engage in over-vigilance through the monitoring of social interactions, management of one's identity in social situations, over attention to situational cues that may indicate other's knowledge of the concealer's stigmatized identity. The third cognitive implication of stigma concealment is suspiciousness. Pachankis comments that those who conceal their stigmatized identity may become suspicious in social relationships and become self-conscious in their ways of relating.

The second negative consequence of concealment proposed by Pachankis is the development of negative affect. Pachankis comments that negative affect can include anxiety, depression, hostility, guilt, and shame. Drawing from past research on secret-keeping, Pachankis notes that the concealment of a stigmatized identity can create emotional strain and promote shameful feelings about one's concealed identity. For LGB people, this can manifest through internalized heterosexism (i.e., the internalization of negative feelings and thoughts regarding one's sexual orientation).

The third negative consequence of concealment from Pachankis's model is behavioral implications which include impression management, social avoidance and isolation, and impaired close relationship functioning. Impression management involves the concealer's presentation of his or her concealed identity to others in social situations. In the interest of hiding one's concealed identity, the concealer engages in a great deal of conscious effort to be perceived as not possessing a stigmatized identity. For example, gay men may act overly masculine as a way of coming across to others as heterosexual. Given the great amount of effort to manage one's identity around others, people with a concealable stigmatized identity may, instead, avoid social situations entirely. Due to fears of rejection and/or harassment stemming from their concealed identity, people with concealed identities often engage in shallow social relationships or may have no social support at all. Finally, in established, long-term relationships—such as family or close friends—concealing one's stigmatized identity can impair the closeness of these relationships due to feelings of guilt about hiding one's identity from a close other and/or fears of rejection and loss of this relationship.

The Critical Role of Social Support Variables

The theoretical models described above provide a rich source of information regarding proposed benefits of disclosure and harm of concealment. Across these models, a unifying theme emerges in which disclosure and concealment are social processes that directly affect the extent to which one can build meaningful relationships and feel supported by others in the world. Attention to the importance of disclosure and its effect on social relationships has been well documented throughout psychological literature.

Sullivan (1953) proposed that people have a fundamental need for intimacy and viewed intimate relationships as a core source of life satisfaction. Sullivan noted that intimacy and establishment of social relationships is lifespan development process that starts in preadolescence. During this time, preadolescents seek of close friends with whom they can disclose intimate information about themselves. Sullivan argued that this preadolescent process of self-disclosure as a means of building close friendships lays the groundwork for future social and romantic relationships in adulthood. In considering the disclosure process for LGB people, important parallels arise in which many LGB people come to realize same-sex attractions during adolescence. For those who conceal this information from others, feelings of isolation and loneliness can arise, diminish social support resources, and reduce overall health and well-being. Carl Rogers, one of the most influential psychologists to date, also viewed self-disclosure as a critical component of social connection and well-being. Rogers (1970) noted that feelings of loneliness and isolation can be alleviated from self-disclosure coupled with a loving and accepting response from another. A fundamental philosophy held by Rogers was that loneliness was an outgrowth of hiding one's real self, which the person viewed as flawed and unlovable. Rogers argued that these individuals must take the risk of disclosing these unlovable parts of themselves to others as a means of feeling loved and socially connected. For LGB people, this process appears to relate to the difficulties of disclosing one's sexual orientation and establishing social relationships due to underlying internalized heterosexism (i.e., negative attitudes and beliefs regarding one's identity as a sexual minority). Drawing from Roger's argument, it appears that disclosure is a vital process in combating internalized heterosexism and cultivating social connection.

Social support has also received large theoretical and empirical support for its effect on overall health and well-being. One of the earlier and more influential theoretical models of social support and health was proposed by Cohen and Wills (1985). In this paper, the authors reviewed existing empirical literature on social support and stress to assess whether social support exhibited a main effect or buffering effect on stress reduction. In conceptualizing a main effect of social support on stress, Cohen and Wills (1985) proposed that social support provides positive affect, stability and predictability in one's life, and a recognition of self-worth—all of which relate to overall well-being. Alternatively, the authors proposed social support as providing a buffering—or coping—effect on the development of stress. Cohen and Wills proposed that the presence of social support and help reduce negative appraisals of stressful events as well as reduce stress reactions which can negatively affect psychological and physiological processes. Based on their review of the literature, Cohen and Wills concluded that sufficient empirical evidence exists for social support exhibiting both a main effect and buffering effect on stress.

The beneficial influence of social support on physiological processes has also been demonstrated by Uchino (2006). In expanding upon the seminal work of Berkman and Syme (1979), who linked lack of social connection to increased mortality rates, Uchino proposed two pathways through which social support leads to positive physiological outcomes. Uchino argued that the first pathway entails behavioral processes such as exercising and adherence to medical regimens. Through increased social support and connection, Uchino proposed that people are more likely to engage in

health promoting behaviors thereby improving physiological health outcomes. The second pathway from social support to physiological outcomes was psychological processes. Uchino noted that lack of social support can result in poor psychological outcomes (e.g., depression, stress, and anxiety) which negatively affect physiological outcomes such as increased cortisol and decreased immune functioning.

The literature above provides theoretical support linking disclosure to outcome variables, disclosure to social support, and social support to outcome variables. More recently, Chaudoir and Fisher (2010) proposed a disclosure process model (DPM) which links these three relationships into a cohesive theoretical model specific to people who hold a concealable stigmatized identity such as sexual minorities. One important aspect of this DPM framework that is germane to the purpose of this study is that the authors assert that social support variables serve as mediating processes in the disclosure—outcome relationship. Specifically, disclosure of one's stigmatized identity to others permits the discloser to build more intimate social relationships. The development of these social relationships that come from the disclosure then influence positive health and well-being. Although this model is limited in that it neither explicitly describes the type of social support variables that mediate the disclosure—outcome relationship, nor does the model specifically focus on sexual minority disclosure/concealment, it does offer a generalized framework upon which these limitations can be addressed. Drawing from the literature on sexual minority disclosure and concealment, I propose that general social support, LGB-specific social support, and disclosure confidant response are three support-related variables that have been linked to disclosure, concealment, and outcome variables for LGB people. Below, I describe these variables in greater detail.

General social support. General social support, operationally defined as perceived social support not specifically pertaining to LGB people, is the first of four support-related variables this is implicated in the disclosure—outcome relationship. Drawing from Chaudoir and Fisher's (2010) disclosure process model, the authors argue disclosing one's concealable stigma to others can allow the individual to seek out authentic and meaningful relationships which she or he was unable to do when one's identity was concealed. The building of a social support network can, therefore, allow for affirmation of one's identity and all for subsequent beneficial outcomes.

The effects of disclosure on general social support have been well-substantiated throughout disclosure and concealment research. Among LGB research, a large body of research provides empirical evidence for the importance of general social support in relation to disclosure and outcomes. Researchers have identified a positive relationship between disclosure and general social support such that increased sexual identity disclosure is associated with increased reports of general social support and general social support satisfaction (Chow & Cheng, 2010). Further, general social support has consistently shown to be an important factor in mental/physical health (Waldo, 1999), and work/school outcomes (Griffith & Hebl, 2002). Finally, Beals, Peplau, & Gable (2009), found that general social support emerged as the strongest mediator in the relationship between disclosure and well-being further underscoring the importance of this variable in the disclosure-outcome relationship for LGB individuals.

LGB-specific social support. A second type of social support that develops from disclosure of one's sexual orientation is social support from other sexual minority people.

Differentiating LGB-specific social support from general social support is an important dichotomy within LGB research as it provides a more nuanced understanding of how social support may vary. Further, as noted in Cass's (1979) homosexual identity formation model, connection with LGB people and affiliation with the LGB community becomes an important aspect of identity development and serves as a specific type of social support. Historically, connection and support from LGB people and the LGB community as a whole has been viewed as a critically important social connection throughout the disclosure process since it both protects LGB people from discrimination and rejection that may come from disclosure and often serves as one of the first social relationships in which a sexual minority person is 'out' to another individual.

LGB-specific social support has been widely examined in empirical research. Regarding its empirical relationship with disclosure, a clear trend has emerged in which increased disclosure has positively and statistically significantly correlated with increased reports of LGB-specific social support. This comes as little surprise since connection and support from LGB people often rests on the presumption that one is 'out' to other LGB people. The examination of the relationship between LGB-specific support and outcomes, however, has generated some mixed findings. Although the majority of empirical studies have shown a positive relationship between LGB-specific disclosure and outcomes (Smith & Ingram, 2004), negative findings have been noted. For example, Rosario, Hunter, Maguen, Gwadz, and Smith (2001) found a positive correlation between involvement with gay activities in school and increased reported anxiety among gay and bisexual male youth. In understanding this counter-intuitive finding, the results may reflect the difficulties of acceptance and harassment that LGB youth experience within

educational settings. These unique challenges that LGB youth experience may also point to potential moderating differences of age in the relationship between disclosure/concealment and support-related and outcome variables.

Disclosure confidant response. An additional support-related variable that merits examination regarding the relationship between disclosure/concealment and outcomes is the accepting or rejecting response one receives from disclosing his or her sexual orientation to another person (i.e., disclosure confidant response). Though not as widely empirically examined as general social support or LGB-specific social support, disclosure confidant response has shown to be correlated with health outcomes. The theoretical argument regarding the importance of disclosure confidant acceptance is that an accepting response from the confidant can allow the disclosing LGB person to feel more positively about one's sexual orientation, increase disclosure, and feel more positively about his or her life. Conversely, a rejecting response from a confidant can result in increased psychological distress, shame about one's LGB identity, and discourage future disclosure to other individuals out of fear of rejection and loss of other relationships.

Research examining disclosure acceptance and rejection among secret-keepers and people with concealable identities have supported this argument. In an experimental study assessing disclosure of a secret among undergraduate students, Rodriguez and Kelly (2006) found that disclosing to an imagined accepting confidant resulted in statistically significantly fewer reported illnesses at 8-week follow-up as compared to those who disclosed to an imagined nonaccepting confidant. Dane and McDonald (2009) also found that heterosexual acceptance of an LGB disclosure statistically significantly correlated with increased reported well-being after controlling for the effects of perceived

social support from fellow LGB members. Further, Ryan, Huebner, Diaz, and Sanchez (2009) found that LGB youth rejected by family were 8.4 times more likely to report attempting suicide, 5.9 times more likely to report depression, 3.4 times more likely to use illegal drugs, and 3.4 times more likely to engage in unprotected sexual intercourse as compared to youth who reported no or low family rejection.

Outcomes of Disclosure

Theoretical conceptualizations of disclosure and concealment have viewed disclosure as a beneficial process in which increased disclosure results in positive psychological and physical health outcomes whereas concealment results in poor psychological and physical health outcomes. Examination of existing empirical studies assessing the relationship between disclosure and outcome variables have frequently supported these theoretical arguments (e.g., Lehavot & Simoni, 2011). However, inconsistencies in this relationship have been found throughout the empirical literature. Meta-analysis of LGB disclosure's relationship with outcomes will help identify positive and negative outcomes most strongly related to disclosure. Drawing from the empirical literature, I will examine the following outcome variables (1) mental health, (2) suicidality, (3) substance use, (4) physical health, and (5) work/school. Below I describe each of these outcome variables as they are represented in the disclosure and concealment literature.

Mental health. Mental health variables, which encompass symptoms of depression, anxiety, and stress, psychological distress, negative affect, life satisfaction, and well-being, are the most frequently studied outcomes in relation to LGB disclosure and concealment. The importance in understanding the relationship between

disclosure/concealment and mental health outcomes among LGB people derives from various sources which include Meyer's minority stress model, Hatzenbuehler's (2009) psychological-mediation framework, Chaudoir and Fisher's (2010) DPM, Pachankis's (2007) cognitive-affective behavioral model, and literature pertaining to the effects of secret-keeping on mental health for all individuals.

Empirical research examining mental health variables within the LGB population have frequently noted mental health disparities. In a study that examined psychiatric disorders among people with same-sex partners, Gilman et al. (2001) found that women with same-sex partners reported significantly more mental health disorders as compared to women with other-sex partners. Research examining mental health among gay men have also noted significantly higher rates of depression and anxiety as compared to the general population. Further, reports of depression and anxiety were also found to be more severe among gay men who were concealing their sexual orientation (Gilman, et al., 2001). For bisexual men and women, Dobinson (2007) noted that bisexual adults have the lowest level of emotional well-being among sexual minorities and are twice as likely to report depressive symptoms as compared to heterosexual adults. These findings support the need to examine the moderating effect of sexual orientation on the relationships between disclosure and outcome variables.

In regards to the relationship between disclosure/concealment and mental health outcomes, theoretical and empirical literature have noted that concealment of one's sexual orientation is associated with decreased mental health whereas individuals who disclose their sexual orientation report positive mental health outcomes (Frost, Parsons, & Nanín, 2007; Pachankis & Bernstein, 2012). Exceptions in these relationships,

however, have been noted and suggest that concealment may be associated with preserving mental health. For example, Huebner and Davis (2005) noted a positive and statistically significant relationship between sexual orientation disclosure and negative affect. Further, Rosario et al. (2006) found a positive, though non-significant, relationship between sexual orientation disclosure and anxious symptoms. The presence of mixed empirical findings raises important questions as to whether disclosure correlates with positive mental health outcomes as identified in theoretical literature. Alternatively, the testing of moderating and/or mediating variables may offer empirical insight to these conflicting empirical findings. In particular, attention to publication year of empirical reports may help explain these mixed findings. More specifically, because the cultural attitudes towards LGB people have been more affirming more recently, it is possible that the extent of the relation between disclosure and negative outcomes is less than when cultural attitudes were less affirming of LGB people. Model-based meta-analysis used in this study will address these issues.

Suicidality. Due to the seriousness and prevalence of suicidal ideation and attempts for LGB people, suicidality was examined separately from mental health outcomes. In a recent report conducted by the Centers for Disease Control (CDC; 2011), LGB youth were found to be four times more likely to attempt suicide as compared to their heterosexual peers. Further, LGB individuals who come from rejecting families were 8.4 times more likely to attempt suicide as compared to those who reported little or no rejection (Ryan, Huebner, Diaz, & Sanchez, 2009). Despite the serious reality of suicide within the LGB community, researchers have yet to clarify the relationship between disclosure/concealment and suicidality. Though only a handful of studies have

examined disclosure/concealment and suicidality, findings have revealed that *both* disclosure and concealment are associated with increased and decreased suicidality. For example, D'Augelli and Hershberger (1993) found that mother and father awareness of the child's sexual orientation was associated with decreased suicidal ideation. A dissertation report, however, found a positive and statistically significant relationship between high school disclosure and suicidal ideation and/or attempt (Kiedman, 2001). The absence of clarity regarding the disclosure/concealment—suicidality relationship is troubling and can hold grave consequences for LGB individuals considering disclosing or currently concealing their sexual orientation. Empirical clarification of these previous findings through the use of meta-analytic methods is critical in determining disclosure and concealment's potential link with suicidal ideation.

Substance use. Similar to suicidal ideation, LGB people have also been found to demonstrate higher levels of substance use in comparison to heterosexuals (Gruskin, Greenwood, Matevia, Pollack, & Bye, 2007), warranting particular focus on this outcome separate from other mental and physical health outcomes. Researchers examining disclosure/concealment and their relationship with substance use have presented competing theoretical arguments. Some have postulated that disclosure is positively associated with increased substance use due to the increased socialization at bars and night clubs that comes with being an "out" LGB individual (Rothblum, 1994). An alternative argument is that disclosure can decrease substance use due to the reduction in stress and cognitive preoccupation that comes with concealing and managing one's sexual minority identity (Meyer, 2003).

Despite competing theoretical arguments regarding disclosure and concealment's relationship with substance use variables, empirical research has found strong a number of disparities in substance use prevalence within the LGB population. Among lesbian women, empirical studies have found that lesbian women are almost twice as likely to smoke tobacco products as compared to heterosexual women. This increased rate in smoking was particularly found among younger women and more masculine lesbian women (Nyitray, Corran, Altman, Chikani, & Negrón, 2006). Similar rates of tobacco use have also been found among gay men (Lee, Griffin, & Melvin, 2009). Further, researchers have found that gay men engage in alcohol and drug use at higher rates than the general population (Stall et al., 2001). Within bisexual research, researchers have also found significantly higher rates of smoking and binge drinking as compared to the general population (American Lung Association, 2007). In examining gender differences, Vankim and Padilla (2010) found that bisexual women reported significantly higher rates of smoking and binge drinking as compared to heterosexual women.

Although substantial empirical evidence for increased rates of substance use within the LGB community exists, the empirical relationship between disclosure/concealment and substance use remains largely unclear. In empirical studies examining illicit substance use among gay men, Kipke et al. (2007) and Klitzman, Greenberg, Pollack, and Dolezal (2002) found a positive relationship between disclosure and increased substance use. Such empirical findings provide support to the theoretical argument that outness increases substance use. However, competing findings have been noted. Baiocco, D'Alessio, and Laghi (2010) found that sexual orientation disclosure statistically significantly accounted for decreased rates of binge drinking among gay and

lesbian youth. Decreased rates of substance use associated with disclosure were also noted by Rothman, Sullivan, Keyes, and Boehmer (2012). Clarifying the empirical relationship between disclosure/concealment and substance use through model-based meta-analysis is an important contribution to the literature since it will clarify the role of disclosure and concealment in substance use and abuse. Further, the presence of conflicting findings also prompts examination of moderating variables and mediating processes. In particular, examination of support-related variables as mediators of the disclosure—substance use relationship may offer important insights and contributions to empirical and theoretical literature. For example, increased LGB-specific social support that can come from disclosure may increase substance use through increased socialization in LGB bars and clubs. Alternatively, increased social support may attenuate substance use and serve as a healthier coping mechanism. Model-based meta-analysis will address these hypotheses.

Physical health. Addressing disparities in physical health outcomes, such as perceived health satisfaction, cortisol level, physical illness, and doctor visits, have also been a critical area of intervention for LGB people. Physical health research for lesbian and bisexual women has found that lesbian and bisexual women are at a significantly higher risk for developing breast cancer as compared to heterosexual women. Researchers suggest that a cause for this disparity is due to the fact that lesbian and bisexual women are less likely to bear children and do not benefit from hormones that are released during pregnancy which can protect women from certain types of cancers (National Women's Health Information Center). Researchers have also found that lesbian and bisexual women are significantly less likely to visit doctors for routine health

screenings such as Pap smears and mammograms which are vital in early detection of cervical and breast cancer (Dibble, Roberts, & Nussey, 2004). Increased risk of certain types of cancer have also been found among gay and bisexual men. For gay and bisexual men who engage in receptive anal sex, exposure to the human papillomavirus (HPV) can increase the risk of developing anal cancer (Tider, Parsons, & Bimbi, 2005). Gay and have also been found to report significantly higher rates of anorexia nervosa and bulimia as compared to heterosexual men due to cultural ideas of beauty within the gay community (Siconolfi, Halkitis, & Allomong, 2009). U.S. Department of Health and Human Services (2010) also noted that gay men still account for the highest rates of HIV diagnoses within the United States.

Due to increasing physical health disparities within the LGB community, researchers and medical experts have begun to recognize the importance of tailoring physical health treatments and doctor visits to be more inclusive and culturally sensitive to sexual minority people. Such cultural sensitivity includes providing a safe environment for LGB people to disclose their sexual orientation, listing sexual orientation in medical forms, open discussions about the patient's sexual orientation, and medical expert knowledge regarding the specific health needs of the LGB community. Empirical findings examining the relationship between disclosure/concealment and physical health outcomes, however, have been mixed. Though many studies have found increased disclosure associated with decreased physical health problems (Bergeron & Senn, 2003; Ullrich et al., 2004), others have found increased physical health problems from disclosure (Frost et al., 2007; Huebner & Davis, 2005). The presence of mixed findings prompts the need to more deeply and carefully examine the relationship between

disclosure and physical health outcomes through the use of meta-analytic methods. Assessment of moderating variables and support-related mediating process will also elucidate potential systematic differences across empirical reports that can explain mixed empirical findings throughout the literature. For example, in an empirical study examining health disparities among LGB people, Fredriksen-Golden, Kim, Barkan, Muraco, and Hoy-Ellis (2013) found that bisexual men reported a higher rate of diabetes than gay men. Further, meta-analytic path analysis in this study may also identify the attainment of support-related variables from disclosure as important to increased reports of physical health outcomes. This finding would also substantiate theoretical components of Uchino's (2006) theoretical model as it relates specifically to LGB people.

Work/school. The relationship between sexual identity disclosure and work/school outcomes has been fraught with inconsistencies thereby hindering our understanding as to how disclosure relates to work/school outcomes. Theoretical literature on disclosure in the workplace has asserted that nondisclosure of one's sexual minority identity can create preoccupation about one's identity (e.g., fear of being found out as LGB) that can interfere with one's ability to work alongside coworkers and, thus, decrease job satisfaction and productivity. Button (2004), for example, commented that sexual minorities who conceal their sexual identity at work must constantly manage conversations with other coworkers and often talk ambiguously about outside relationships (e.g., using gender-neutral pronouns or changing the gender of the person they are talking about).

Empirically, the relationship between disclosure and work/school outcomes has varied. Many studies have found a positive relationship between disclosure and positive

work/school outcomes (Griffith & Hebl, 2002; Tejeda, 2006). For example, Velez et al.'s (2013) study examining identity management strategies and their relationship to reported job satisfaction found that increased counterfeiting (i.e., presenting a false heterosexual identity) and avoiding (i.e., dodging sexual orientation topics) was associated with decreased job satisfaction; however, increased integration (i.e., open identification as a sexual minority) was statistically significantly associated with increased reported job satisfaction. Other empirical reports, however, have noted a negative relationship between disclosure and work/school outcomes (Huebner & Davis, 2005; Ragins, Sing, & Cornwell, 2007; Waldo, 1999). Empirical differences in the relationship between disclosure and work/school outcomes may be attributed to the degree of social support that one perceives within the workplace or school setting. An accepting or rejecting response to a disclosure by a fellow coworker, for example, may affect workplace satisfaction. Additionally, the presence of LGB-specific resources, such as a gay/straight alliance may also affect school attendance and academic performance. Since people spend the majority of their day in workplace and school settings, clarifying the relationship between disclosure and work/school outcomes is critical.

Potential Factors Moderating the Outcomes of Disclosure and Concealment

In light of mixed empirical findings found throughout LGB disclosure and concealment literature, the use of model-driven meta-analysis is an appropriate methodological approach as it allows for the aggregation and synthesis of existing effect sizes to arrive at a more precise relationship. An additional strength of meta-analysis is that moderating variables can be tested to explain mixed empirical findings. Drawing from LGB disclosure research, demographic and methodological variables that may

moderate the disclosure—outcome relationship and explain existing mixed findings were identified. These demographic variables include age, gender, and sexual identity. Methodological variables include publication year and disclosure/concealment measurement. Below, I provide explanations for how the current literature implicates these above demographic and methodological variables as potential moderators in the relation between disclosure and outcomes.

Age. Researchers have demonstrated that sexual minority youth experience different challenges than sexual minority adults that can affect the disclosure experience. Since same-sex attraction and sexual identity often emerge in youth and young adulthood, it is likely that disclosure would have a greater impact on the health and well-being of LGB youth as compared to their adult counterparts who may have already disclosed their sexual orientation to others. One of the more significant stressors faced by LGB youth is high frequency of discriminatory experiences. For example, D'Augelli, Pilkington, and Hershberger (2002) noted that school-based victimization was associated with both sexual identity disclosure and posttraumatic symptoms. Further D'Augelli, Hershberger, and Pilkington (1998) found that family-based verbal and physical abuse of LGB youth was related to sexual identity disclosure. Attending to potential moderating differences of LGB youth versus LGB adults on the relationship between disclosure and outcome variables is critical.

Gender. Differences in self-disclosure between men and women have been a widely-examined topic of empirical investigation. Starting with Jourard's (1961) Self-Disclosure Questionnaire, the researcher discovered that women often disclosed personal information more than men. Jourard argued that this difference in self-disclosure arose

from gender-specific norms in which men are socialized to be less emotionally expressive than women. Since Jourard's initial investigation, empirical research on self-disclosure was prolific. In 1992, Dindia and Allen conducted a meta-analysis on gender differences in self-disclosure based on a sample of 205 empirical reports. The authors found women disclosed significantly more than men when they had a relationship with target. This finding hold important implications for potential gender differences in sexual orientation disclosure since most disclosures occur with close others rather than strangers. Existing empirical research on gender differences in sexual orientation disclosure, however, have found no statistically significant differences in overall disclosure between men and women (e.g., Balsam & Mohr, 2007; Mohr & Fassinger, 2000). Interestingly, an empirical report published by Kuyper and Fokkema (2011) found that increased openness about one's sexual orientation statistically significantly correlated with positive mental health outcome for sexual minority women but not for sexual minority men. This suggests that disclosure of one's lesbian, gay, or bisexual orientation may correlate with differently with support-related and outcome variables across gender. Meta-analysis of gender differences between disclosure and outcome variables will clarify these findings.

Sexual orientation. Although lesbian, gay, and bisexual people are all considered "sexual minorities" researchers have demonstrated considerable differences in the experiences of bisexuals as compared to lesbian and gay people. Aside from institutional and social discriminatory experiences that come with being a sexual minority, bisexual individuals must also contend with 'biphobia' which is negative beliefs and attitudes toward the bisexual community (Bennett, 1992; Ochs, 1996). These attitudes and beliefs include the denial of the existence of bisexuality and the assertion that bisexual

individuals are confused about their sexual orientation (Bennett, 1992; Ochs, 1996). Further troubling is that biphobia is often a double-discrimination experience in that both heterosexual and gay/lesbian individuals propagate and endorse these stereotypes. Aside from the increased likelihood of discrimination among bisexual individuals, differences in disclosure have also been noted. In a recent report on demographic differences in sexual identity disclosure, Gates (2010) noted that 4% of gay and lesbian individuals never told anyone about their sexual identity as compared to 25.3% of bisexuals. Among workplace settings, Gates also noted that 37.8% of gays and lesbians reported being out to their coworkers as compared to 5.8% of bisexual individuals. These large discrepancies in disclosure rates within the sexual minority community highlight the importance of examining sexual orientationas a moderator of disclosure and subsequent outcomes.

Publication year. Since the start of LGB empirical research in the 1980s, the LGB community has witnessed a dynamic shift in social, political, and cultural attitudes toward LGB people in the United States. Coming out of the AIDS crisis of the 1980s, LGB people experienced an immense degree of discrimination, harassment, and violence. Such experiences, undoubtedly, lead to negative outcomes related to being an 'out' LGB individual forced sexual minority people to remain largely concealed in their daily lives. Fortunately, societal attitudes toward LGB people have greatly changed with far more people reporting acceptance and affirmation of the LGB community. Of the more historic achievements in LGB history, same-sex marriage was declared legal throughout the country in 2015. Such immense changes in social, cultural, and political landscape raise an important consideration regarding how empirical findings pertaining to the

relationships between disclosure, support-related, and outcome variables may have changed since the 1980s to present day. Therefore, publication year of empirical reports will be assessed as a moderating variable in the relationship between disclosure, support-related, and outcome variables.

Disclosure and concealment measurement. The way in which disclosure and concealment have been measured in existing literature is an often over-looked consideration. The majority of studies operationalize disclosure and concealment to be a unidimensional construct that exist on a continuum. Specifically, greater disclosure implies less concealment. Measures of disclosure/concealment have reflected this concept through Likert-scale ratings ranging from "Completely in the closet" to "Completely out of the closet" and "No one knows about my sexual orientation" to "Everyone knows about my sexual orientation". More recently, however, researchers have suggested that, despite the similarities between disclosure and concealment, the two constructs do not lie on a continuum and are, rather, independent constructs (Jackson & Mohr, 2016; Meidlinger & Hope, 2014). Schrimshaw, Siegel, Downing, and Parsons (2013) operationally delineated disclosure and concealment by stating that concealment "is not just the absence of disclosure, but a desire to prevent disclosure" (p. 142). Jackson and Mohr (2016) noted that disclosure and concealment have different psychological functions. For example, disclosure motivations can include a desire for closeness in relationships and greater authenticity whereas concealment motivations can include avoidance of discrimination and/or embarrassment. Several empirical reports on the measurement of disclosure and concealment have also confirmed the independence of these two constructs. For example, Larson & Chastain (1990) found, through the

construction and validation of their Self-Concealment Scale, that concealment was conceptually different from disclosure and statistically significantly predicted physical and psychological symptoms after controlling for the effects of self-disclosure. Schrimshaw et al. (2013) also found disclosure and concealment to be independent constructs in their study of bisexual men. Specifically, the authors found that concealment, rather than disclosure, was significantly associated with lower levels of mental health.

More recently, Meidlinger and Hope (2014) contributed to the measurement of disclosure and concealment through the construction of their Nebraska Outness Scale (NOS). The authors chose to use the term 'outness' as means of encompassing both disclosure and concealment. In the development of the NOS, Meidlinger and Hope sought to examine whether disclosure and concealment were independent constructs while also addressing two limitations of existing disclosure and concealment measures. The first entailed inclusion of bisexual men and women in the validation of the NOS. The authors noted that existing measures were normalized using only gay men and lesbian women. The second limitation addressed in the NOS examined both initial disclosure and ongoing concealment. As noted by Meidlinger and Hope, an LGB individual can initially disclose his or her sexual orientation to a person, but avoid topics or change mannerisms that conceal one's sexual orientation after the initial disclosure. Similar to results noted by Schrimshaw et al. (2013), Meidlinger and Hope found that concealment correlated more strongly with mental health outcomes as compared to disclosure adding additional empirical support to the potential independence of these two constructs.

In the interest of further clarifying whether disclosure and concealment are empirically the same or independent, moderation analysis of existing disclosure and concealment measures will be conducted. Through identifying existing reports that theoretically examine disclosure or concealment, effect sizes will be compared. Should there be no statistically significant difference in effect size magnitude between measures of disclosure and measures of concealment, a conclusion can be drawn that disclosure and concealment are not significantly different in how the relate to support-related and outcome variables. A statistically significant difference in effect size magnitude between disclosure and concealment measures, however, will indicate that these two constructs tap into support-related and/or outcome variables more strongly than the other and justify separate examination

Current Study

The purpose of this study is to identify disclosure's empirical relationship with social-related variables (i.e., general social support, LGB-specific social support, and disclosure confidant response) and outcomes (i.e., mental health, suicidality, substance use, physical health, and work/school) using model-driven meta-analysis (Becker, 2001). See Figure 1 for a conceptual model. Model-driven meta-analysis is the quantitative synthesis of empirical findings grounded in a theoretical model. Drawing from an array of theoretical conceptualizations of disclosure and concealment including Goffman's (1963) work, Cass's (1979) homosexual identity development model, Pachankis's (2007) cognitive-affective-behavioral model of concealment, and Chaudoir and Fisher's (2010) disclosure process model, I will assess the degree to which disclosure correlates with support-related and outcome variables. In the interest of clarifying outcome variables'

mixed empirical findings, I will also examine the moderating effect of demographic (i.e., LGB youth versus LGB adults, gender, and sexual identity) and methodological (i.e., publication year, sampling method, disclosure/concealment measurement, international status, and U.S. sampling region) variables. Finally, implementation of meta-analytic path analyses will illuminate the extent to which general social support, LGB-specific social support and disclosure confidant response individually mediate the relationship between disclosure and individual outcomes (i.e., mental health, suicidality, substance use, physical health and work/school).

The findings from this study will have far-reaching implications. This meta-analysis will assist researchers, mental health practitioners, and community agencies in helping LGB individuals navigate the coming-out process. Specifically, with knowledge of moderating variables in the disclosure—outcome relationship, particular demographic groups can be targeted for intervention studies that assist with the coming-out process. For example, should moderation results reveal that the relationship between disclosure and mental health outcomes is stronger for LGB youth than adults, researchers can focus intervention efforts on helping LGB youth work through the coming-out process and identify specific barriers to disclosure that LGB youth experience. Attending to specific demographic groups identified through moderation analysis is important because it helps tailor intervention packages and also saves on limited economic resources by not providing intervention work to demographic groups that would not benefit from it. Further, identification of mediating variables will allow mental health professionals to work with their LGB clients on building meaningful support. This meta-analysis will also directly benefit LGB individuals either struggling with the decision to disclose their

sexual orientation or currently in the coming-out process. Since the early stages of the coming-out process can feel isolating and lonely due to being "out" to very few people—or no one at all—these findings will provide LGB people with an understanding of what can happen when one discloses as well as disclosure risk factors (i.e., moderating variables) that could result in negative outcomes.

Model-Based Meta-Analysis

Existing literature examining LGB disclosure has generated conflicting findings and obstructed our understanding of whether LGB disclosure is as beneficial as thought to be. Examining what factors may affect whether or not disclosure is beneficial or harmful in relation to outcomes is an important contribution to the growing literature on LGB mental health. Further, demographic and methodological variables that may clarify these mixed findings remains unexamined. Model-based meta-analysis (Becker, 2009) is a well-suited methodological approach to address these existing questions for several reasons. Unlike traditional meta-analysis, model-based meta-analysis is grounded within a theoretical framework which permits the testing of specific components of a theory. The testing of components of a theoretical framework can offer empirical support to existing theory or provide areas of revision. Model-based meta-analysis also differs from traditional meta-analysis in that it allows for the testing of indirect effects within a theoretical framework. The testing of indirect effects also permits the examination of mediating effects of a theoretical model.

In addition to the advantages of model-based meta-analysis provided above, traditional meta-analytic methods and the methodological strengths of meta-analysis are also incorporated. First, model-based meta-analysis can resolve mixed findings through

moderation analyses grounded in theoretical framework. Moderating analysis allows for the testing of factors that are suspected to produce systematic differences in effect sizes. Since meta-analysis includes all existing studies pertaining to a specific topic, demographic (e.g., sexual identity) and methodological (e.g., sample source) variables can be examined to assess whether positive and negative outcomes of disclosure/concealment are a function of these variables. Second, the quantitative synthesis of all existing study findings increases the statistical power to detect statistically significant findings and increase precision. Third, meta-analytic findings generalize beyond reports included in meta-analysis through the use of random effects modeling. Finally, meta-analysis can assess for the potential of publication bias (i.e., the publication of only statistically significant findings; Cooper, 2009; Cooper et al., 2009). Together these strengths make model-based meta-analysis an appropriate methodological approach for the purpose of this study.

Research Questions

This model-based meta-analysis will address the following questions:

1) What is the overall relationship between disclosure/concealment and general social support, LGB-specific social support, and disclosure confidant acceptance?

2) What is the overall relationship between disclosure/concealment and mental health, suicidality, substance use, physical health, and work/school outcomes?

3) What demographic variables (i.e., age, gender, and sexual orientation) and methodological variables (i.e. publication year and

disclosure/concealment measurement) account for mixed empirical findings in the relationships between disclosure and support-related variables and disclosure and outcome variables?

4) Is the disclosure/concealment—outcome relationship mediated by support related variables (i.e., general social support, LGB-specific social support, and disclosure confidant acceptance)?

CHAPTER 3

METHOD

The purpose of this study was to quantitatively synthesize the extant body of empirical literature on LGB disclosure/concealment using model-driven meta-analysis. Meta-analysis clarified mixed findings found within the literature regarding the purported benefits and risks of disclosure and concealment. Meta-analysis also allowed for the identification of demographic and methodological variables that could explain existing mixed findings. Finally, meta-analytic path analysis identified whether general social support, LGB-specific social support, and disclosure confidant response mediated the disclosure—outcome relationship. Below, I provided a detailed summary of the methodology used in this study.

Literature Search Procedures

To ensure that the literature search captured all studies of interest, I conducted a computerized Boolean search in January 2015 utilizing the following databases: PsychINFO, PsycARTICLES, MEDLINE, and Dissertations and Theses (ProQuest). The search terms used were as follows: (lesbian OR gay OR bisexual OR lgb Or homosexual) AND (disclosure OR concealment OR "coming out"). Empirical studies and human subjects were also included as filters. Search findings yielded 6,706 possible reports which were then exported to the citation manager Endnote for further screening. Using titles and abstracts, myself and Dr. Debbiesiu Lee independently examined each report for possible inclusion into the study. Disagreements throughout the sorting process were resolved through discussion until we reached 100% agreement.

Through this sorting process, 5,042 reports were excluded for not being relevant (i.e., not related to LGB disclosure/concealment), 788 reports were duplicates, and 279 reports were qualitative. Electronic copies for the remaining 597 reports were obtained and the full reports were independently examined to ensure that the report met inclusion criteria. This process resulted in 51 reports being excluded for being conceptual articles and an additional 338 studies excluded for not being relevant to the meta-analysis. The reference section of each of the remaining studies was scanned to assess for additional relevant studies not captured in the literature search.

There was one instance in which a dissertation was later published (Jordan 1995, 2000). In this case, I excluded the dissertation and retained the published study to eliminate redundancies in the dataset. There were also several studies which reported findings separated by either sexual orientation (e.g., Alford-Keating, 1991; Berger, 1990; Herek, 1998; Mohr & Fassinger, 2000), gender (e.g., Bailey, 2012; Bosker, 2002; Rosario et al., 2001), or nationality (e.g., Chow & Cheng, 2010; St. Pierre, 2013) and were thus treated as separate samples. The final sample comprised 157 studies and 177 independent samples. Of the 157 reports included in the database, 98 studies came from peer-reviewed journals, 58 studies were dissertations, and one study came from a book chapter.

Criteria for Including and Excluding Studies

To be eligible for inclusion in the meta-analysis, I implemented several inclusion/exclusion criteria. As a search delimiter, all eligible studies had to be reported in English. Second, a variable examining lesbian, gay, or bisexual sexual orientation disclosure and/or concealment needed to be included in the statistical analysis. Third, all studies had to be empirical and contain sufficient statistical information to calculate effect

sizes (e.g., mean, standard deviation, sample size). For studies in which there were no statistics from which effect sizes could be gathered, the first authors were contacted. If the authors were unable to provide a correlation matrix, I computed effect sizes utilizing an effect size calculator. Finally, each study had to include a sample of lesbian, gay, and/or bisexual individuals. For studies including heterosexual participants, separate statistical information for sexual minority groups was required.

Proposed Data Coding

For studies meeting the inclusion criteria, I created a coding database and recorded study features based on four categories. The first category, *study characteristics*, included the publication type (i.e., published study, dissertation, and book chapter) and publication year. The second category, *sample characteristics*, included age (means, SD, and range), sexual orientation (lesbian, gay, bisexual, or mixed sample), and gender (male, female, or mixed sample). The third category, *study variables*, included measures of disclosure/concealment, mediating processes (i.e., general social support, LGB-specific social support, and disclosure confidant response), and outcomes (i.e., mental health, suicidality, substance use, physical health, and work/school). The final category, *measure characteristics*, assessed whether the disclosure/concealment measure utilized reflected disclosure (i.e., other's knowing about your sexual orientation, coming-out/being out to people, etc.) or concealment (i.e., hiding one's sexual minority identity/passing as heterosexual). The coding sheet used in this study is provided in Appendix A. Operational definitions for study variables are included in Table 1.

Coder Reliability and Validity

A fundamental task of conducting a meta-analysis is the valid and accurate coding of empirical report effect sizes and empirical report study, sample, and measure characteristics. To ensure the validity of this meta-analysis two waves of coding and cross-validation were conducted. In the first wave, the principal investigator trained an undergraduate student in the methodological approach of meta-analytic coding. To assess the student's mastery and accuracy of coding, the first 10% of empirical reports were checked by the principal investigator. Any coding errors made by the student were explained and clarified by the principal investigator. Upon completion of coding by the undergraduate student, inter-rater agreement between the student and principal investigator was calculated and yielded a 96% accuracy. Errors flagged by the undergraduate student were revisited by the principal investigator and corrected until 100% agreement was reached. In the second wave of data coding and validation, the dissertation chairperson, Dr. Debbiesiu Lee, served as the expert rater and examined all study codes to ensure that all variables were coded in accordance with theory.

Effect Size

Pearson Product Moment Correlation Coefficients (*r*) was the effect sizes of interest in this meta-analysis. The direction of the correlation coefficient (i.e., positive or negative) was adjusted so that all effect sizes of interest were in the same direction as hypothesized. For example, for the relationship between disclosure and satisfaction with life (Balsam & Mohr, 2007), effect sizes were reverse coded to be consistent with other variables measuring the relationship between disclosure and poor mental health outcomes (e.g., depression, anxiety, stress).

In the literature search, 22 empirical reports were flagged for being relevant to this meta-analysis but utilized effect sizes other than correlation (e.g., odds ratio, Cohen's *d*). To include these empirical reports in this meta-analysis, effect sizes were transformed into correlation coefficients (Please see Appendix B). Due to the non-normality of correlation coefficients (Hedges & Olkin, 1985), I transformed correlation coefficients to Fisher's *z*s using the following formula: $z_i = .5 * \ln\left(1 + r_i / 1 - r_i\right)$, where *z* is the Fisher's *z* value, *r* is the Pearson correlation coefficient, the subscript *i* indicates the *i*th Pearson correlation coefficient and the corresponding *i*th Fisher's *z* coefficient, and ln is the natural logarithm. Fisher's z coefficients also have a conditional variance of $v_i = 1/(n_i - 3),$ in which *v* is the variance of Fisher's *z*, *n* is the sample size, and the subscript *i* indicates the *i*th sample size and the corresponding *i*th variance. For interpretive purposes, Fisher's *z* coefficients will then be back-transformed to Pearson *r* correlations ($r(z_i) = (e^{2z_i} - 1)/(e^{2z_i} + 1)$), where *z* indicates the Fisher's *z* value, *e* is Euler's number (i.e., 2.72), and the subscript *i* indicates the *i*th Fisher's *z* coefficient (Borenstein, 2009).

Dependency

There were several instances in which multiple effect sizes from the same sample represented the same category. Since meta-analysis requires one effect size per category per sample, this dependency was corrected for by averaging effect sizes (Becker, 2000). Two types of dependency arose. The first pertained to effect sizes from measure subscales. Two approaches to correcting for this dependency were used. First, if the authors provided the overall measure effect size, this effect size was used. If no overall effect size was reported, subscales were averaged together. For example, Szymanski and

Sung (2010) provided effect sizes for two subscales of the Outness Inventory (i.e., 'Outness to Family' and 'Outness to World'). These two effect sizes were averaged together so that one effect size for disclosure was included. Multiple variables representing the same category was the second type of dependency. These effect sizes were averaged together so there was an aggregated effect size representing the construct of interest. For example, Lehavot & Simoni (2011) provided effect sizes for depressive symptoms and anxiety symptoms. Since both variables represented mental health outcomes, these two effect sizes were averaged together so one mental health outcome effect size per study was used in the analysis.

A caveat of aggregating dependent effect sizes is that the variance of the effect size will be inflated. An inflated variance will result in an increased standard error, which will decrease the likelihood of finding statistical significance. To correct for inflated variances within aggregated dependent effect sizes, Borenstein's (2009) formula was used: $v(\overline{T}) = \frac{1}{m^2}\left(\sum_{j}^{m} v_j + \sum_{j \neq k} \left(r_{jk}\sqrt{v_j}\sqrt{v_K}\right)\right)$, where $\overline{T}$ is the mean effect size, *m* is the number of dependent effect sizes, *v* is the variance for each effect size from study *j* through *k*, and *r* is the intercorrelation of dependent effect sizes. The assigned weight for the intercorrelation of dependent effect sizes was set at .50 indicating a strong correlation (Cohen, 1988). Since all dependent effect sizes were grouped together based on theoretical conceptualization (i.e., mental health variables, physical health variables, suicidality, etc.) a strong intercorrelation would be expected.

Statistical Analyses

Publication bias. In addition to clarifying mixed findings among empirical reports, meta-analysis also offers the advantage of testing for publication bias (i.e., the

publication of only statistically significant findings). Also referred to as the 'file-drawer problem', attention to publication bias has become an important area of consideration in the interpretation of study findings (Sutton, 2009). To assess for publication bias in this meta-analysis, the funnel plot method, Egger's regression test of the intercept (Egger, 1997), and Rosenthal's fail-safe *N* (Rosenberg, 2005) were implemented.

The funnel plot method is a graphical method to display the relationship between a study's effect size and sample size. Studies with larger sample sizes are often positioned near the center of the mean effect size and toward the top of the graph. Smaller studies, however, appear more spread out across the graph, due to greater sampling error and variance, and are located lower on the graph. In the absence of publication bias, this clustering should create a symmetrical, funnel-shaped pattern. The strength of this approach is that it provides a visual display of publication bias; however, a weakness of this approach is the subjective interpretation of whether a funnel shape exists.

A more formal and statistical test of funnel plot asymmetry (i.e., publication bias) is Egger's regression test of the intercept (Egger, 1997). Utilizing linear regression, the standardized effect estimate (i.e., the effect size divided by its standard error) is regressed onto precision (i.e., 1/*SE* in which *SE* is the standard error). When the intercept is not statistically significant (i.e., $p > .05$), there is not sufficient evidence to support the presence of publication bias. A weakness of this approach to publication bias, however, is that statistical power to detect publication bias is dependent on the number of studies included in the analysis. Therefore, tests of publication bias with few studies may be less likely to detect publication bias using this method.

One of the earliest statistical tests of publication bias was the fail-safe *N* method (Rosenthal, 1979) which calculated the number of additional studies with a mean effect size of zero that would need to be added to the meta-analysis to make the mean effect size no longer statistically significant (i.e., $p > .05$). The formula is as follows: $N_{FailSafe} = (\frac{N_0}{Z_c^2})(N_0\bar{Z}_0^2 - Z_c^2)$, where N_0 is the number of studies, Z_c is the critical value of Z (i.e., $p = .05$), and $\bar{Z}$ is the mean Z obtained for the N_0 studies. The fail-safe number allows researchers to evaluate the robustness of the meta-analytic finding and create confidence that the mean effect size is not an artifact of bias. In determining criteria for publication bias, Rosenthal propose a conservative tolerance level of $(5k + 10)$ where k is the number of obtained empirical reports. For example, should there be 100 retrieved empirical reports, 510 reports would have had to be put in the 'file-drawer' or unpublished before one could conclude that the overall results were due to sampling bias. Should the fail-safe number obtained from Rosenthal's formula be larger than the tolerance level, there would be greater confidence that publication bias is not present. Although the fail-safe *N* approach offers a statistical computation of publication bias, a central criticism of this approach is that the sample size of null results are not considered and effect sizes are assumed to be zero, rather than negative, for example, in which case fewer studies would be required. Within this meta-analysis, testing of Rosenthal's failsafe *N* was conducted using the website http://www.rosenberglab.net/software.html.

Given the unique strengths and weaknesses of each test of publication bias, incorporation of multiple tests of publication bias is warranted. This multiple method approach also reduces Type 1 error of publication bias (i.e., finding publication bias when

it does not exist). The utilization of multiple measures of publication bias testing mirrors the 'tandem procedure' implemented by Ferguson and Brannick (2011).

Overall analysis. All analyses were conducted using macros provided by Wilson (2005). In accordance with methods proposed by Hedges and Olkin (1985) and Cooper, Hedges, and Valentine (2009), random-effects modeling was used so that findings could extend beyond empirical reports included in the database. Random-effects modeling provides an additional methodological advantage by correcting for the possibility of committing a Type I error (Borenstein, Hedges, Higgins, & Rothstein, 2009; Hedges & Vevea, 1998; Raudenbush, 2009). Restricted maximum likelihood will calculate the variability beyond sampling error (Enders & Bandalos, 2001). To assess the amount of unaccounted for heterogeneity in each meta-analytic analysis, the Q statistic was used (Cooper, 2009). To provide a percentage of unaccounted for variance, the Q statistic was then transformed into I^2. The obtained percentage describes the variability in effect size estimates that is due to heterogeneity rather than sampling error. Interpretive heuristics for I^2 indicate that zero percent to 30 percent is small heterogeneity, 30% to 60% is moderate heterogeneity, and 60% to 100% is large heterogeneity (Higgins, Thompson, Deeks, & Altman, 2003). I^2 is calculated as follows: $I^2 = ((Q - df)/Q)X\ 100\%$, where I is the percentage of unaccounted for variance, Q is the degree of heterogeneity, and df is the degrees of freedom (k – 1), where k is the number of effect sizes

Moderation analyses. To test for the moderating effect of the proposed demographic and methodological variables on disclosure and outcomes, mixed-effect categorical moderator analysis was used. Moderator analysis was used to account for heterogeneity (i.e., Q statistic) and systematic differences in effect sizes. In categorical

moderator analysis, the identified moderator variable was coded into specified groups (e.g., 1 = gay; 2 = lesbian; 3 = bisexual; 1 = male, 2 = female). ANOVA-like comparisons calculated the between-group differences in effect size magnitude. In the event of a statistically significant moderating effect between three or more groups, post-hoc contrast analysis utilizing a Bonferroni correction was conducted to identify statistically significant differences between groups.

Meta-analytic path analysis. Chaudoir and Fisher's (2010) disclosure process model offers explanation as to why disclosure results in positive health and relational outcomes through the identification of mediation variables. To test the mediating effect of support-related variables on the disclosure—outcome relationship meta-analytic path analysis was implemented. Meta-analytic path analysis has become an increasingly utilized methodology in meta-analysis research. (Brown, 2008; Moller, Pohlmann, Koller, & Marsh, 2009; Sheu, Lent, Brown, Miller, & Hennessey, 2010). Unlike traditional meta-analysis, which examines solely effect sizes such as correlation (e.g., the relationship between disclosure/concealment and mental health outcomes), meta-analytic path analysis allows for the testing of indirect, or mediated, effects through modeling (e.g., the effect of disclosure on mental health outcomes via general social support). An additional strength of meta-analytic path analysis—opposed to traditional, primary data path analysis—is that meta-analytic findings are well-powered to detect mediation. Sufficient sample size and statistical power are often limitations in primary data path analysis.

Meta-analytic path analysis was conducted utilizing MPlus statistical software. In the interest of examining the individual mediating effect of each support variable on each

disclosure—outcome relationship, separate meta-analytic path analyses were conducted. For example, general social support was tested as a mediator for the relationship between disclosure and mental health, disclosure and physical health and disclosure, and work/school outcomes. Although this approach does not consider the interdependency between mediating and outcome variables, it does offer preliminary information regarding the individual mediating effects on each disclosure—outcome relationship.

The following procedures were used to conduct the meta-analytic path analysis. First, empirical reports were identified that contained the specified mediator and outcome variables. For example, in conducting the meta-analytic path analysis for the mediating effect of general social support on the relationship between disclosure and mental health, all studies containing a general social support variable and mental health variable were flagged for inclusion. After these empirical reports were identified, random-effects meta-analysis was conducted to obtain the weighted mean effect sizes for the relationship between disclosure and the mediating variable, disclosure and the outcome variable, and the mediating variable and the outcome variable. Weighted mean effect sizes obtained from the random-effects meta-analysis were then back-transformed into correlations using the formula noted earlier. The obtained weighted mean correlation matrix was then entered into MPlus. The average sample size of included empirical reports was used as the sample size for analysis. Full information maximum likelihood was used as the estimator for all analyses. Confidence intervals using bootstrapping techniques were also obtained.

A model-trimming approach was implemented to assess the partial and fully-mediating effect of the specified mediator on the disclosure—outcome relationship. To

assess for the presence of mediation the four-step test of mediation outlined by Baron and Kenny (1986) was used. These steps include (1) determining that the independent variables (i.e., disclosure) statistically significantly correlates with the outcome variable, (2) determining that the independent variable statistically significantly correlates with the mediating variable, (3) determining that the mediating variable statistically significantly predicts the outcome variable after controlling for the effect of the independent variable, and (4) determining that the mediating variable completely mediates the disclosure—outcome relationship by constraining the disclosure—outcome path to zero. To assess model-fit for the fully mediating model, model fit estimates proposed by Hu & Bentler (1999) were implemented (i.e., CFI $\geq$ .95; RMSEA $\leq$ .06; SRMR $\leq$ .08).

CHAPTER 4

RESULTS

Description of Studies

A total of 583 correlation coefficients (*rs*) were extracted from 177 independent samples from 157 empirical reports. Within the 177 independent samples, 22 empirical reports utilized effect studies other than correlation (e.g., Cohen's *d*, odds ratio). These effect sizes were transformed to correlation coefficients (see Appendix B for transformation equations). No statistically significant difference in effect size magnitude was found between correlational and non-correlational studies ($Q_{Between} = 0.28$, $p = .60$). The publication date of these empirical reports range from 1980 to 2014 and comprised international and national reports. Data collection methods varied and included Internet, work places, mental health clinics, community organizations, print advertisements, and mixed methods. All reports employed convenience sampling. The sample size of these empirical reports ranged from 20 to 2,401 participants ($M = 284.99$, $SD = 326.90$) yielding a total of 54,434 participants included in the meta-analysis. Participants included in this meta-analysis ranged in age from 12- to 95-years-old ($M = 32.98$, $SD = 8.16$). Of samples reporting gender, 24,997 participants were male and 27,914 were female. Of samples reporting sexual orientation by group, 13,366 participants identified as gay, 15,807 participants identified as lesbian, and 6,059 identified as bisexual.

Publication Bias

To assess for publication bias in this meta-analysis (i.e., the publication of only statistically significant findings), I employed the use of the funnel-plot method

, Rosenthal's fail-safe *N,* and Egger's regression test of the intercept. As shown in Figure 2, results obtained from the funnel plot indicated low likelihood of publication bias as evidenced by the funnel shape of the distribution. Results of Rosenthal's fail-safe *N* were statistically significant suggesting no evidence of publication bias, $t(582) = -29.91$, $p < .001$ and revealed that 56,734 effect sizes with a mean score of zero would need to be added to the analysis before the combined effect would no longer be statistically significant. This number is larger than the tolerance level of 795 (5(157) + 10) suggesting publication bias is not present. Finally, Egger's regression test of the intercept revealed a statistically non-significant finding $t(582) = -0.43$, $p = .66$ providing further evidence for the lack of publication bias in this study.

Disclosure/Concealment's Overall Relationship with Support Variables

General social support. To obtain the weighted mean effect size for the relationship between disclosure/concealment and general social support, I conducted a random effects meta-analysis. Random effects modeling was chosen over fixed effects modeling so that the findings could generalize beyond reports included in this meta-analysis (Cooper et al., 2009; Hedges and Olkin, 1985). A total of 62 effect sizes were utilized in this analysis. Random effects modeling revealed a small-to-medium statistically significant and positive relationship between disclosure and general social support ($\overline{r} = .21$, $LL = .17$, $UL = .24$, $z = 12.34$, $p < .001$). This finding suggests that increases in disclosure, or "outness", are associated with increased reports of general social support. Random effects modeling also indicated a large and statistically significant degree of heterogeneity ($Q = 553.86$, $I^2 = 88.98\%$, $p < .001$) suggesting

unaccounted for variance in the relationship between disclosure and general social support and potential moderating variables. See Table 2.

LGB social support. To examine the weighted mean relationship between disclosure and LGB-specific social support, a total of 31 effect sizes were utilized in this analysis. Random effects modeling revealed a small-to-medium statistically significant and positive relationship between disclosure and LGB social support ($\overline{r}$ = .23, *LL* = .17, *UL* = .28, *z* = 7.98, *p* < .001). This finding suggests that increases in disclosure, or "outness", are associated with increased reports of LGB social support. Random effects modeling also indicated a large and statistically significant degree of heterogeneity (*Q* = 345.92, I^2 = 91.40%, *p* < .001) suggesting unaccounted for variance in the relationship between disclosure and general social support and potential moderating variables. See Table 2.

Disclosure confidant acceptance. To examine the weighted mean relationship between disclosure and disclosure confidant acceptance, a total of 15 effect sizes were utilized in this analysis. Random effects modeling revealed a medium statistically significant and positive relationship between disclosure and disclosure confidant acceptance ($\overline{r}$ = .31, *LL* = .17, *UL* = .46, *z* = 4.16, *p* < .001). This finding suggests that increases in disclosure, or "outness", are associated with increased reports of acceptance from those to whom LGB individuals disclose. Random effects modeling also indicated a large and statistically significant degree of heterogeneity (*Q* = 407.45, I^2 = 96.56%, *p* < .001) suggesting unaccounted for variance in the relationship between disclosure and disclosure confidant acceptance and potential moderating variables. See Table 2.

Disclosure/Concealment's Overall Relationship with Outcome Variables

Psychological distress. To examine the weighted mean relationship between disclosure and psychological distress, a total of 92 effect sizes were utilized in this analysis. Random effects modeling revealed a small statistically significant and negative relationship between disclosure and psychological distress ($\overline{r}$ = -.16, *LL* = -.18, *UL* = -.14, *z* = -14.98, *p* < .001). This finding suggests that increases in disclosure, or "outness", are associated with decreased reports of psychological distress. Random effects modeling also indicated a large and statistically significant degree of heterogeneity (*Q* = 440.66, I^2 = 79.20%, *p* < .001) suggesting unaccounted for variance in the relationship between disclosure and psychological distress and potential moderating variables. See Table 2.

Suicidality. To examine the weighted mean relationship between disclosure and suicidality, a total of 12 effect sizes were utilized in this analysis. Random effects modeling revealed a statistically nonsignificant relationship between disclosure and suicidality ($\overline{r}$ = .02, *LL* = -.06, *UL* =.10, *z* = 0.42, *p* = .67). This finding suggests that disclosure shares no empirical relationship with reports of suicidality. Despite obtaining a statistically nonsignificant relationship between disclosure and suicidality, random effects modeling did reveal a statistically significant degree of heterogeneity (*Q* = 82.45, I^2 = 86.65%, *p* < .001) suggesting unaccounted for variance and potential moderating variables that can account for the statistically nonsignificant finding. See Table 2.

Substance use. To examine the weighted mean relationship between disclosure and substance use, a total of 16 effect sizes were utilized in this analysis. Random effects modeling revealed a statistically nonsignificant relationship between disclosure and

substance use ($\overline{r}$ = -.01, *LL* = -.07, *UL* =.06, *z* = -0.16, *p* = .88). This finding suggests that disclosure shares no empirical relationship with reports of substance use. Despite obtaining a statistically nonsignificant relationship between disclosure and substance use, random effects modeling did reveal a statistically significant degree of heterogeneity (*Q* = 168.18, I^2 = 91.08%, *p* < .001) suggesting unaccounted for variance and potential moderating variables that can account for the statistically nonsignificant finding. See Table 2.

Poor physical health. To examine the weighted mean relationship between disclosure and poor physical health outcomes, a total of 23 effect sizes were utilized in this analysis. Random effects modeling revealed a small statistically significant and negative relationship between disclosure and poor physical health ($\overline{r}$ = -.09, *LL* = -.15, *UL* = -.03, *z* = -3.14, *p* < .01). This finding suggests that increases in disclosure, or "outness", are associated with decreased reports of poor physical health. Random effects modeling also indicated a statistically significant degree of heterogeneity (*Q* = 132.84, I^2 = 93.97%, *p* < .001) suggesting unaccounted for variance in the relationship between disclosure and poor physical health and potential moderating variables. See Table 2.

Poor work/school outcomes. To examine the weighted mean relationship between disclosure and poor work/school outcomes, a total of 25 effect sizes were utilized in this analysis. Random effects modeling revealed a small statistically significant and negative relationship between disclosure and poor work/school outcomes ($\overline{r}$ = -.09, *LL* = -.12, *UL* = -.05, *z* = -5.82, *p* < .001). This finding suggests that increases in disclosure, or "outness", are associated with decreased reports of poor work/school outcomes. Random effects modeling also indicated a statistically significant degree of

heterogeneity (Q = 132.84, I^2 = 81.93%, p = < .001) suggesting unaccounted for variance in the relationship between disclosure and poor work/school outcomes and potential moderating variables. See Table 2.

Testing of Identified Moderating Variables on the Relationship Between Disclosure/Concealment and Support and Disclosure/ Concealment and Outcome Variables

Despite obtaining statistically significant weighted mean effect sizes for the relationship between disclosure/concealment and particular support and outcome variables, a statistically significant, and often large, amount of heterogeneity remained (see Q statistic in Table 1). This statistically significant heterogeneity suggests unaccounted variance in the relationships between disclosure/concealment and support, and disclosure/ concealment and outcomes variables. The testing of moderating variables helps to account for this unexplained variance. Further, since Table 1 provides overall mean effect sizes, the testing of moderating variables may also explain the lack of statistically significant (near zero) mean correlations between disclosure/concealment and the outcome variables suicidality and substance use.

Drawing from the existing body of LGB disclosure/concealment research, the following moderating variables were tested to account for unexplained variance among disclosure/concealment and their relationship with support and outcomes variables: (1) LGB youth and adults, (2) gender, (3) sexual orientation, (4) publication year, and (5) disclosure/concealment measurement. ANOVA-like methods were utilized for categorical variables whereas random-intercept regression methods were implemented for continuous variables.

Moderator Analysis of LGB Youth and Adults on the Relationship Between Disclosure and Support Variables

General social support. To test the moderating effect of LGB youth and adults on the overall relationship between disclosure and general social support, a mixed effects moderation analysis was implemented. A total of 62 effect sizes were utilized in this moderation analysis. Results indicated a statistically nonsignificant moderating effect (Q_{Model} = 0.63, p = .43). This finding suggests that weighted mean effect size for the relationship between disclosure and general social support does not statistically significantly vary between LGB youth and adults.

LGB social support. To test the moderating effect of LGB youth and adults on the overall relationship between disclosure and LGB social support, a mixed effects moderation analysis was implemented. A total of 31 effect sizes were utilized in this moderation analysis. Results indicated a statistically nonsignificant moderating effect (Q_{Model} = 0.85, p = .35). This finding suggests that weighted mean effect size for the relationship between disclosure and LGB social support does not statistically significantly vary between LGB youth and adults.

Disclosure confidant acceptance. To test the moderating effect of LGB youth and adults on the overall relationship between disclosure and disclosure confidant acceptance, a mixed effects moderation analysis was implemented. A total of 15 effect sizes were utilized in this moderation analysis. Results indicated a statistically nonsignificant moderating effect (Q_{Model} = 0.47, p = .43). This finding suggests that weighted mean effect size for the relationship between disclosure and disclosure

confidant acceptance does not statistically significantly vary between LGB youth and adults.

Moderator Analysis of LGB Youth and Adults on the Relationship between Disclosure and Outcome Variables

Psychological distress. To test the moderating effect of LGB youth and adults on the overall relationship between disclosure and psychological distress, a mixed effects moderation analysis was implemented. A total of 92 effect sizes were utilized in this moderation analysis. Results indicated a statistically nonsignificant moderating effect (Q_{Model} = 1.51, p = .22). This finding suggests that weighted mean effect size for the relationship between disclosure and psychological distress does not statistically significantly vary based between LGB youth and adults.

Suicidality. To test the moderating effect of LGB youth and adults on the overall relationship between disclosure and suicidality, a mixed effects moderation analysis was implemented. A total of 12 effect sizes were utilized in this moderation analysis. Results indicated a statistically nonsignificant moderating effect (Q_{Model} = 1.71, p = .19). This finding suggests that weighted mean effect size for the relationship between disclosure and suicidality does not statistically significantly vary between LGB youth and adults.

Substance use. To test the moderating effect LGB youth and adults on the overall relationship between disclosure and substance use, mixed effects moderation analysis was implemented. A total of 16 effect sizes were utilized in this moderation analysis. Results indicated a statistically nonsignificant moderating effect (Q_{Model} = 1.71, p = .19). This finding suggests that weighted mean effect size for the relationship between

disclosure and substance use does not statistically significantly vary between LGB youth and adults.

Poor physical health. To test the moderating effect of LGB youth and adults on the overall relationship between disclosure and poor physical health, a mixed effects moderation analysis was implemented. A total of 23 effect sizes were utilized in this moderation analysis. Results indicated a statistically nonsignificant moderating effect (Q_{Model} = 0.75, p = .39). This finding suggests that weighted mean effect size for the relationship between disclosure and poor physical health does not statistically significantly vary between LGB youth and adults.

Poor work/school outcomes. To test the moderating effect of LGB youth and adults on the overall relationship between disclosure and poor work/school outcomes, a mixed effects moderation analysis was implemented. A total of 25 effect sizes were utilized in this moderation analysis. Results indicated (Q_{Model} = 0.25, p = .62). This finding suggests that weighted mean effect size for the relationship between disclosure and poor work/school outcomes does not statistically significantly vary between LGB youth and adults.

Moderator Analysis of Gender on the Relationship between Disclosure and Support Variables

General social support. To test the moderating effect of gender on the overall relationship between disclosure and general social support, a mixed effects moderation analysis was implemented. A total of 33 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically

nonsignificant moderating effect of gender on the relationship between disclosure and general social support ($Q_{Between}$ = 1.20, p = .27). This finding suggests that the weighted mean effect size for the relationship between disclosure and general social support does not statistically significantly vary across gender.

LGB social support. To test the moderating effect of gender on the overall relationship between disclosure and LGB social support, a mixed effects moderation analysis was implemented. A total of 15 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of gender on the relationship between disclosure and LGB social support ($Q_{Between}$ = 0.39, p = .53). This finding suggests that the weighted mean effect size for the relationship between disclosure and LGB social support does not statistically significantly vary across gender.

Disclosure confidant acceptance. To test the moderating effect of gender on the overall relationship between disclosure and disclosure confidant acceptance, a mixed effects moderation analysis was implemented. A total of 9 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of gender on the relationship between disclosure and disclosure confidant acceptance ($Q_{Between}$ = 0.48, p = .49). This finding suggests that the weighted mean effect size for the relationship between disclosure and disclosure confidant acceptance does not statistically significantly vary across gender.

Moderator Analysis of Gender on the Relationship between Disclosure and Outcome Variables Psychological distress. To test the moderating effect of gender on the overall relationship between disclosure and psychological distress, a mixed effects

moderation analysis was implemented. A total of 54 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of gender on the relationship between disclosure and psychological distress ($Q_{Between}$ = 0.83, p = .36). This finding suggests that the weighted mean effect size for the relationship between disclosure and psychological distress does not statistically significantly vary across gender.

Suicidality. Due to the absence of effect sizes in this database that examined suicidality separately across gender, I was not able to conduct a moderation analysis.

Substance use. To test the moderating effect of gender on the overall relationship between disclosure and substance use, a mixed effects moderation analysis was implemented. A total of 9 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of gender on the relationship between disclosure and substance use ($Q_{Between}$ = 2.53, p = .11). This finding suggests that the weighted mean effect size for the relationship between disclosure and substance use does not statistically significantly vary across gender.

Poor physical health. To test the moderating effect of gender on the overall relationship between disclosure and poor physical health, a mixed effects moderation analysis was implemented. A total of 18 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of gender on the relationship between disclosure and poor physical health outcomes ($Q_{Between}$ = 2.36, p = .12). This finding suggests that the

weighted mean effect size for the relationship between disclosure and poor physical health does not statistically significantly vary across gender.

Work/school outcomes. To test the moderating effect of gender on the overall relationship between disclosure and poor work/school outcomes, a mixed effects moderation analysis was implemented. A total of 10 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of gender on the relationship between disclosure and poor work/school outcomes ($Q_{Between} = 0.73$, $p = .39$). This finding suggests that the weighted mean effect size for the relationship between disclosure and poor work/school outcomes does not statistically significantly vary across gender.

Moderator Analysis of Sexual Orientation on the Relationship between Disclosure and Support Variables

General social support. To test the moderating effect of sexual orientation on the overall relationship between disclosure and general social support, a mixed effects moderation analysis was implemented. A total of 16 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of sexual orientation on the relationship between disclosure and general social support ($Q_{Between} = 1.12$, $p = .29$). This finding suggests that the weighted mean effect size for the relationship between disclosure and general social support does not statistically significantly vary across sexual orientation.

LGB social support. To test the moderating effect of sexual orientation on the overall relationship between disclosure and LGB social support, a mixed effects

moderation analysis was implemented. A total of 8 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of sexual orientation on the relationship between disclosure and LGB social support ($Q_{Between}$ = 1.18, p = .55). This finding suggests that the weighted mean effect size for the relationship between disclosure and LGB social support does not statistically significantly vary across sexual orientation.

Disclosure confidant acceptance. To test the moderating effect of sexual orientation on the overall relationship between disclosure and disclosure confidant acceptance, a mixed effects moderation analysis was implemented. A total of 9 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of sexual orientation on the relationship between disclosure and disclosure confidant acceptance ($Q_{Between}$ = 0.48, p = .49). This finding suggests that the weighted mean effect size for the relationship between disclosure and disclosure confidant acceptance does not statistically significantly vary across sexual orientation.

Moderator Analysis of Sexual Orientation on the Relationship between Disclosure and Outcome Variables

Psychological distress. To test the moderating effect of sexual orientation on the overall relationship between disclosure and psychological distress, a mixed effects moderation analysis was implemented. A total of 34 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of sexual orientation on the relationship between disclosure and psychological distress ($Q_{Between}$ = 1.22, p = .54). This finding

suggests that the weighted mean effect size for the relationship between disclosure and psychological distress does not statistically significantly vary across sexual orientation.

Suicidality. Due to the absence of effect sizes in this database that examined suicidality separately across sexual orientation, I was not able to conduct a moderation analysis.

Substance use. Due to the absence of effect sizes in this database that examined substance use separately across sexual orientation, I was not able to conduct a moderation analysis.

Poor physical health. To test the moderating effect of sexual orientation on the overall relationship between disclosure and poor physical health, a mixed effects moderation analysis was implemented. A total of 13 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of sexual orientation on the relationship between disclosure and poor physical health outcomes ($Q_{Between} = 0.96$, $p = .33$). This finding suggests that the weighted mean effect size for the relationship between disclosure and poor physical health does not statistically significantly vary across sexual orientation.

Work/school outcomes. To test the moderating effect of sexual orientation on the overall relationship between disclosure and poor work/school outcomes, a mixed effects moderation analysis was implemented. A total of 8 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of sexual orientation on the relationship

between disclosure and poor work/school outcomes ($Q_{Between}$ = 0.15, p = .70). This finding suggests that the weighted mean effect size for the relationship between disclosure and poor work/school outcomes does not statistically significantly vary across sexual orientation.

Moderator Analysis of Publication Year on the Relationship between Disclosure and Support Variables

General social support. To test the moderating effect of publication year on the overall relationship between disclosure and general social support, a random intercept regression was implemented. A total of 62 effect sizes were utilized in this moderation analysis. Results of the random intercept regression indicated a statistically nonsignificant moderating effect of publication year on the relationship between disclosure and general social support (Q_{Model} = 0.59, p = .44). This finding suggests that weighted mean effect size for the relationship between disclosure and general social support does not statistically significantly vary based on the report's publication year.

LGB social support. To test the moderating effect of publication year on the overall relationship between disclosure and LGB social support, a random intercept regression was implemented. A total of 31 effect sizes were utilized in this moderation analysis. Results of the random intercept regression indicated a statistically nonsignificant moderating effect of publication year on the relationship between disclosure and LGB social support (Q_{Model} = 0.32, p = .57). This finding suggests that weighted mean effect size for the relationship between disclosure and LGB social support does not statistically significantly vary based on the report's publication year

Disclosure confidant acceptance. To test the moderating effect of publication year on the overall relationship between disclosure and disclosure confidant acceptance, a random intercept regression was implemented. A total of 15 effect sizes were utilized in this moderation analysis. Results of the random intercept regression indicated a statistically significant moderating effect of publication year on the relationship between disclosure and disclosure confidant acceptance (Q_{Model} = 9.58, p < .01; b = -.02, SE = .01, p < .01). This finding suggests that for every one-year increase in publication year, the weighted mean effect size for the relationship between disclosure and disclosure confidant acceptance decreased by .02. Further, the moderating effect of publication year on the relationship between disclosure and disclosure confidant acceptance fully accounted for unexplained variance in this relationship ($Q_{Residual}$ = 14.15, p = .36).

Moderator Analysis of Publication Year on the Relationship between Disclosure and Outcome Variables

Psychological distress. To test the moderating effect of publication year on the overall relationship between disclosure and psychological distress, a random intercept regression was implemented. A total of 92 effect sizes were utilized in this moderation analysis. Results of the random intercept regression indicated a statistically significant moderating effect of publication year on the relationship between disclosure and psychological distress (Q_{Model} = 7.26, p < .01; b = -.01, SE < .01, p = .01). This finding suggests that for every one-year increase in publication year, the weighted mean effect size for the relationship between disclosure and psychological distress decreased by .01, suggesting that the strength of the relationship between disclosure and psychological distress decreased with more recent publications. Further, the moderating effect of

publication year on the relationship between disclosure and psychological distress fully accounted for unexplained variance in this relationship ($Q_{Residual}$ = 90.62, p = .46).

Suicidality. To test the moderating effect of publication year on the overall relationship between disclosure and suicidality, a random intercept regression was implemented. A total of 12 effect sizes were utilized in this moderation analysis. Results of the random intercept regression indicated a statistically nonsignificant moderating effect of publication year on the relationship between disclosure and suicidality (Q_{Model} = 0.95, p = .33). This finding suggests that weighted mean effect size for the relationship between disclosure and suicidality does not statistically significantly vary based on the report's publication year.

Substance use. To test the moderating effect of publication year on the overall relationship between disclosure and substance use, a random intercept regression was implemented. A total of 16 effect sizes were utilized in this moderation analysis. Results of the random intercept regression indicated a statistically nonsignificant moderating effect of publication year on the relationship between disclosure and substance use (Q_{Model} = 0.40, p = .84). This finding suggests that weighted mean effect size for the relationship between disclosure and substance use does not statistically significantly vary based on the report's publication year.

Poor physical health. To test the moderating effect of publication year on the overall relationship between disclosure and poor physical health outcomes, a random intercept regression was implemented. A total of 23 effect sizes were utilized in this moderation analysis. Results of the random intercept regression indicated a statistically nonsignificant moderating effect of publication year on the relationship between

disclosure and poor physical health outcomes (Q_{Model} = 1.52, p = .22). This finding suggests that weighted mean effect size for the relationship between disclosure and poor physical health outcomes does not statistically significantly vary based on the report's publication year.

Poor work/school outcomes. To test the moderating effect of publication year on the overall relationship between disclosure and poor work/school outcomes, a random intercept regression was implemented. A total of 25 effect sizes were utilized in this moderation analysis. Results of the random intercept regression indicated a statistically nonsignificant moderating effect of publication year on the relationship between disclosure and poor work/school outcomes (Q_{Model} = 2.34, p = .13). This finding suggests that weighted mean effect size for the relationship between disclosure and poor work/school outcomes does not statistically significantly vary based on the report's publication year.

Moderator Analysis of Disclosure/Concealment Measurement on the Relationship between Disclosure and Support Variables

General Social Support. To test the moderating effect of disclosure/concealment measurement on the overall relationship between disclosure and general social support, a mixed effects moderation analysis was implemented. A total of 66 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of disclosure/concealment measurement on the relationship between disclosure and general social support ($Q_{Between}$ = 0.01, p = .94). This finding suggests that the weighted mean effect size for the

relationship between disclosure and general social support does not statistically significantly vary across disclosure/concealment measurement.

LGB social support. To test the moderating effect of disclosure/concealment measurement on the overall relationship between disclosure and LGB social support, a mixed effects moderation analysis was implemented. A total of 35 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of disclosure/concealment measurement on the relationship between disclosure and LGB social support ($Q_{Between}$ = 0.04, p = .84). This finding suggests that the weighted mean effect size for the relationship between disclosure and LGB social support does not statistically significantly vary across disclosure/concealment measurement.

Disclosure confidant acceptance. To test the moderating effect of disclosure/concealment measurement on the overall relationship between disclosure and disclosure confidant acceptance, a mixed effects moderation analysis was implemented. A total of 13 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of disclosure/concealment measurement on the relationship between disclosure and disclosure confidant acceptance ($Q_{Between}$ = 0.48, p = .49). This finding suggests that the weighted mean effect size for the relationship between disclosure and disclosure confidant acceptance does not statistically significantly vary across disclosure/concealment measurement.

Moderator Analysis of Disclosure/Concealment Measurement on the Relationship between Disclosure and Outcome Variables

Psychological distress. To test the moderating effect of disclosure/concealment measurement on the overall relationship between disclosure and psychological distress, a mixed effects moderation analysis was implemented. A total of 98 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of disclosure/concealment measurement on the relationship between disclosure and psychological distress ($Q_{Between}$ = 3.72, p = .05). This finding suggests that the weighted mean effect size for the relationship between disclosure and psychological distress does not statistically significantly vary across disclosure/concealment measurement.

Suicidality. Due to the absence of effect sizes in this database that examined suicidality using concealment measures, I was not able to conduct a moderation analysis.

Substance use. To test the moderating effect of disclosure/concealment measurement on the overall relationship between disclosure and substance use, a mixed effects moderation analysis was implemented. A total of 16 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of disclosure/concealment measurement on the relationship between disclosure and substance use ($Q_{Between}$ = 0.08, p = .78). This finding suggests that the weighted mean effect size for the relationship between disclosure and substance use does not statistically significantly vary across disclosure/concealment measurement.

Poor physical health. To test the moderating effect of disclosure/concealment measurement on the overall relationship between disclosure and poor physical health outcomes, a mixed effects moderation analysis was implemented. A total of 22 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of disclosure/concealment measurement on the relationship between disclosure and poor physical health outcomes ($Q_{Between}$ = 1.73, p = .19). This finding suggests that the weighted mean effect size for the relationship between disclosure and poor physical health outcomes does not statistically significantly vary across disclosure/concealment measurement.

Poor work/school outcomes. To test the moderating effect of disclosure/concealment measurement on the overall relationship between disclosure and poor work/school outcomes, a mixed effects moderation analysis was implemented. A total of 31 effect sizes were utilized in this moderation analysis. Results of the mixed effects moderation analysis indicated a statistically nonsignificant moderating effect of disclosure/concealment measurement on the relationship between disclosure and poor work/school outcomes ($Q_{Between}$ = 0.12, p = .73). This finding suggests that the weighted mean effect size for the relationship between disclosure and poor work/school outcomes does not statistically significantly vary across disclosure/concealment measurement.

Meta-Analytic Path Analysis Assessing the Mediating Effects of Support in the Relationship between Disclosure/ Concealment and Psychological Distress

To examine the extent to which support variables (i.e., general social support, LGB community support, and disclosure confidant acceptance) mediate the relationship

between disclosure/concealment and each individual outcome variables (i.e., psychological distress, suicidality, substance use, poor physical health, and poor work/school outcomes), I implemented meta-analytic path analysis. Due to the enormous amount of missing data that would be incurred from simultaneously running all support and outcome variables in one model (86.2 percent of the data), I examined each mediating effect using separate path analyses for each hypothesized mediator. Limitation of this approach are that it decreases estimate precision that would be obtained from simultaneous modeling of all support-related mediators and outcome variables. This approach also assumed that support-related variables were independent of one another, which, theoretically, is not completely true. Results obtained from this approach were interpreted considering these conceptual limitations.

Prior to conducting the meta-analytic path analyses, I isolated empirical reports that contained all information needed for each mediation model. For example, to determine the mediating effect of general social support on the disclosure—psychological distress relationship, I utilized empirical reports that included effect sizes for (1) disclosure—general social support, (2) disclosure—psychological distress, and (3) general social support—psychological distress. Once these reports were isolated, I then conducted a random effects meta-analysis on this subsample of reports to obtain the weighted mean effect sizes for the three relationships listed above.

Using these weighted mean effect sizes, I implemented a progressive four-step test of mediation as outlined by Baron and Kenny (1981). These steps include (1) determining that the independent variables (i.e., disclosure) statistically significantly correlates with the outcome variable, (2) determining that the independent variable

statistically significantly correlates with the mediating variable, (3) determining that the mediating variable statistically significantly predicts the outcome variable after controlling for the effect of the independent variable, and (4) determining that the mediating variable completely mediates the disclosure—outcome relationship by constraining the disclosure—outcome path to zero. The tests of mediation are provided below.

Testing the Mediating Effect of General Social Support

Disclosure—psychological distress. To obtain the weighted mean effect sizes for the relationships between disclosure/concealment and psychological distress, disclosure/concealment and general social support, and general social support and psychological distress, I implemented a random effects meta-analysis. Random effects modeling was chosen over fixed effects modeling so that the findings could generalize beyond reports included in this meta-analysis. A total of 29 reports (n = 10,868; $\bar{n}$ = 374.75) were utilized in this analysis. Random effects modeling revealed a small statistically significant and negative relationship between disclosure and psychological distress ($\overline{r}$ = -.15, p < .001), a small-to-medium statistically significant and positive relationship between disclosure and general social support ($\overline{r}$ = .20, p < .001), and a medium statistically significant and negative relationship between general social support and psychological distress ($\overline{r}$ = -.29, p < .001). See Table 3.

Utilizing the weighted mean effect sizes obtained from the random effects meta-analysis above, I utilized Baron and Kenny's (1981) progressive four-step test of mediation. Based on the authors' criteria, disclosure statistically significantly correlated with psychological distress and general social support. General social support also

statistically significantly predicted psychological distress after controlling for the effects of disclosure. Since the first three steps of mediation were met, I implemented a meta-analytic path analysis to test the partial mediating effect of general social support on the disclosure—psychological distress relationship.

Results for the test of partial mediation indicated that disclosure statistically significantly predicted general social support (b = 0.20, SE = .05, p < .001). Disclosure, however, did not statistically significantly predict psychological distress after controlling for the effect of general social support (b = -0.10, SE = .05, p < .001). Finally, general social support predicted psychological distress after controlling for disclosure (b = -0.27, SE = .05, p < .001). The indirect effect of disclosure on psychological distress via general social support was also statistically significant (b = -0.05, SE = .02, p < .001) providing evidence for partial mediation. Since the model was fully saturated, model fit estimates were not interpreted. See Figure 3.

With evidence for partial mediation, Baron and Kenny's (1981) fourth step of mediation was implemented in which the direct effect of disclosure on psychological distress was constrained to zero. This allows for the testing of full mediation of general social support on the disclosure—psychological distress relationship. Model fit estimates outlined by Hu and Bentler (1999) were implemented to determine the fully-mediating model fit to the data. Results indicated acceptable model fit to the data (CFI = .95; RMSEA = .08 [$CI_{90\%}$ .00, .18], p = .18; SRMR = .04). This suggests that general social fully mediates the relationship between disclosure and psychological distress. Results of the full mediation analysis indicated that disclosure predicted general social support (b = 0.20, SE = .05, p < .001). General social support also predicted psychological

distress outcomes after controlling for the effect of disclosure (b = -0.29, SE = .05, p < .001).

Disclosure—poor physical health. To obtain the weighted mean effect sizes for the relationships between disclosure/concealment and poor physical health, disclosure/concealment and general social support, and general social support and poor physical health, I implemented a random effects meta-analysis. Random effects modeling was chosen over fixed effects modeling so that the findings could generalize beyond reports included in this meta-analysis. A total of 6 reports (n = 2,004; $\bar{n}$ = 334) were utilized in this analysis. Random effects modeling revealed a statistically nonsignificant relationship between disclosure and poor physical health ($\overline{r}$ = -.01, p = .78), a small statistically significant and positive relationship between disclosure and general social support ($\overline{r}$ = .08, p = .05), and a small statistically significant and negative relationship between general social support and psychological distress ($\overline{r}$ = -.15, p < .001). See Table 4.

Utilizing the weighted mean effect sizes obtained from the random effects meta-analysis above, I utilized Baron and Kenny's (1981) progressive four-step test of mediation. Based on the authors' criteria, disclosure did not statistically significantly correlate with poor physical health outcomes. Since the first step was not met, I did not conduct a test of mediation.

Disclosure—poor work/school outcomes. To obtain the weighted mean effect sizes for the relationships between disclosure/concealment and poor work/school outcomes, disclosure/concealment and general social support, and general social support and poor work/school outcomes, I implemented a random effects meta-analysis. Random

effects modeling was chosen over fixed effects modeling so that the findings could generalize beyond reports included in this meta-analysis. A total of 9 reports (n = 2,682; $\bar{n}$ = 298) were utilized in this analysis. Random effects modeling revealed a small statistically significant and negative relationship between disclosure and poor work/school outcomes ($\overline{r}$ = -.07, p < .001), a small-to-medium statistically significant and positive relationship between disclosure and general social support ($\overline{r}$ = .22, p < .001), and a medium statistically significant and negative relationship between general social support and poor work/school outcomes ($\overline{r}$ = -.31, p < .001). See Table 5.

Utilizing the weighted mean effect sizes obtained from the random effects meta-analysis above, I utilized Baron and Kenny's (1981) progressive four-step test of mediation. Based on the authors' criteria, disclosure statistically significantly correlated with poor work/school outcomes and general social support. General social support also statistically significantly predicted poor work/school outcomes after controlling for the effects of disclosure. Since the first three steps of mediation were met, I implemented a meta-analytic path analysis to test the partial mediating effect of general social support on the disclosure—poor work/school outcome relationship.

Results for the test of partial mediation indicated that disclosure statistically significantly predicted general social support (b = 0.22, SE = .06, p < .001). Disclosure, however, did not predict poor work/school outcomes after controlling for the effect of general social support (b = -0.00, SE = .06, p = .95) providing evidence for a fully-mediating model. Finally, general social support predicted poor work/school outcomes after controlling for disclosure (b = -0.31, SE = .06, p < .001). The indirect effect of disclosure on poor work/school outcomes via general social support was also statistically

significant (b = -0.07, SE = .02, p < .001) providing evidence for a mediating model. Since the model was fully saturated, model fit estimates were not interpreted. See Figure 4.

With evidence of mediation, Baron and Kenny's (1981) fourth step of mediation was implemented in which the direct effect of disclosure on psychological distress was constrained to zero. This allows for the testing of full mediation of general social support on the disclosure—psychological distress relationship. Model fit estimates outlined by Hu and Bentler (1999) were implemented to determine the fully-mediating model fit to the data. Results indicated excellent model fit to the data (CFI = 1.00; RMSEA = .00 [$CI_{90\%}$ .00, .00], p = .97; SRMR = .00). Results of the full mediation analysis indicated that disclosure predicted general social support (b = 0.22, SE = .06, p < .001). General social support also predicted poor work/school outcomes after controlling for the effect of disclosure (b = -0.31, SE = .06, p < .001). See Figure 5.

Testing the Mediating Effect of LGB Social Support

Disclosure—psychological distress. To obtain the weighted mean effect sizes for the relationships between disclosure/concealment and psychological distress, disclosure/concealment and LGB social support, and LGB social support and psychological distress, I implemented a random effects meta-analysis. Random effects modeling was chosen over fixed effects modeling so that the findings could generalize beyond reports included in this meta-analysis. A total of 14 reports (n = 7,425; $\bar{n}$ = 530) were utilized in this analysis. Random effects modeling revealed a small statistically significant and negative relationship between disclosure and psychological distress ($\overline{r}$ = -.16, p < .001), a small-to-medium statistically significant and positive relationship

between disclosure and LGB social support ($\overline{r}$ = .22, p < .001), and a small statistically significant and negative relationship between LGB social support and psychological distress ($\overline{r}$ = -.09, p = .01). See Table 6.

Utilizing the weighted mean effect sizes obtained from the random effects meta-analysis above, I utilized Baron and Kenny's (1981) progressive four-step test of mediation. Based on the authors' criteria, disclosure statistically significantly correlated with psychological distress and LGB social support. LGB social support also statistically significantly predicted psychological distress after controlling for the effects of disclosure. Since the first three steps of mediation were met, I implemented a meta-analytic path analysis to test the partial mediating effect of LGB social support on the disclosure—psychological distress relationship.

Results for the test of partial mediation indicated that disclosure statistically significantly predicted LGB social support (b = 0.22, SE = .04, p < .001). Disclosure also predicted psychological distress after controlling for the effect of LGB social support (b = -0.15, SE = .04, p < .001). Finally, LGB social support did not statistically significantly predict psychological distress after controlling for disclosure (b = -0.06, SE = .04, p = .19). The indirect effect of disclosure on psychological distress via LGB social support was also not statistically significant (b = -0.01, SE = .01, p = .20) providing evidence for no partial mediation. Since evidence for partial mediation was not found, Baron and Kenny's (1981) fourth step of mediation was not implemented. See Figure 6.

Disclosure—poor physical health. To obtain the weighted mean effect sizes for the relationships between disclosure/concealment and poor physical health, disclosure/concealment and LGB social support, and LGB social support and poor

physical health, I implemented a random effects meta-analysis. Random effects modeling was chosen over fixed effects modeling so that the findings could generalize beyond reports included in this meta-analysis. A total of 4 reports (n = 1,875; $\bar{n}$ = 468.75) were utilized in this analysis. Random effects modeling revealed a statistically nonsignificant relationship between disclosure and poor physical health ($\overline{r}$ = -.04, p = .14), a statistically nonsignificant relationship between disclosure and LGB social support ($\overline{r}$ = .07, p = .57), and a small statistically significant and negative relationship between LGB social support and poor physical health ($\overline{r}$ = -.06, p = .02). See Table 7.

Utilizing the weighted mean effect sizes obtained from the random effects meta-analysis above, I utilized Baron and Kenny's (1981) progressive four-step test of mediation. Based on the authors' criteria, disclosure did not statistically significantly correlate with poor physical health outcomes. Since the first step was not met, I did not conduct a test of mediation.

Testing the Mediating Effect of Disclosure Confidant Acceptance

Disclosure—psychological distress. To obtain the weighted mean effect sizes for the relationships between disclosure/concealment and psychological distress, disclosure/concealment and disclosure confidant acceptance, and disclosure confidant acceptance and psychological distress, I implemented a random effects meta-analysis. Random effects modeling was chosen over fixed effects modeling so that the findings could generalize beyond reports included in this meta-analysis. A total of 7 reports (n = 2,529; $\bar{n}$ = 361.29) were utilized in this analysis. Random effects modeling revealed a small statistically significant and negative relationship between disclosure and psychological distress ($\overline{r}$ = -.18, p < .001), a medium statistically significant and positive

relationship between disclosure and disclosure confidant acceptance ($\overline{r}$ = .32, p = .01), and a medium statistically significant and negative relationship between disclosure confidant acceptance and psychological distress ($\overline{r}$ = -.28, p < .001). See Table 8.

Utilizing the weighted mean effect sizes obtained from the random effects meta-analysis above, I utilized Baron and Kenny's (1981) progressive four-step test of mediation. Based on the authors' criteria, disclosure statistically significantly correlated with psychological distress and disclosure confidant acceptance. Disclosure confidant acceptance also statistically significantly predicted psychological distress after controlling for the effects of disclosure. Since the first three steps of mediation were met, I implemented a meta-analytic path analysis to test the partial mediating effect of disclosure confidant acceptance on the disclosure—psychological distress relationship.

Results for the test of partial mediation indicated that disclosure statistically significantly predicted disclosure confidant acceptance (b = 0.32, SE = .05, p < .001). Disclosure also predicted psychological distress after controlling for the effect of disclosure confidant acceptance (b = -0.11, SE = .05 p = .05). Finally, disclosure confidant acceptance predicted psychological distress after controlling for disclosure (b = -0.25, SE = .05, p < .001). The indirect effect of disclosure on psychological distress via disclosure confidant acceptance was also statistically significant (b = -0.08, SE = .02, p < .001) providing evidence for partial mediation. Since the model was fully saturated, model fit estimates were not interpreted. See Figure 7.

With evidence for partial mediation, Baron and Kenny's (1981) fourth step of mediation was implemented in which the direct effect of disclosure on psychological distress was constrained to zero. This allows for the testing of full mediation of disclosure

confidant acceptance on the disclosure—psychological distress relationship. Model fit estimates outlined by Hu and Bentler (1999) were implemented to determine the fully-mediating model fit to the data. Results provided acceptable support for model fit to the data (CFI = .96; RMSEA = .09 [$CI_{90\%}$ .01, .19], p = .15; SRMR = .04) suggesting that disclosure confidant acceptance fully mediates the disclosure—psychological distress relationship.

Results of the full mediation analysis indicated that disclosure predicted disclosure confidant acceptance (b = 0.32, SE = .05, p < .001). Disclosure confidant acceptance also predicted psychological distress after controlling for the effect of disclosure (b = -0.28, SE = .05, p < .001). The indirect effect of disclosure on psychological distress via disclosure confidant acceptance was also statistically significant (b = -0.09, SE = .02, p < .001) providing support for a fully mediating model.

Testing the Mediating Effect of Overall Support on the Disclosure—Suicidality Relationship

In isolating empirical reports that examined the individual mediating effect of support variables on the disclosure—suicidality relationship, I found that there were an insufficient number of reports to conduct meta-analytic path analysis. To correct for this limitation, I created an overall support variable in which general social support, LGB social support, and disclosure confidant acceptance were aggregated into one overall support variable. This aggregation resulted in a total of four reports (n = 2,902; $\bar{n}$ = 967.33) for this analysis. To obtain the weighted mean effect sizes for the relationships between disclosure/concealment and suicidality, disclosure/concealment and overall support, and overall support and suicidality, I implemented a random effects meta-

analysis. Random effects modeling was chosen over fixed effects modeling so that the findings could generalize beyond reports included in this meta-analysis.

Random effects modeling revealed a statistically nonsignificant relationship between disclosure and suicidality ($\overline{r}$ = .04, p = .65), a small-to-medium statistically significant and positive relationship between disclosure and overall support ($\overline{r}$ =.22, p < .001), and a statistically nonsignificant relationship between overall support and suicidality ($\overline{r}$ = .07, p = .19). Utilizing the weighted mean effect sizes obtained from the random effects meta-analysis above, I utilized Baron and Kenny's (1981) progressive four-step test of mediation. Based on the authors' criteria, disclosure did not statistically significantly correlate with suicidality. Since the first step was not met, I did not conduct a test of mediation. See Table 9.

Testing the Mediating Effect of Overall Support on the Disclosure—Substance Use Relationship

In isolating empirical reports that examined the individual mediating effect of support variables on the disclosure—substance use relationship, I found that there were an insufficient number of reports to conduct meta-analytic path analysis. To correct for this limitation, I created an overall support variable in which general social support, LGB social support, and disclosure confidant acceptance were aggregated into one overall support variable. This aggregation resulted in a total of five reports (n = 2,043; $\bar{n}$ = 408.60) for this analysis. To obtain the weighted mean effect sizes for the relationships between disclosure/concealment and substance use, disclosure/concealment and overall support, and overall support and substance use, I implemented a random effects meta-

analysis. Random effects modeling was chosen over fixed effects modeling so that the findings could generalize beyond reports included in this meta-analysis.

Random effects modeling revealed a statistically nonsignificant relationship between disclosure and substance use ($\overline{r}$ = .06, p = .17), a small statistically significant and positive relationship between disclosure and overall support ($\overline{r}$ =.14, p < .001), and a statistically nonsignificant relationship between overall support and substance use ($\overline{r}$ = .02, p = .71. Utilizing the weighted mean effect sizes obtained from the random effects meta-analysis above, I utilized Baron and Kenny's (1981) progressive four-step test of mediation. Based on the authors' criteria, disclosure did not statistically significantly correlate with substance use. Since the first step was not met, I did not conduct a test of mediation. See Table 10.

CHAPTER 5

DISCUSSION

This meta-analysis sought to address three overarching aims. In the interest of clarifying mixed findings in LGB disclosure/concealment empirical research, mean aggregate effect sizes were obtained to assess the extent to which disclosure correlated with support-related variables (i.e., general social support, LGB-specific social support, and disclosure confidant response) and outcome variables (i.e., mental health, suicidality, substance use, physical health, and work/school outcomes). Second, moderation analysis utilizing demographic (i.e., age, gender, and sexual identity) and methodological variables (i.e., publication year and disclosure/concealment measurement) were used to identity whether mixed findings could be explained by demographic and/or methodological variables. Finally, meta-analytic path analysis examined whether support-related variables mediated the relationships between disclosure and outcomes. Below, I describe these findings as they relate to extant theoretical and empirical literature. I also identify limitations of this meta-analysis, implications of these meta-analytic findings, and directions for future research.

At the outset of this study, an important question was raised which asked whether lesbian, gay, and bisexual people live healthier and happier lives after disclosing their sexual orientation to others. Through the use of model-based meta-analytic methods and meta-analytic path analysis, there is now empirical evidence to support the claim that, despite mixed empirical findings throughout previous literature, disclosure is, in fact, a beneficial process for LGB people. The obtained findings in this study provide empirical support to an expanding body of theoretical literature on the benefits of disclosure and

harm of concealment regarding important aspects of self (Bearden, Sharma, & Teel, 1982). For example, this study's findings substantiate behavioral aspects of Pachankis's (2007) cognitive affective and behavioral model of concealment. This study also offers a significant contribution to existing theoretical frameworks of disclosure and concealment through its particular focus on sexual orientation disclosure and concealment. For example, Chaudoir and Fisher's (2010) disclosure process model includes sexual orientation within a group of 'concealable stigmatized identities'; the same is true for Goffman's (1963) theoretical framework which places sexual orientation within a group he called 'spoiled identities'. Although both of these theoretical models indirectly implicated sexual orientation disclosure and concealment, results from this model-based meta-analysis inform these existing models on the unique aspects of disclosure and concealment for sexual minority people through the testing of moderating and mediating variables. The findings from this model-based meta-analysis can now permit researchers to draw upon these findings and existing empirical models to create a theoretical model better suited at addressing the disclosure and concealment process for lesbian, gay, and bisexual people.

In addition to addressing the overarching question of whether disclosure of one's sexual orientation is beneficial for LGB people, several other important findings arose from the data. First, meta-analytic findings regarding the overall weighted mean relationship between disclosure and outcome variables revealed that disclosure is multifaceted in its effects and associated with overall health and well-being. Secondly, meta-analytic path analysis of support-related variables' role in the disclosure—outcome relationship demonstrated that disclosure is, inherently, a social process whose benefits

arise, in part, due to social connection with other people. Third, moderation analysis of demographic variables indicated that disclosure is equally beneficial across age, gender, and sexual orientation. Finally, moderation analysis also revealed that disclosure's benefits are situated within an ever-changing social, cultural, and political context. Below, I address these overall findings in greater detail.

Disclosure is Associated with Overall Health and Well-Being

A primary objective of this model-based meta-analysis was to clarify disclosure's empirical relationship with outcome variables, which included mental health, suicidality, substance use, physical health, and work/school. Due to the presence of conflicting empirical findings found within existing research, knowledge of disclosure's benefits remained unclear and raised questions regarding theoretical conceptualizations of disclosure's relationship with outcome variables (e.g., Chaudoir and Fisher, 2010; Pachankis, 2007). Results obtained from this model-based meta-analysis, however, revealed that disclosure's beneficial effects are multifaceted and diverse and share a relationship with increased reported mental and physical health outcomes and work/school outcomes. These findings are so important because they suggest that disclosure and living one's life openly as lesbian, gay, or bisexual, are embedded within an underlying foundation of well-being that contributes to better mental health, physical health, and work or school outcomes. Below, I present in greater detail particular outcome findings discovered in this study and areas of future research and investigation.

Although a statistically significant correlation between disclosure and physical health outcomes was found such that increased disclosure is associated with decreased physical health problems, the examination of the relationship between these two variables

remains largely understudied and presents a fruitful area of exploration for scientific researchers. Within the database of physical health outcomes collected for this meta-analysis, the vast majority of physical health outcomes was comprised of physiological data—such as blood pressure, cortisol level, CD4 count, and self-reported health status. Far less examined in past research, however, is the relationship between disclosure and preventative health behaviors such as annual check-ups with a primary health care provider, mammograms and pap smears for sexual minority women, and utilization and adherence to PrEP to prevent against HIV infection.

Attending to preventative health behaviors as they relate to disclosure is important. Research has shown that disclosure in doctor settings is a critical component in feeling satisfied with the doctor-patient relationship (McNair, Hegarty, & Taft, 2015). Such satisfaction can increase the likelihood of LGB people to adhere to regular doctor visits. However, doctors often do not discuss sexual orientation with LGB patients despite patients' willingness to have such a conversation (Meckler, Elliott, Kanouse, Beals, and Schuster, 2006). The absence of communication regarding a patient's sexual orientation is problematic as LGB people have specific health needs. One particular health need is attending to HIV prevention among sexual minority men (Bernstein et al., 2008). Recently, the promotion of PrEP, an HIV medication taken by HIV- men to prevent infection, presents an important area of consideration as it relates to disclosure in health settings. Further, researchers examining sexual minority women have also noted decreased utilization of preventative health services such as mammograms due to fears of disclosure and discrimination from health providers (Austin et al., 2013). If doctors do not create an environment or relationship with their patients that promotes disclosure of

one's sexual orientation, sexual minority patients may not receive education or a prescription for PrEP thereby increasing their risk of HIV infection.

To help facilitate exploration of disclosure and its relationship to preventative health behaviors, suggestions can be offered. First, health psychologists and public health researchers can begin to create educational intervention packages tailored to medical professionals that provide education on LGB-specific health needs and ways to facilitate conversation regarding sexual orientation in doctor's office. Further, medical professionals can create a more inclusive office environment by including sexual orientation on health forms and/or promote in their office or website that they are an LGB-friendly health care provider. These small changes can increase the likelihood of LGB people to both visit a health-care professional and disclose their sexual orientation.

Unlike findings related to mental and physical health outcome variables, the relationship between disclosure and work/school outcomes must be carefully considered. Although a positive correlation was found in this meta-analysis, both workplace and school settings still suffer from unaffirming and discriminatory environments at both the interpersonal and structural level. Many empirical reports have commented on the prevalence of bullying and discrimination that can come from being an openly gay, lesbian, or bisexual person (Birkett, Espelage, & Koenig, 2009). Further, some workplace settings do not offer protection against job termination due to one's sexual orientation. This implies that one's sharing of his or her lesbian, gay, or bisexual identity can potentially result in the loss of his or her job. Therefore, for some sexual minority people, concealment may be preferable despite the negative consequences that can arise. As

researchers continue to examine disclosure and concealment within workplace or school settings attending to school and workplace policies and inclusion is critical.

Despite statistically significant findings for mental health, physical health, and work/school outcomes, results for the relationship between disclosure and suicidality indicated a statistically non-significant and near zero mean correlation. In understanding the result that emerged from this analysis, it appears that the mixed findings collected from previous empirical reports canceled each other out resulting in a near-zero weighted mean correlation. In the presence of mixed findings, it would have seemed that a moderating variable would explain the obtained finding from this meta-analysis; however, no statistically significant moderating variable emerged.

In light of these findings, a potential explanation is that disclosure and concealment of one's sexual orientation are not directly related to suicidality; rather, other variables closely related to disclosure and concealment better predict suicidality among LGB people. For future researchers, several variables merit exploration. As noted earlier, rejection by others due to sexual orientation disclosure has shown to be a predictor of suicidality (Ryan et al., 2009). Thus, it may be that it is not the actual disclosure or concealment that correlates with suicidality but rather the subsequent acceptance or rejection that comes from disclosure that better correlates with suicidality.

Researchers have also noted that internalized heterosexism (i.e., negative attitudes and beliefs one holds regarding his or her sexual minority identity) is a predictor of reported suicidality among gay and lesbian people (Igartua, Gill, and Montoro, 2009). Some measures of IH include items related to suicidal ideation due to one's sexual orientation (e.g., Shildo, 1994). Attending to IH is also important because of its strong

empirical relationship with disclosure and concealment (Szymanski, Kashubeck-West, & Meyer, 2008). Specifically, increased disclosure is associated with decreased reports of IH. A methodological limitation in examining the relationship between disclosure/concealment and IH, however, is that many IH measures conflate disclosure and concealment processes with IH. For example, the Lesbian Internalized Homophobia Scale (LIHS; Szymanski and Chung, 2001) has an entire subscale assessing 'public identification as a lesbian'. One example item from this subscale includes, "I am comfortable begin an 'out' lesbian. I want others to know and see me as a lesbian." Therefore, as researchers continue to examine the relationship between disclosure and suicidality, attention to the potential harmful effects of IH appears necessary.

Similar to findings for suicidality, results for the relationship between disclosure and substance use indicated a statistically non-significant and near zero relationship. In understanding this finding, several interpretations can be provided. First, the statistically non-significant correlation between disclosure and substance use may be a function of the aggregation process used in this meta-analysis. To increase statistical power and provide a generalized understanding regarding the relationship between disclosure and outcome variables, alcohol use, tobacco use, and drug use were aggregated into one substance use variable. In several empirical reports, the correlations between disclosure and alcohol and tobacco use were stronger than the correlation between disclosure and drug use . Thus, the collapsing of drug use with alcohol and tobacco use may have attenuated the magnitude of the correlation. Another important consideration is that all but one empirical report (Cole, Kemeny, Taylor, & Fisher, 1996) in this database examined lesbian, gay, and bisexual people together. This presents a methodological limitation

since previous empirical reports have identified disparate usage of alcohol and tobacco across sexual orientations (Gruskin et al., 2007). Therefore, sexual orientation could potentially moderate the relationship between disclosure and substance use. As future research continues to address disparities in drug, alcohol, and tobacco use among LGB people attending to the limitations found in this meta-analysis can offer increased validity of statistical findings and better clarify predictors of substance use.

Disclosure is a Social Process

The process of disclosure and concealing one's LGB identity has been described in theoretical literature as an interpersonal phenomenon since one shares or hides his or her sexual orientation from another (Cass, 1979). This disclosure or concealment of one's LGB identity to another has been theorized to effect the extent to which one can build meaningful relationships with others and cultivate a social support network. Chaudoir and Fisher's (2010) disclosure process model illuminates this process by proposing that social support is directly affected by disclosure and social support serves as a mediating factor in the relationship between disclosure and outcome variables. To assess this theoretical model as it relates to LGB disclosure and concealment, I examined three subtypes of interpersonal support identified in the literature. These variables included general social support, LGB-specific social support, and disclosure confidant response. Results from this meta-analysis substantiated theoretical understanding of disclosure's association with support-related variables. Specific findings are described below.

General social support. The most-widely examined type of support examined in LGB disclosure/concealment empirical literature is general social support. For the purpose of this study, general social support included perceived social support and social

support satisfaction. Results from the meta-analysis indicated a positive and statistically significant relationship between disclosure and general social support indicating that increased disclosure is associated with increased reports of general social support. This finding mirrors theoretical arguments proposed by Rogers (1970), Sullivan (1953), and Chaudoir and Fisher (2010). Further results from the meta-analytic path analyses also substantiate Uchino's (2006) theoretical arguments regarding social supports relationship with both mental health and physical health outcomes.

LGB-specific support. The second type of support examined in this meta-analysis was LGB-specific support. Historically, connection and support from LGB people and the LGB community as a whole has been viewed as a critically important social connection throughout the disclosure process since it both protects LGB people from discrimination and rejection that may come from disclosure and often serves as one of the first social relationships in which a sexual minority person is 'out' to another individual. Given the importance of support from LGB people and the LGB community noted in theoretical literature (Cass, 1979), I found it important to examine this variable separately from general social support. Findings from the meta-analysis indicated a positive and statistically significant relationship between disclosure and LGB-specific support suggesting that increased disclosure is associated with increased reports of LGB-specific support. This relationship makes sense as it would seem difficult to obtain LGB-specific support if one has not disclosed their LGB identity. What may be surprising, however, is the small-to-medium magnitude of the mean aggregate effect size found in this meta-analysis. Almost similar in size to general social support, the results of this meta-analysis suggest that LGB-specific support is no more important than general social

support. Research, however, has noted the importance of connection with the LGB community (e.g., Cass, 1979).

One possible explanation for this finding can be drawn from literature on racial identity and distress. Within racial identity researcher, investigators have argued that as one increasingly affiliates with his or her racial group, distress can arise from experienced marginalization and discrimination Sellers, Caldwell, Schmeelk-Cone and Zimmerman (2003). In applying this argument to LGB disclosure and LGB-specific social support, it is possible that as one begins to build social relationships with other LGB people experiences of discrimination, harassment, or marginalization can create psychological distress. Therefore, individuals may turn away from social relationships with other LGB people as a means avoiding discrimination and marginalization.

An alternative explanation for this findings can be connected to Cass's (1979) stage model of homosexual identity development. In earlier stages of identity development, support from other LGB people and the LGB community may serve as a more important source of social support since these may be the only people to whom an individual has disclosed. As one's LGB identity becomes more integrated into other aspects of one's identity and an LGB person begins seeking social support from heterosexual people, the extent of social support from LGB people and the LGB community may become attenuated. Given methodological limitations of existing empirical literature, I was unable to examine this hypothesis. Alternatively, this finding may indicate that LGB-specific social support is not necessary to obtain and that general social support (i.e., support from anyone) is sufficient. Although this interpretation requires substantial investigation, its implications would be far-reaching since LGB

people, who may feel isolated early in the disclosure process, would only need support from one person, regardless of sexual orientation, to obtain the benefits of social support (Porritt, 1979).

This finding may also be attributed to the grouping together of lesbian, gay, and bisexual people. Researchers have noted that bisexual people face not only experiences of discrimination from heterosexual people, but from lesbian and gay people as well (Ochs, 1996). Therefore, it is possible that bisexual people reported less social support from the LGB community as compared to lesbian and gay people. This hypothesis may also explain the unexpectedly small correlation between disclosure and LGB-specific social support. However, due to few studies that examine differences in LGB-specific social support across lesbian, gay, and bisexual people, this hypothesis could not be empirically tested in this meta-analysis and presents an important area of investigation for future research.

Disclosure confidant response. The third type of support examined in this meta-analysis was disclosure confidant response. The accepting or rejecting response that one receives from disclosing his or her sexual orientation has been to found to be an important predictor of health-related outcomes. Theoretical literature has noted that an accepting response from another can affirm one's LGB identity and promote the disclosure process. A rejecting response, however, can create shame about one's LGB identity and promote concealment as the LGB individual may fear loss of future relationships. Results from the meta-analysis found a positive and statistically significant relationship between disclosure and disclosure confidant response indicating that increased disclosure is associated with increased accepting responses. Although this

finding may offer a hopeful prospect that disclosure can lead to affirmation and acceptance, I urge caution in this interpretation.

One important consideration is the sample of participants at the individual-study level. Although it was not possible to empirically assess individual-study characteristics, it is unclear as to whether these participants may be more 'out' and lie within the identity pride or identity synthesis stages of Cass's (1979) model. If so, these individuals may have developed a capacity to determine who may be an accepting individual to disclose to. Thus, disclosure is frequently an affirming and accepting process. At earlier stages of disclosure, however, it can remain unclear who may accept or reject an individual for being a sexual minority and rejection can be a painful reality of the disclosure process. Therefore, despite the promising findings obtained in this meta-analysis, caution should be taken in the interpretation of this finding for individuals in the earlier stages of the disclosure process.

Social Support Mediates the Disclosure—Outcome Relationship

With knowledge that disclosure correlates with increased general social support, LGB-specific social support, and disclosure confidant acceptance, this study further contributed to theoretical literature to assess whether disclosure's association with positive outcome variables is due, at least in part, to the attainment of support-related variables. This empirical endeavor was theoretically supported by Chaudoir and Fisher's (2010) disclosure process model. Within this model, the authors proposed that the relationship between disclosure and outcome variables is a mediated relationship and that social support serves as one important mediating variable.

For the relationship between disclosure and mental health results of the meta-analytic path analyses revealed that general social support and disclosure confidant acceptance mediated the relationship between disclosure and mental health. The presence of mediation suggests that the building of general social support and disclosure confidant acceptance that come from disclosing one's LGB identity serve as critical components of attaining positive mental health. This finding substantiates components of Chaudoir and Fisher's (2010) disclosure process model as well as Cass's (1979) identity development model which implicates social support attainment throughout the disclosure process.

Evidence for full mediation of disclosure confidant response in the disclosure—mental health outcome relationship also suggests that rejecting or accepting responses from disclosure fully account for the development of positive or negative mental health outcomes. The importance of an accepting or rejecting response from a disclosure confidant in determining mental health outcomes may determine future disclosures or concealments in other relationships. Specifically, an accepting response can affirm one's sexual minority identity and encourage the individual to continue disclosures whereas a rejecting response may create fear about losing other important relationships and prompt concealment. Interestingly, however, disclosure confidant response is less studied as compared to other support-related variables. The may be due, in part, to the difficulty in measuring accepting or rejecting responses which are often measured using recall of past disclosures. Ideally, future research would include longitudinal studies which track individuals after receiving a rejecting or accepting response from a disclosure confidant. A daily-diary methodology (e.g., Swim, Johnston, & Pearson, 2009) may serve as an appropriate methodological framework for this type of study. Further, an alternative

explanation is that researchers may erroneously believe that current social relationships hold more importance to mental health outcomes than past accepting or rejecting experiences. As future research continues to examine the relationship between disclosure and mental health outcomes, disclosure confidant response is a fruitful avenue of exploration.

In examining support-related variables that may mediate the relationship between disclosure and work/school outcomes, results revealed that general social support fully mediated the relationship between disclosure and poor work/school outcomes. This finding offers considerable contribution to disclosure literature within work/school settings as it provides evidence to the importance of social relationships in increasing workplace satisfaction and school attendance and participation. Using this information researchers, school faculty, and human resource employees can help improve workplace and school outcomes for LGB people. For school settings, implementation of a gay/straight alliance (GSA) group can help LGB students build relationships with other LGB students and heterosexual allies. Affirmative and inclusive workplace settings can also encourage their LGB employees to share their perspectives and experiences at their workplace to help increase safety and openness at their job.

Despite finding statistically significant mediating effects of support-related variables for the relationships between disclosure and mental health and work/school outcome variables, path analysis results for the physical health outcomes indicated no statistically significant mediating effects. In understanding the absence of mediation in these analyses, results revealed that the direct effect of disclosure on physical health outcomes was statistically non-significant thereby prohibiting tests of mediation as per

guidelines set forth by Baron and Kenny (1986). These findings run counter to the overall meta-analysis which found a small, but statistically significant correlation between disclosure and physical health outcome. Therefore, the obtained findings from this meta-analytic path analysis may be a function of the relatively small samples used in these analyses.

Evidence for the importance of support related variables in relation to disclosure and physical health outcomes exists. As noted in Uchino (2006), social support is a critical factor in physiological health outcomes. In research on disclosure and physical health symptoms for HIV+ people—an additional concealable stigma group—social support variables have shown to be vital in curtailing progression of the HIV virus (Smith, Rossetto, & Peterson, 2008). Further, in an experimental study on revealing secrets, Rodriguez and Kelly (2006) found that participants who revealed secrets to an imagined accepting confidant reported fewer illness at an eight-week follow-up as compared to participants who revealed secrets to an imagined rejecting confidant. As researchers continue to examine the relationship between disclosure and physical health outcomes attending to support variables is warranted.

In sum, the findings from the overall analysis of disclosure's relationship with support-related variables and meta-analytic path analyses provide important insight into disclosure's role as a social process. Although researchers have noted that disclosure in and of itself can be beneficial in alleviating cognitive preoccupation and rumination (Pachankis, 2007), findings from this study shed light on the fact that disclosure opens possibilities for creating satisfying and intimate social connections with other people. Moreover, it is through the building of these social relationships that LGB people begin

to attain positive health and vocational outcomes. These findings point to the need of social connection in attaining positive overall health and well-being and the importance in living one's life openly as a sexual minority.

Disclosure is Equally Beneficial across Age, Gender, and Sexual Orientation

In the effort to explain mixed empirical findings throughout the literature, age, gender, and sexual orientation were tested as demographic moderating variables. Findings indicated that moderating variables elicited no statistically significant differences in the relationship between disclosure and outcome variables across age, gender, and sexual orientation. Although the absence of statistically significant moderating effects leaves unanswered questions as to why empirical findings in previous research are mixed, these findings do suggest that the benefits of disclosure are non-discriminatory and equally benefit all ages, genders, and sexual orientations. These findings offer important implications for research. Specifically, an absence of demographic moderating effects permits researchers to expand their participant inclusion criteria to include all genders, ages, and sexual orientations. This approach can more easily increase sample size, improve statistical power, and permit the utilization more advanced statistical approaches such as structural equation modeling. Further, future development of LGB-disclosure related intervention packages can be utilized and applied across age, gender, and sexual orientation.

Despite finding a statistically nonsignificant moderating effect of sexual orientation for the relationship between disclosure and mental health outcomes, empirical research has noted disparities across these groups (Dobinson, 2007). In particular, greater focus on the disclosure—mental health relationship for bisexual persons is particularly

important and understudied. In the moderation analysis conducted in this study, four empirical reports were used (as compared to 16 empirical reports for gay and lesbian groups, individually) raising the limitation of statistical power to detect statistically significant differences. This presents an important question as to whether bisexual people may report different mental health outcomes associated with disclosure as compared to gay and lesbian people. Theoretical literature on biphobia and the disclosure process for bisexual people note the unique difficulties of coming-out as a bisexual person (Ochs, 1996). In particular, bisexual people may report greater depressive and stress symptoms associated with disclosure since both heterosexual and sexual minority people may deny the existence of bisexuality and view bisexual people as 'confused' about their sexual orientation. Such difficulties from disclosure can also complicate the attainment of social support which is also a critical component of the disclosure process. Attention to sexual orientation differences should continue to be explored and expanded upon in the interest of attending to mental health disparities across gay, lesbian, and bisexual people.

Disclosure's Benefits are Contextualized Socially, Culturally, and Politically

Although no demographic variables statistically significantly moderated the relationship between disclosure and outcome variables, moderation analysis of publication year of empirical report did statistically significantly moderate the relationship between disclosure and mental health outcomes. Specifically, more recent reports found disclosure to be more strongly associated with positive mental health outcomes as compared to earlier reports. This moderating findings is important for several reasons. First, this finding points to shifting social, cultural, and political attitudes toward LGB people. Within the past fifty years, the fight for sexual minority equality has

been marked by many achievements starting as early as the Stonewall Riots in 1969, the removal of Ego-dystonic Homosexuality from the DSM-III in 1980, to full legal rights to same-sex marriage unions across the United States. Such changes have, no doubt, contributed to the positive mental health outcomes associated with disclosure. Extending this finding to future research, it appears that it is crucial for researchers to construct and contextualize their empirical studies using the most recent empirical findings as they best reflect the relationship between disclosure and mental health outcomes.

This finding also suggests that disclosure is not an isolated, independent process; rather, disclosure is intimately situated within social, cultural, and political forces and the benefits obtained from disclosure reflect the state of society's attitudes toward LGB people. Furthers, disclosure's interconnection with social, cultural, and political forces also reveals disclosure's ability to create positive change and shift negative social, cultural, and political attitudes and beliefs. Specifically, increased disclosure of lesbian, gay, and bisexual people increases the awareness of the presence of LGB people in this world. Such visibility can help shift attitudes towards LGB people through the challenging of stereotypes and awareness that close friends and/or family members are sexual minorities. This notion has theoretical support through Chaudoir and Fisher's (2010) disclosure process model in which they referred to this process as a 'feedback loop'.

Limitations

The findings discussed above offer a substantial contribution to empirical literature on LGB disclosure and concealment. This study, however, does present limitations. Contextualization of the findings obtained in this study in light of study

limitations offers a more grounded perspective of this study's contribution to empirical literature and opens avenues of empirical investigation for researchers who will continue to study LGB disclosure and concealment. The first limitation of this meta-analysis was the utilization of correlations as the effect size for analysis. Although I included other effect sizes such as Cohen's *d* and odds ratio, these were transformed into correlations so they could be included in analysis. The decision to utilize correlation as the effect size of this study was based upon the predominant use of correlations in empirical research of LGB disclosure and concealment. Due to the almost exclusive presence of cross-sectional research, correlations were the logical choice for this meta-analysis. Since existing empirical findings were mixed, which prompted the use of meta-analysis in this study, correlational findings offered an important preliminary contribution to the literature. From the findings obtained in this meta-analysis, however, research will benefit from the implementation of experimental and longitudinal research to better study the disclosure/concealment process. In particular, longitudinal research can useful in assessing the disclosure process across the same group of participants. This can allow researchers to examine how support-related and outcome variables may change from the earlier stages of the disclosure process to later stages. Attention to critical events, such as a rejecting or accepting disclosure response from a confidant can also be examined.

The second limitation of this study was parametric analysis of suicidality and substance use. In this meta-analysis, the correlation of disclosure variables with suicidality or with substance use were not found to be statistically significant, suggesting no empirical relationship. However, conceptualizing suicidality and substance use as a continuous, parametric variable is misleading and would have been better

conceptualized and analyzed as nonparametric since both variables are rarer and heavily positively skewed. Therefore, caution should be taken in the results obtained in this meta-analysis regarding disclosure's empirical relationship between suicidality and substance use. In light of the severity of these outcome variables, future research is warranted.

The third limitation of this study was the relatively low number of statistically significant moderator findings. As revealed in the results, the weighted mean relationships between disclosure, support-related variables, and outcome variables also generated a large degree of heterogeneity indicating unaccounted for variance in these relationships. Although I examined specific moderators reflected in empirical literature, only a few analyses revealed statistically significant moderation. One potential source of statistical nonsignificance found throughout the moderation analyses can be contributed to low statistical power due to the small number of effect sizes in some analyses. The possibility of Type II error, may suggest that the identified demographic and methodological moderating variables are both theoretically sound and would demonstrate statistically significant moderation if statistical power was higher.

An additional reason for statistical non-sigificance among moderation findings was that additional moderating variables were not included in this study. Due to methodological limitations that prohibited statistical analysis, potential moderating variables such as geographic region (i.e., rural versus urban), race/ethnicity, religious affiliation, and international versus national reports were not included despite empirical evidence indicating these variables may differentially affect the relationship between disclosure and outcome variables (Barnes & Meyer, 2012; Pew Research, 2012; Shields, 2008;). As future research continues to investigate the relationship between disclosure

and outcome variables, inclusion of these variables in empirical investigation will help to expand our knowledge of potential moderating variables.

To advance our knowledge of LGB disclosure, future researchers must attend to moderating variables in future analyses. Identification of demographic and methodological moderators is a critical area of empirical investigation for two reasons. First, identification of demographic moderating variables will help tailor intervention research to target specific LGB people most in need. Second, identification of methodological moderating variables will aid researchers in honing the methodological design of their empirical studies.

Another limitation of this study entailed the examination of LGB youth versus LGB adults as categories of age moderation for the relationships between disclosure and support-related and outcome variables. A better approach would have been to assess across the life cycle rather than two overarching groups. In particular, attending to potential empirical differences in disclosure and concealment among LGB elderly is important for two reasons. Historically, LGB elderly grew up in a far more socially and politically unaccepting culture which may have made the disclosure process more difficult than for LGB youth today. Second, researchers have found increased reports of loneliness and decreased social support among LGB elderly (Kuyper & Fokkema, 2010). As the baby-boomer population begins to enter later life, attention to LGB elderly disclosure/concealment and their relationships between support-related and outcome variables is an important area of investigation for future research.

A fifth limitation of this study was the inability to statistically examine the moderating effect of race/ethnicity for the relationships between disclosure/concealment

and support-related and outcome variables. This statistical analysis was not possible as there were few empirical reports that examined disclosure/concealment processes exclusively among racial/ethnic minorities and no empirical reports examining disclosure/concealment processes exclusively among White/Caucasian-American sexual minorities prohibiting statistical comparison.

Attending to intersectionality (i.e., the intersection of multiple minority identities) is critical in advancing our understanding of the disclosure process for LGB people. The results obtained from this study, though important, provide more limited implications for LGB People of Color, since racial and ethnic cultural attitudes regarding sexual orientation vary. For example, among Black/African-American sexual minorities, cultural difficulties in disclosing one's sexual minority orientation has given rise to the 'down-low' movement in which these individuals choose to conceal their sexual orientation while engaging in same-sex activities (Barnshaw & Letukas, 2010; King & Hunter, 2004). Latino/Hispanic-American sexual minorities also struggle with disclosure due to cultural attitudes regarding masculinity (Torres, Solberg, & Carlstron, 2002). In extending these findings to LGB People of Color, caution should be taken as the benefits demonstrated through this meta-analysis may not generalize across racial and ethnic groups. As future research continues to examine disclosure and concealment, attention to racial/ethnic cultural differences in critical.

A final limitation of this study was the inability to simultaneously examine all support-related variables and outcome variables in the meta-analytic path analysis. Due to the absence of empirical studies that included all support-related and outcome variables, I examined each support-related variable as a mediator of each disclosure—outcome

relationship. Although this approach provided preliminary information regarding the mediating effect of each support-related variable, the obtained estimates may be stronger than is actually the case. A stronger methodological approach would have been simultaneous analysis of support-related variables as it would have generated greater precision of the obtained estimates. An additional limitation of the approach taken in this study was that it conceptualizes support-related variables as being independent of one another when, in reality, this is not necessarily true. Therefore, findings obtained from the meta-analytic path analyses should be interpreted in light of these limitations.

Implications and Future Directions

Aside from the limitations of this study described above, the obtained findings do offer considerable contributions to LGB disclosure and concealment empirical literature and open important avenues of exploration for future research. A primary motivation of this study was to resolve mixed empirical findings in LGB disclosure and concealment literature. Resolving these mixed findings held important practical implications since empirical literature was unclear as to whether disclosure of one's LGB identity was truly a beneficial thing to do. Based on the results of the meta-analysis, it now appears that disclosure is associated with increased positive support-related variables and decreased negative outcome variables underscoring the benefits of disclosure and being 'out'. Further, mixed findings related to the relationship between disclosure and mental health outcomes were resolved through finding that publication year of empirical studies accounted for mixed findings. The implications of these meta-analytic findings are considerable and offer contributions and future direction to theory, research, practice, and public policy.

Theory. Theoretically, the findings obtained from this model-based meta-analysis substantiate disclosure and support-related frameworks outlined earlier. In particular, results of this study offer empirical support to Pachankis's (2007) cognitive-affective-behavioral model of concealment as evidenced by the correlation between disclosure/concealment and positive mental health outcomes. Cass's (1979) identity development model was also supported through the finding of general and LGB-specific social support that comes from disclosure. Further, results obtained from the meta-analytic path analysis examining the mediating effects of support-related variables on the relationship between disclosure and outcome variables also provides empirical support for Chaudoir and Fisher's (2010) disclosure process model. As researchers continue to investigate LGB disclosure and concealment, the above theoretical models can be helpful. Further, future research can continue to empirically investigate components of these theoretical models not examined in this study. For example, future research can expand upon Pachankis's (2007) model by focusing on cognitive aspects of concealing one's LGB sexual orientation. Researchers can also longitudinally examine whether LGB people linearly progress through Cass's (1979) identity development model throughout their disclosure process as proposed in the model.

Research. In addition to the theoretical contributions of this study, the findings from this model-based meta-analysis also open interesting and fruitful areas of investigation for future research. In particular, the current study was unable to examine the relationships between person-specific disclosure and reported social support from that specific person. Since it is now understood that disclosure statistically significantly correlates with support-related variables, deepening this investigation to examine, for

example, parental disclosure and parental support or friend disclosure and friend support will elucidate the potential importance specific relationships in attaining positive outcomes.

Findings from the meta-analytic path analysis also provide empirical support for conducting longitudinal research examining the disclosure process over time. Attending to longitudinal research is critically important because disclosure is a developmental, longitudinal process. To utilize cross-sectional research creates methodological challenges as participants must rely on memories of past disclosure events which are inherently flawed. Examining empirical data that tracks LGB people from the earlier stages of the disclosure process offers invaluable information as to how disclosure is implicated in the attainment of support-related variables and predictive of positive outcome variables. Longitudinal research may also point to critical areas of intervention for LGB people in their disclosure process. For example, researchers may discover that a rejecting response from a confidant early in the disclosure process may result in far worse outcomes than a rejecting response later on in the disclosure process. Such early rejections may also shift the disclosure trajectory to include greater concealment and less attainment of social support. As researchers begin to broach longitudinal research on the disclosure process, Cass's (1979) identity development model may serve as an important theoretical framework.

As noted by Chaudoir and Fisher (2010) and Pachankis (2007), disclosure of one's sexual minority identity enacts both interpersonal and intrapersonal processes. Since this meta-analysis examined only interpersonal processes, far less is known about the intrapersonal processes—such as rumination and thought suppression—and their

relationship to disclosure and outcome variables. Such intrapersonal processes have strong empirical support for their ties to negative mental health outcomes (Pachankis, 2007) offering an empirical foundation for research investigating LGB disclosure. As researchers begin to deepen their investigation into intrapersonal processes, a more integrative and comprehensive disclosure model can emerge that incorporates the interplay of both inter- and intrapersonal process in the relationship between disclosure and outcome variables.

Practice. Mental health practitioners can now rely on the findings obtained in this study to assist LGB clients through the coming-out process. In particular, support-related variables can be utilized as important areas of intervention in the therapeutic process. For example, mental health practitioners can help their clients become more involved in the LGB community and identify important people in clients' lives who would likely be accepting of their sexual minority identity. Practitioners can also help clients prepare for potential rejection from a disclosure to help mitigate emotional pain that can come from this experience.

Evidence found in this meta-analysis for the importance of social support can also be used in group intervention work. Rather than individual therapy, LGB people in the process of disclosing their sexual orientation may be better served through group therapy where they can build emotional support from other LGB people. Further, outcome variables can be tracked throughout the therapeutic process since decreases in negative outcomes can be expected. The tracking of outcome variables can serve as a visual display of the client's progress throughout the coming-out process and reaffirm one's LGB identity in a positive light.

Policy. The findings obtained in this model-based meta-analysis also hold important implications for LGB public policy. In particular, the statistical finding that publication year statistically significantly moderated the relationship between disclosure and mental health outcomes offers evidence to the ever-changing sociopolitical climate towards LGB people. With the increasing legal and attitudinal acceptance and solidarity towards LGB people, disclosure of one's sexual orientation has more frequently become a positive experience that leads to increased positive mental health outcomes. Although the shifting sociopolitical climate toward LGB people has become more affirmative, there is still much work to be done.

One area, in particular, is workplace protections for LGB people. Despite legal recognition of same-sex marriages in the United States, sexual minority people still lack legal protection within workplace settings. This implies that an employee can be terminated from his or her job on the basis of sexual orientation. As evidenced by the findings from this meta-analysis, concealment of one's sexual orientation in workplace settings due to discriminatory policies holds negative consequences to overall mental and physical health as well as work-related outcomes such as job satisfaction. As the political LGB rights movement advances in this country, attention to importance of living one's life openly as a sexual minority in all aspects of life is critical.

Conclusion

The findings presented in this model-based meta-analysis reflect a compendium of empirical research by researchers examining LGB disclosure and concealment. Grounding this study in theoretical conceptualizations of disclosure and concealment's

relationship to support-related and outcome variables (Cass, 1979; Chaudoir and Fisher, 2010; Goffman, 1963; Pachankis, 2007), this meta-analysis clarified mixed empirical findings found in existing empirical reports. I was also able to advance our knowledge of LGB disclosure and concealment through the testing of moderating demographic and methodological variables and the testing of mediating effects of support-related variables on the disclosure—outcome relationship. In summary, the findings that emerged speak to the positive association of disclosure on outcome variables and the importance of support-related variables that emerge from disclosure in determining outcomes. My hope is that these findings lay the groundwork for future empirical research on LGB disclosure and concealment and inspire and educate researchers, mental health practitioners, and policy makers to continue to advocate for the health and well-being of the LGB community.

Table 1

Coding Categories

Category	Sample Measures	Sample Item
Disclosure	Outness Inventory; Identity Management Scale; Concealment subscale from Lesbian, Gay, Bisexual Identity Scale (LGBIS)	"Most of my coworkers know that I am gay."
General Social Support	Multidimensional Scale of Perceived Social Support; Social Support Appraisal Scale	"I get the emotional help and support I need from my family."
LGB-Specific Social Support	Community Cohesion Scale; Connectedness to the LGB Community Scale; Identification and Involvement with the Gay Community Scale	"You feel a bond with other men who are gay or bisexual."
Disclosure Rejection	Family Reaction subscale from Measure of Gay-Related Stress; Researcher-Made measures	"Rejection by my family members due to my sexual orientation."
Mental Health	Mental Health Inventory; Hopkins Symptoms Checklist-21; Psychological Well-Being Scale	"During the past month, how much of the time have you felt tense or 'high-strung'?"
Suicidality	Researcher-Made measures	"Have you *ever* seriously thought of taking your own life?"
Substance Use	Alcohol Use Disorders Identification Test; Diagnostic Interview Schedule for Children	"How often do you have six or more drinks of one occasion?"
Physical Health	Medical Outcomes Survey; Pennebaker Inventory of Limbic Languidness; Physiological measures	Laboratory cortisol reading

Work/School	Organizational Commitment Questionnaire; Minnesota Satisfaction Questionnaire	"Usually, I feel detached from my job."

Table 2

Disclosure/Concealment Mean Relationship with Support and Outcome Variables

Variable	*k*	$\bar{r}$	*LL*	*UL*	*z*	Q_{total}
Support Variables						
General Social Support	62	.21***	.17	.24	12.34	553.86***
LGB-Specific Social Support	31	.23***	.17	.28	7.98	345.92***
Disclosure Acceptance	15	.31***	.17	.46	4.16	407.45***
Outcomes						
Psychological Distress	92	-.16***	-.18	-.14	-14.98	440.66***
Suicidality	12	.02	-.06	.01	0.38	82.45***
Substance Use	16	-.01	-.07	.06	-0.16	168.18***
Poor Physical Health	23	-.09**	-.15	-.03	-3.25	115.94***
Poor Work/School Outcomes	25	-.09***	-.12	-.06	-5.82	132.84***

Table 3

Weighted Mean Effect Sizes for Testing the Indirect Effect of Disclosure on Psychological Distress via General Social Support.

Disclosure	1		
General Social Support	.20***	1	
Psychological Distress	-.15***	-.29***	1

Note: $k = 29$; $n = 10{,}868$; $\bar{n} = 374.45$

Table 4

Weighted Mean Effect Sizes for Testing the Indirect Effect of Disclosure on Poor Physical Health via General Social Support.

Disclosure	1		
General Social Support	.08*	1	
Physical Health	-.01	-.15***	1

Note: $k = 6$; $n = 2{,}004$; $\bar{n} = 334$

Table 5

Weighted Mean Effect Sizes for Testing the Indirect Effect of Disclosure on Poor Work/School Outcomes via General Social Support.

Disclosure	1		
General Social Support	.22***	1	
Work/School	-.07**	-.31***	1

Note: $k = 9$; $n = 2{,}682$; $\bar{n} = 298$

Table 6

Weighted Mean Effect Sizes for Testing the Indirect Effect of Disclosure on Psychological Distress via LGB Social Support.

Disclosure	1		
LGB Social Support	.22***	1	
Psychological Distress	-.16***	-.09**	1

Note: k = 14; n = 7,425; $\bar{n}$ = 530

Table 7

Weighted Mean Effect Sizes for Testing the Indirect Effect of Disclosure on Poor Physical Health via LGB Social Support.

Disclosure	1		
LGB Social Support	.07	1	
Physical Health	-.04	-.06*	1

Note: $k = 4$; $n = 1{,}875$; $\bar{n} = 468.75$

Table 8

Weighted Mean Effect Sizes for Testing the Indirect Effect of Disclosure on Psychological Distress via Disclosure Confidant Acceptance.

Disclosure	1		
Confidant Acceptance	.32*	1	
Psychological Distress	-.18***	-.28***	1

Note: $k = 7$; $n = 2{,}529$; $\bar{n} = 361.29$

Table 9

Weighted Mean Effect Sizes for Testing the Indirect Effect of Disclosure on Suicidality via Overall Social Support.

Disclosure	1		
Overall Social Support	.22***	1	
Suicidality	.04	.07	1

Note: $k = 4$; $n = 2{,}902$; $\bar{n} = 967.33$

Table 10

Weighted Mean Effect Sizes for Testing the Indirect Effect of Disclosure on Substance Use via Overall Social Support.

Disclosure	1		
Overall Social Support	.14**	1	
Substance Use	.06	.02	1

Note: $k = 5$; $n = 2{,}043$; $\bar{n} = 408.60$

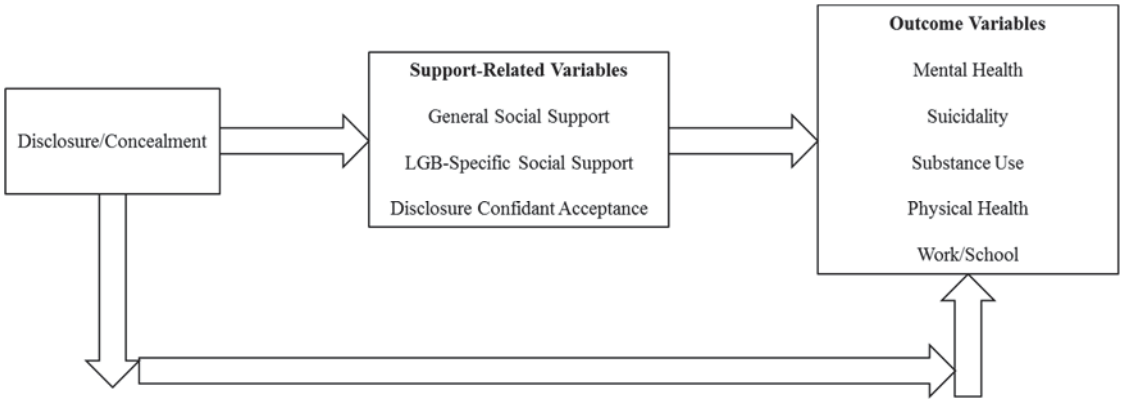

Figure 1. Conceptual model used for this model-driven meta-analysis.

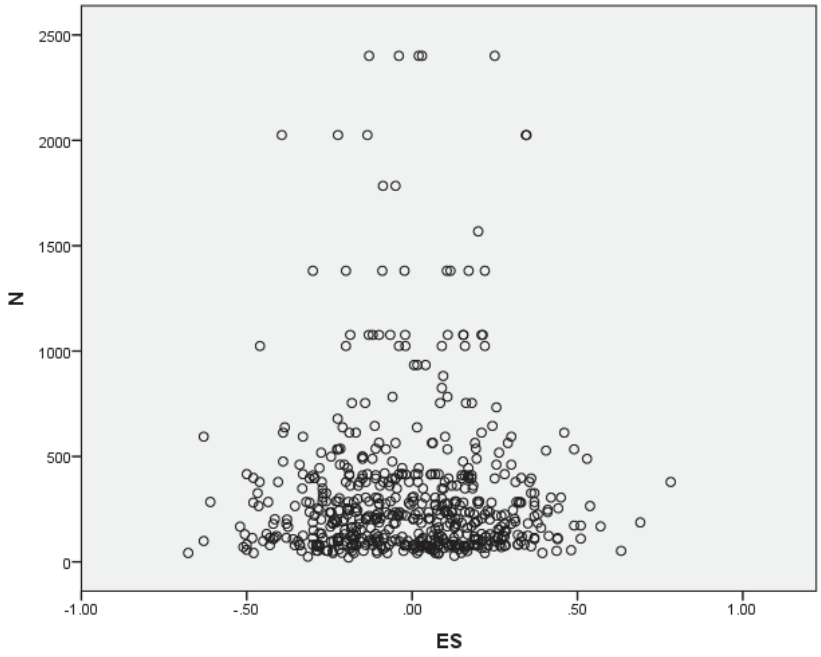

Figure 2. Funnel plot analysis.

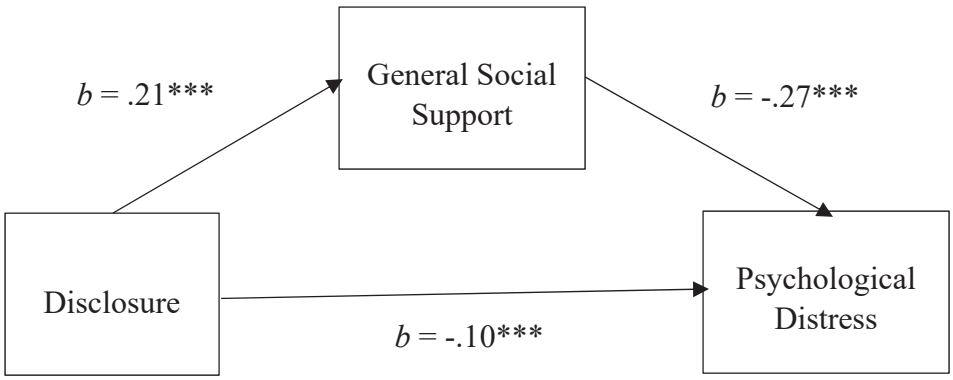

Figure 3. Partial mediating effect of general social support on the relationship between disclosure and psychological distress.

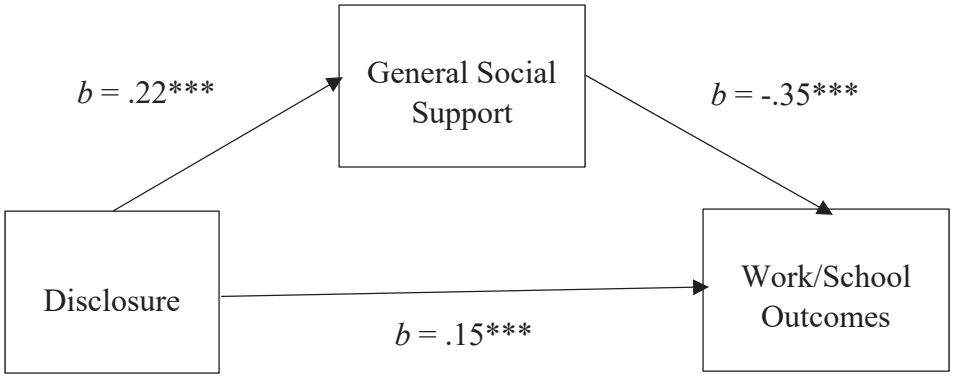

Figure 4. Partial mediating effect of general social support on the relationship between disclosure and work/school outcomes. Note: $k = 29$.

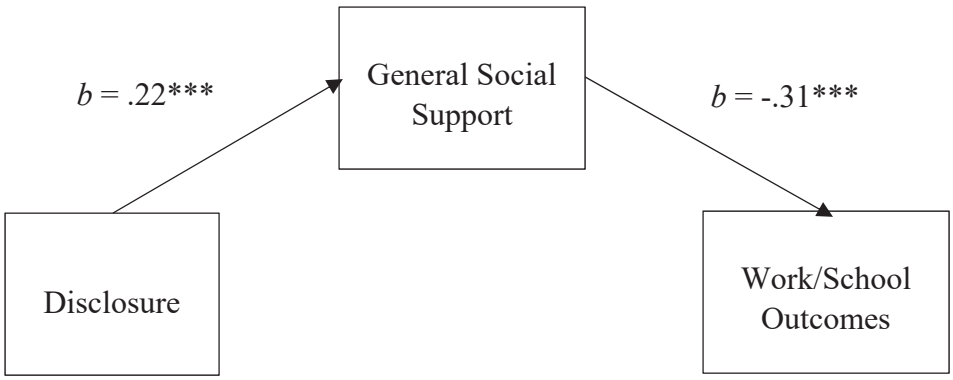

Figure 5. Fully mediating effect of general social support on the relationship between disclosure and work/school outcomes. Note: $k = 9$.

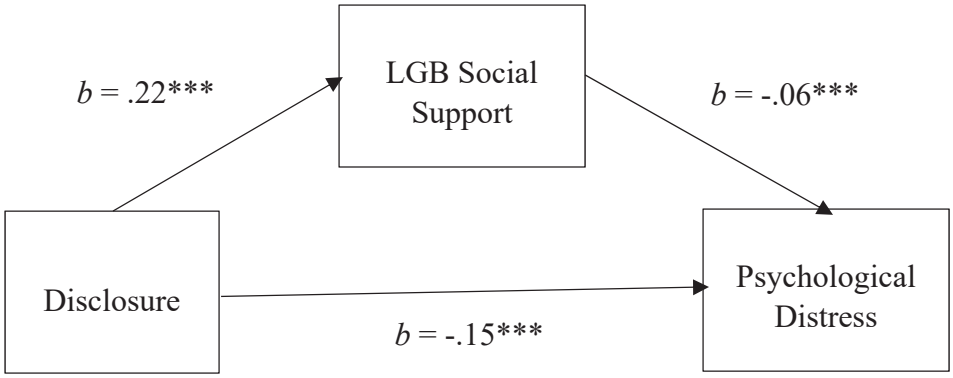

Figure 6. Partial mediating effect of LGB-specific social support on the relationship between disclosure and psychological distress. Note: $k = 13$.

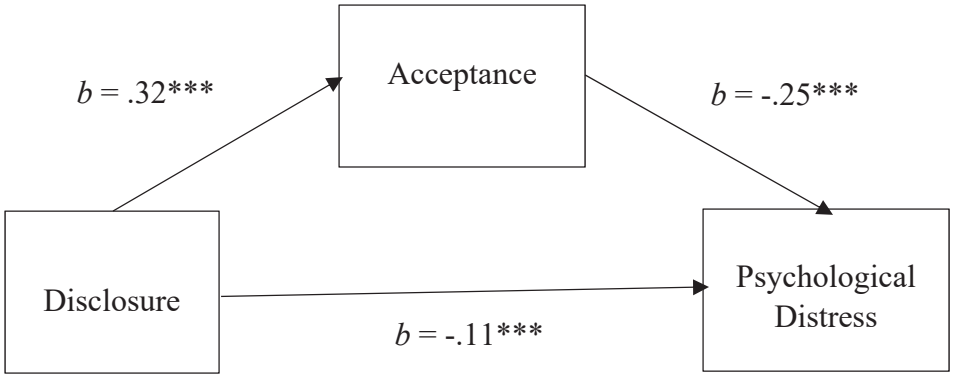

Figure 7. Partial mediating effect of disclosure confidant acceptance on the relationship between disclosure and psychological distress. Note: $k = 7$.

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Appendix A

Disclosure/Concealment Meta-Analysis Study Coding Sheet

Study_ID (Last Name of First Author, Year of Study): _____

Var1_Name (Name of first variable in X/Y relationship): _____

Var1_Measure Name (Name of first measure in X/Y relationship): _____

Var1_Mean (Mean of first measure in X/Y relationship): _____

Var1_SD (Standard Deviation of first measure in X/Y relationship): _____

Var1_Reliability (Reliability/internal consistency estimate of first measure in X/Y relationship): _____

Var2_Name (Name of second variable in X/Y relationship): _____

Var2_Measure Name (Name of second measure in X/Y relationship): _____

Var2_Mean (Mean of second measure in X/Y relationship): _____

Var2_SD (Standard Deviation of second measure in X/Y relationship): _____

Var2_Reliability (Reliability/internal consistency estimate of second measure in X/Y relationship): _____

ES (Effect size/correlation value): _____

N (Study sample size): _____

Publication Year: _____

Pub_Type (Publication Type): _____

- 1 = Peer-Reviewed
- 2 = Dissertation
- 3 = Book Chapter

Disclosure/Concealment Measure

- 1 = Disclosure measure
- 2 = Concealment measure

Mean_Age (Years): ____SD_Age: _____

SexOr (Sexual Orientation): _____

- 1 = Gay
- 2 = Lesbian
- 3 = Bisexual
- 4 = Mixed

N_Gay (Number of gay participants): _____

%_Gay (Percentage of gay participants): _____

N_Lesbian (Number of lesbian participants): _____

%_Lesbian (Percentage of lesbian participants): _____

N_Bisexual (Number of bisexual participants): _____

%_Bisexual (Percentage of bisexual participants): _____

Variable Codes and Directions

1 = Disclosure/Concealment

1 = Higher disclosure/outness/less concealment

-1 = Higher concealment/less disclosure

2 = Social Support

1 = Higher social support

-1 = Lower social support

3 = LGB Community Connection

1 = Higher LGB community connection

-1 = Lower LGB community connection

4 = Sexual Orientation Acceptance/Rejection

1 = Rejecting response from sexual orientation disclosure

-1 = Accepting response from sexual orientation disclosure

5 = Psychological Distress

1 = Greater reports of psychological distress

-1 = Lower reports of psychological distress

6 = Suicidality

1 = Greater reports of suicidal ideation/intent

-1 = Lower reports of suicidal ideation/intent

7 = Substance Use

1 = Greater reports of drug, alcohol, tobacco use

-1 = Lower repots of drug, alcohol, tobacco use

8 = Physical Health Problems

1 = Greater reports of physical health problems

-1 = Lower reports of physical health problems

9 = Work/School Outcomes

1 = Greater reports of work/school problems

2 = Lower reports of work/school problems

Appendix B

Equations for Transformations of Effect Sizes

Converting from Log Odds Ration to Cohen's *d*

$d = LOR * \frac{\sqrt{3}}{\pi}$, where π is the mathematical constant (i.e., 3.14)

Converting from Cohen's *d* to Pearson's *r*

$r = \frac{d}{\sqrt{d^2}+a}$, where $a = \frac{(n_1+n_2)\text{^}2}{n_1 n_2}$, and where *n* is the sample size