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**DISCLOSING GAY-RELATED STRESS: PSYCHOLOGICAL AND PHYSICAL  
HEALTH EFFECTS AND MECHANISMS UNDERLYING IMPROVEMENT**

A Dissertation Presented

by

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in

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Abstract of the Dissertation

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Mechanisms Underlying Improvement**

by

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Accumulating research substantiates the notion that written disclosure of stressful or traumatic events can yield improved mental and physical health outcomes. Gay men may especially benefit from an intervention that facilitates such disclosure given the frequency of the traumatic or stressful identity-related events that they face and the difficulties involved in sharing these events, the disclosure of which may be met with disapproval or punishment by others. Therefore, this study tested the effectiveness of a written emotional disclosure intervention with 77 gay male college students on outcomes related to psychosocial and physical health functioning. Participants were randomly assigned to write for 20 minutes a day for three consecutive days about either 1) the most stressful or traumatic gay-related event in their lives or 2) a neutral topic (i.e., events of the day since waking). Results revealed that those participants who were assigned to write about a gay-related stress or trauma reported significantly greater openness with their sexual orientation three months following writing than those participants who wrote about a

neutral topic. Analyses among participants who wrote about a gay-related stressor revealed that participants who wrote about a more severe stressor were significantly more likely to report a decrease in negative affect and depressive symptoms at three-month follow-up than participants who wrote about a less severe stressor. Participants who wrote about a more severe stressor were also more likely to disclose their sexual orientation at follow-up to at least one other person than participants who wrote about a less severe stressor. Participants with lower levels of social support reported fewer physical illness symptoms, lower negative affect, and a higher percentage of gay male friends at follow-up than participants with higher levels of social support. Whether or not participants were assigned to read their previous days' disclosure before writing on the second and third day did not influence the results. Neither previous disclosure of the event nor level of emotional experiencing in the writing was significantly associated with any outcome measure. The findings are discussed in terms of their implications for clinical practice and future research.

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## INTRODUCTION

### *Background and Rational*

In the past two decades, accumulating research has substantiated the notion that disclosure can have beneficial psychological and physical health benefits. Most of these studies have used a design, pioneered by Pennebaker (e.g., Pennebaker & Beall, 1986), in which participants in an experimental condition are instructed to disclose, usually in writing, their deepest thoughts and feelings surrounding traumatic experiences in their lives, while participants in a control group write about a mundane topic. Most studies employing this type of design have asked participants to disclose the most stressful experience in their lives, regardless of the type of trauma. A meta-analysis by Smyth (1998) of 13 studies of this type revealed that expressing a stressful life experience in an emotional manner produces beneficial outcomes on a number of domains including reported physical health, psychological well-being, and physiological functioning, yielding an overall effect size that is similar to or greater than that produced by other psychosocial, behavioral, or educational treatments (cf. meta-analyses by Lipsey & Wilson, 1993; Smith & Glass, 1977). A more recent meta-analysis by Frattoroli (2006) further supports this finding, synthesizing the results of 146 randomized emotional disclosure studies employing random assignment to either an emotional disclosure condition or control condition.

Studies utilizing the disclosure paradigm have found that participants that engage in written emotional disclosure experience significantly more benefit than participants in a control writing group on outcome measures such as grade point average (Pennebaker, Colder, & Sharp, 1990; Pennebaker & Francis, 1996), reemployment following job loss

(Spera, Buhrfeind, & Pennebaker, 1994), absenteeism from work (Francis & Pennebaker, 1992), repairing a romantic relationship following a break-up (Lepore & Greenberg, 2002), overall mood (Greenberg & Stone, 1992; Greenberg, Wortman, & Stone, 1996; Spera et al., 1994), and immune functioning (e.g., Booth, Petrie, & Pennebaker, 1997; Esterling, Antoni, Fletcher, Margulies, & Schneiderman, 1994; Francis & Pennebaker, 1992; Lutgendorf, Antoni, Kumar, & Schneiderman, 1994; Petrie, Booth, Pennebaker, Davison, & Thomas, 1995).

Certain events may be particularly difficult to disclose. Individuals who experience a stigmatizing stressful event, such as rape or loss of loved one through suicide, may feel compelled to keep the event to themselves, choosing to actively inhibit expressing the painful emotions associated with the event (Pennebaker, 1990; Pennebaker & O'Heeron, 1984). The stress of inhibiting has been shown to lead to problematic mental health outcomes (Cepeda-Benito & Short, 1998; Kagan, Reznick, & Snidman, 1988; Larson & Chastain, 1990) in addition to poorer physical health outcomes such as heart disease (Goldstein, Edelberg, Meier, & Davis, 1988), asthma (Florin, Freudenberg, & Hollaender, 1985), early deaths due to cancer (Jensen, 1987), and poorer immune functioning (Esterling, Antoni, Kumar, & Schneiderman, 1990; Jamner, Schwartz, & Leigh, 1988). Disclosure of the event, on the other hand, has been shown to lead to significant alleviation of these problematic outcomes (Horowitz, 1986; Lazarus, 1966; Pennebaker, 1989; Silver & Wortman, 1980). Despite the substantial implications of these findings, the mechanisms underlying the effectiveness of the disclosure paradigm are still unclear.

*Disclosure of stress related to sexual orientation.* Gay men may be at particular risk for experiencing stressful events that remain experientially unresolved. Testing the effectiveness of the disclosure paradigm using a sample of gay men is particularly important for two reasons: 1) the frequency of traumatic or stressful identity-related events in the lives of gay men, and 2) the difficulties that this population is likely to face in sharing these stressful identity-related events, the disclosure of which may be met with disapproval or punishment. This study includes only gay men, as the sexual orientation-related experiences of men are likely quite different from those of women (Diamond, 2003). Additionally, heterosexual men have been shown to express more hostile attitudes, on average, than heterosexual females, especially toward gay men, suggesting that gay men may encounter more sexual orientation-related stressors than lesbians or bisexual men and women (Herek, 1988).

As possessing a non-heterosexual sexual orientation continues to be stigmatizing in U.S. society, lesbian, gay, and bisexual (LGB) individuals, as a group, may be particularly likely to experience stigmatizing events, such as sexual orientation-related harassment or coming-out-related difficulties (Herek, Gillis, & Cogan, 1999; Mays & Cochran, 2001). Many studies document the disproportionate rate at which LGB adults are exposed to prejudice, discrimination, and violence. In a nationally-representative sample of the U.S. population, Mays and Cochran (2001) found that LGB individuals were nearly twice as likely to experience discrimination, such as being harassed or fired from a job, in their lifetimes than heterosexual individuals. Herek, et al. (1999) found that approximately 20% of the women and 25% of the men in their sample of over 2,000 LGB adults experienced victimization because of their sexual orientation. LGB students

may face even more harassment, discrimination, and violence. In a study of the victimization experiences of 350 high school LGB students, D'Augelli, Pilkington, and Hershberger (2001) found that over half of their sample reported verbal abuse in high school related to their sexual orientation, while 11% said they had been physically assaulted. A population-based sample of high school students revealed that 92% of LGB high school students reported frequently hearing anti-LGB remarks; 64% reported feeling unsafe at their school because of their sexual orientation; and over a third of the sample reported at least some experience of physical harassment (e.g., being pushed or shoved) because of their sexual orientation with 10% reporting that such harassment occurred frequently or often (Gay, Lesbian, and Straight Education Network, 2003). Such events related to one's sexual orientation are likely to be particularly stressful in that they involve affronts to a core aspect of one's overall identity (Cole, 2006; Garnets, Herek, & Levy, 1990; Meyer, 2003).

The impact of these stressors includes increased rates of negative mental and physical health outcomes. For example, in nationally-representative studies of behaviorally-defined sexual orientation, researchers have consistently found higher rates of psychiatric disorders in individuals reporting same-sex sexual behavior than in those reporting exclusively heterosexual contact (e.g., Cochran & Mays, 2000; Gilman et al., 2001; Cochran, Sullivan, & Mays, 2003). There is some evidence that these higher rates of mental illness may be a result of LGB-related victimization of the type described above. Herek et al., (1999), for example, found that compared with victims of other crimes, victims of sexual orientation-related hate crimes were more likely to experience anxiety, depression, anger, and post-traumatic symptoms following the victimizing event.

Further, Hershberger and D'Augelli (1995) reported correlations between general psychological distress and the experience of victimization related to sexual orientation among lesbian and gay 15- to 21-year-olds. There is also evidence that the stress of concealing one's sexual orientation alone can lead to negative physical health consequences, such as higher rates of infectious diseases and poorer immunological functioning (Cole, Kemeny, Taylor, & Visscher, 1996; Ullrich, Lutgendorf, & Stapleton, 2003).

As a result of its stigmatizing nature, a non-heterosexual orientation and the stressful events potentially associated with this identity may be difficult topics for LGB individuals to disclose. Previous research has shown that gay men are likely to become accustomed to hiding information about their identities and that many are reluctant to disclose gay-related stress out of fear of being further victimized by the disclosure (Herek, Cogan, & Gillis, 2002). There is some evidence that gay men have a tendency to conceal identity-related information, likely as a result of the shame, embarrassment, guilt, and fear of rejection that accompanies possessing a concealable stigma (Pachankis & Goldfried, 2006). Further, because sexual orientation and any associated stress is concealable by nature, LGB individuals may face negative mental health consequences that accompany concealing a stigma including cognitive preoccupation, affective distress, and low self-esteem (e.g., Frable, Platt, & Hoey, 1998; Major & Gramzow, 1999; Pachankis, 2007; Smart & Wegner, 1999). Therefore, it seems that gay men, in addition to being particularly likely to face stressful events such as those noted above, may also forego the mental and physical health benefits that accompany disclosing these events.

Psychotherapy is one venue to which LGB individuals may turn in order to deal with the consequences of stressors related to sexual orientation. In fact, researchers have found that LGB individuals utilize therapy at higher rates than the general population (Liddle, 1996; Morgan, 1992; Shernoff, & Scott, 1988). Case studies with LGB clients suggest that incorporating treatment components that target LGB-related stressors into established mainstream therapeutic approaches can be quite effective in alleviating the distress that LGB individuals face as a result of such stressors (e.g., Kaysen, Lostutter, & Goines, 2005). Still, no larger-scale studies have examined the effectiveness of a particular psychotherapeutic treatment with LGB individuals. Ideally, such studies would examine the effectiveness of established approaches to therapy with this population while also testing the added effectiveness of components that attempt to address specific gay-related concerns. As a result of the absence of psychotherapy treatment studies, therapists working with LGB clients still have a need for information regarding basic therapeutic processes with this population. One of the most basic therapeutic processes is the emotional disclosure of negative life events (Breuer & Freud, 1895/1966; Rachman, 1980; Scheff, 1979).

*Mechanisms underlying the effectiveness of disclosure.* Originally, it was assumed that the inhibitory process was the primary mechanism underlying the effectiveness of written emotional disclosure. That is, it was assumed that the work required to inhibit leads to mental distress, which eventually takes its toll on the immune system. The simple cathartic purging of affect-laden stress was assumed to lead to improved mental and physical health. However, some studies have refuted the evidence that disclosure reduces inhibition and subsequently improves health. For example,

Greenberg and Stone (1992) found that individuals who had previously disclosed a stressful event benefited as much from writing about the event as individuals who had never discussed the event with anyone. Thus, emotional expression of a stressful event may be necessary but not sufficient to produce beneficial changes (Murray, Lamnin, & Carver; Pennebaker & Beall, 1986).

As an alternative to the inhibition explanation, some have suggested that the primary mechanism underlying the effectiveness of the disclosure paradigm may be cognitive assimilation. Cognitive assimilation is presumed to be effective in that it provides for the translation of difficult experiences into language. This allows for the labeling of previously unlabeled experiences. This labeling then allows meaning to be ascribed to the experience and for the experience to be integrated into the overall concept of oneself and his or her other life experiences. As noted by Pennebaker and others (e.g., Horowitz, 1986; Pennebaker, Colder, & Sharp, 1990; Wegner, 1989), stressful events that are not assimilated are likely to end up in conscious awareness as unwanted thoughts. Such thoughts can lead to internal distress, which may, in turn, negatively impact an individual's overall mental and physical health. It has been suggested that disclosing a stressful event using language forces the experience to be structured, which in turn leads to a more coherent and organized understanding of the event (Pennebaker, Mayne, & Francis, 1997). If negative events are confronted in such a way, they are more likely to be integrated, understood, and assimilated into one's overall identity. Yet, recent research suggests that greater assimilation of the event may in fact lead to poorer health outcomes, especially if the assimilation is incomplete and the experience of the event remains unresolved as a result (Honos-Webb, Harrick, Stiles, & Park, 2000).

It is possible that for optimal cognitive assimilation of negative events to occur, it may be necessary to effect a restructuring of emotional experiencing until the stressful event is fully resolved in memory (Foa & Kozak, 1986; Greenberg & Safran, 1989). Emotional memory is a structure that includes representations of the emotion-eliciting stressor, associated emotional responses, and the meaning of the stressor and responses. In order for change to occur, Greenberg and Safran (1989) suggest that the relevant emotional memory and its associated schemas must be accessed and relearned. The experience of strong emotions in a corrective context helps individuals overcome any previous cognitive avoidance of the event, thereby activating a process of cognitive assimilation (Greenberg & Safran, 1987). In fact, this is the goal of the process-experiential approach to psychotherapy (e.g., Elliot, Watson, Goldman, & Greenberg, et al., 2004; Greenberg, 2002). Experiential involvement in the disclosure of emotionally-charged memories allows the individual to examine different facets of the experience that may have been blocked at the time of the negative event, leading to insight, cognitive reorganization, affective change, and a decrease in arousal (Kennedy-Moore & Watson, 1999; Lutgendorf, Anotoni, Kumar, & Schneiderman, 1994; Pennebaker & Hoover, 1985; Rice & Greenberg, 1984). This experiential involvement has been linked to therapeutic change (e.g., Greenberg & Foerster, 1996; Klein, Mathieu-Coughlan, & Kiesler, 1986).

Another possible explanation for the positive mental and physical health benefits following disclosure is the self-regulation hypothesis. Self-regulation specifically refers to an individual's utilization of emotions in the service of recognizing his or her relative successes or shortcomings in goal-related pursuits (King, 2002). Self-regulated



individuals therefore experience their emotions as indicators of their movement toward valued goals. The experience of trauma, however, can disrupt the feedback process of self-regulation whereby emotions are no longer accurate indicators of relative success or failure in important life domains. By engaging in emotional written disclosure, an individual who has experienced trauma potentially observes him or herself successfully controlling his or her emotions in the service of successful goal attainment. In this way, the individual views him or herself as a more efficacious actor despite experiencing a trauma in which he or she had potentially been a helpless victim (Lepore, Greenberg, Bruno, and Smyth, 2002). Frattoroli (2006) suggests that self-regulation may explain the benefit accruing from emotional disclosure tasks in which participants write about their best possible selves coping with their life stressors or even write about imagined stressors in which they see themselves coping successfully despite not actually ever having experienced the event (e.g., Cameron & Nicholls, 1998; Greenberg, Wortman, & Stone, 1996; King, 2001; King & Miner, 2000).

It is also possible that the effectiveness of emotional written disclosure could be explained by exposure. That is, when participants are repeatedly confronted with cues related to an experienced trauma or stressor, they may simply habituate to the previously feared trauma-related stimuli through repeated exposure to the stimuli in a corrective context. In fact, common empirically-supported exposure-based treatments for post-traumatic stress disorder incorporate a treatment component that encourages writing about the distressing trauma and then reading the writing in a therapeutic context (e.g., Resick & Schnicke, 1992).

*Primary Purpose, Measures, and Hypotheses -- Outcome*

The primary purpose of this study is to examine the mental and physical health benefits that accrue from disclosing gay-related stress while also exploring potential mechanisms that may account for the effectiveness of such disclosure. As such, this study is proposed as a test of a potentially effective psychotherapy treatment component--the disclosure of gay-related stress—which approximates one of the potentially effective components of therapy with clients who face concerns related to their sexual orientation.

Outcome measures will include assessments of general physical health, psychological health, and gay-related social functioning. It is predicted that participants in the treatment group will experience more physical and mental health benefits after disclosing gay-related stress than participants in the control group. It is also hypothesized that participants in the experimental group will experience greater improvement on measures of gay-specific social functioning, including measures of gay-related self-esteem and gay-related rejection sensitivity. Improved scores on these particular outcome measures will indicate that the written disclosure paradigm is effective in improving one's attitudes toward being gay as well increasing one's comfort in situations in which sexual orientation is salient. In addition to testing the effectiveness of the intervention on these domains, the study also provides information regarding the sensitivity of these psychosocial measures to an intervention designed to facilitate more positive gay-related social functioning. This is particularly valuable as it is the first such test of the Rejection Sensitivity-Gay measure recently established by Pachankis, Goldfried, and Ramrattan (in press) and contributes information regarding the psychometric properties of this measure.

Other studies have similarly demonstrated improved domain-specific social functioning in response to writing about a particular domain of stress. For example, a recent study by Lepore and Greenberg (2002) demonstrated that participants were more likely to be reunited with their ex-partner after writing about the break-up of their relationship with that partner than participants who wrote about a trivial topic. Similarly, participants who were instructed to write about the stress of their recent job loss were reemployed more quickly than those who wrote about a neutral topic (Spera, Buhrfeind, & Pennebaker, 1994).

In sum, the primary hypotheses of the present study include the following:

1. Participants in the experimental groups will demonstrate significantly more improvement on measures of psychological functioning and well-being, including gay-related social functioning, than participants in the control group.
2. Participants in the experimental groups will demonstrate significantly more improvement on self-report measures of physical health than participants in the control group.

#### *Secondary Purpose, Measures, and Hypotheses -- Process*

In addition to testing the impact of writing about gay-related stress on various psychosocial and physical health outcome measures, this study will also examine the association between certain disclosure processes and eventual outcomes. Psychotherapy researchers have increasingly noted the importance of including both process and outcome measures in the same study (Behar & Borkovec, 2003; Pachankis & Goldfried, 2007).

To offer a test of possible mechanisms (e.g., exposure, self-regulation) underlying the effectiveness of this type of intervention, this study will randomly assign half of the experimental participants to write about the most stressful or traumatic gay-related event only after they have read their previous day's writing before the second and third day of writing. The other half of the experimental participants will simply disclose in writing (without reading) each day. The control participants will write about what they have done since waking on the day of disclosure. This study will therefore offer a test of an already common trauma recovery treatment component, namely encouraging individuals to read their written narrative of the traumatic event in a safe context (e.g., e.g., Resick & Schnicke, 1992).

To test another potential mechanism underlying the effectiveness of emotional disclosure, the present study will also examine the association of emotional experiencing across each of the disclosure sessions with each outcome measure. Using the Experiencing Scales of Klein et al. (1969), the present study will seek to identify the relative contributions of this variable to overall outcome in the emotional disclosure condition. It is hypothesized that those participants who exhibit the greatest levels of emotional experiencing in their disclosure will show the most improvement on outcome measures. Only one study to date has used the Experiencing Scale in the context of an emotional disclosure design. In that study, Lutgendorf, Antoni, Kumar, and Schneiderman (1994) found a high correlation between experiencing level, as measured with the Experiencing Scale, and antibody response to an Epstein-Barr viral antigen in participants who were instructed to disclose a stressful topic across three weekly disclosure sessions.

The inclusion of other potentially moderating variables will also contribute to the process approach of testing effective mechanisms of change in a psychotherapeutic intervention like the one being tested presently. Specifically, this study will examine whether those participants who write about more severe topics, who have previously disclosed their writing topic to fewer people, who have a higher tendency to conceal, or who report lower levels of social support will benefit more from this intervention than participants who write about less severe topics, who have previously disclosed to more people, who have a lower tendency to conceal, or who report higher levels of social support. The study by Greenberg and Stone (1992) provides evidence for the notion that writing about a severe topic yields more benefit than writing about a less severe topic. Specifically, they found that university undergraduate participants who disclosed a more severe trauma experienced fewer physical illness symptoms in the months following the disclosure than participants who disclosed a less severe trauma. The importance of examining the influence of previous disclosure, tendency to conceal, and social support on measures of improvement lies in the fact that gay men may be particularly likely to experience difficulties related to concealing important personal (especially gay-relevant) information (e.g., Pachankis & Goldfried, 2006). This lack of self-disclosure about important personal information may be particularly likely to affect young gay men's levels of social support, given evidence suggesting that self-disclosure of self-relevant information is necessary for the establishment and maintenance of close relationships (e.g., Alden & Bieling, 1998; Jourard, 1959; Papsdorf & Alden, 1998).

The secondary aims of this study, then, will be to test possible explanations of the effectiveness of a written disclosure intervention. Specifically, by measuring

participants' levels of experiential involvement in their writing, the impact of emotional experiencing on eventual improvement can be examined. Also, exposing participants to their own emotional disclosure from previous days offers the opportunity to assess how emotional disclosure may operate. That is, if participants who read their previous days' writing benefit more from the intervention than do those participants who do not read their previous days' writing, then this may suggest that a mechanism beyond simple cathartic purging of affect-laden experience may be operating to produce benefit from this intervention. For example, reading in addition to writing may support a cognitive-affective shift through greater exposure or the facilitation of self-regulatory processes. Finally, the inclusion of topic severity, previous disclosure of the event, tendency to conceal, and levels of perceived social support will also contribute to our understanding of potential moderating factors that explain the effectiveness of this type of intervention.

Secondary hypotheses related to process mechanisms include:

3. Participants in the experimental group who read their previous days' writing will report more improved psychological and physical well-being than those participants in the experimental group who do not read their previous days' writing.
4. Within both experimental groups, participants who evince higher levels of emotional experiencing will demonstrate more improvement on psychosocial and physical outcome measures than participants who evince lower levels of emotional experiencing.

5. For participants in the experimental groups, writing about a more severe topic will yield more improvement on relevant outcome measures than writing about a less severe topic.
6. For participants in the experimental groups, those who have shared the topic of their disclosure with few people previous to the study will demonstrate significantly more improvement on all outcome measures than those who have disclosed the stressful topic to more people.
7. For participants in the experimental groups, those with a higher tendency to conceal will benefit more from the intervention in terms of outcome measure improvement than participants with a lower tendency to conceal.
8. Those individuals in the experimental conditions with less social support will demonstrate significantly more improvement on outcome measures than participants in the experimental conditions with higher levels of social support.

## METHOD

### *Overview*

Participants were randomly assigned to one of three groups: 1) writing about a gay-related stressful event, 2) writing about a gay-related stressful event after reading their writing from the previous days--on the second and third day of writing, and 3) writing about a neutral topic. Twenty-minute written disclosure sessions occurred once a day on three consecutive days. The number of writing sessions, spacing between sessions, and length of disclosure was chosen based on the results of the Smyth (1998) meta-analysis which showed that number of writing sessions, space between writing sessions, and length of each writing session did not have a significant effect on psychological or physical well-being. Thus, the methodology in this study was primarily chosen because it was feasible and unlikely to lose participants to dropout. Pretest measures were administered the day before the first disclosure session, posttest measures were administered the day after the final disclosure session, and follow-up measures were administered three-months following the posttest. Measures of positive and negative affect were administered before and after each writing session as well as at pretest, posttest, and follow-up. Participation occurred via the Internet, with participants completing all measures and disclosure sessions on a secure web interface. Recent evidence supports the effectiveness of an Internet-based disclosure design (e.g., Sheese, Brown, & Graziano, 2004) and a recent meta-analysis revealed no difference between typing and hand-writing disclosures (Frattaroli, 2006).



### *Participants*

Eighty gay male undergraduates who were enrolled at one of several public universities across the United States were randomly assigned to one of the three groups. Participants were recruited primarily through a general announcement sent across the listservs of LGBT-related student organizations at large state universities. The researcher contacted the LGBT undergraduate organizations at the largest universities in each of the 50 states in the US. Students from twenty-two of these universities participated. Participants received a total of \$100.00 in compensation distributed as follows: \$5 for completing pretest measures; \$45 for the three writing sessions (\$10 for the first session, \$15 for the second session, \$20 for the third session), \$25 for completing posttest measures, and \$25 for completing follow-up measures.

Data from two participants were omitted because of difficulties with the computer program (i.e., the program did not receive pretest data or a written disclosure from at least one day). One participant dropped out of the study after the second day of written disclosure. In total, data from three participants were incomplete yielding a final sample of data from 77 participants.

The mean age of the participants was 20.19 ( $SD = 1.99$ ). The racial/ethnic makeup of the sample was as follows: Black/African American = 1 (1.3%), White/Caucasian = 59 (76.6%), Latino/Hispanic = 10 (13%), Asian = 2 (2.6%), Native American = 2 (2.6%), Pacific Islander = 1 (1.3%), and other = 2 (2.6%).

### *Procedure*

*Consent and debriefing.* Participants indicated their interest in the study by contacting the researcher via the email address indicated on the initial announcement.

The researcher sent a reply email stating that participation will require: 1) the transmission of personal information over the Internet on a secure website, 2) access to a secure computer in a quiet, distraction-free environment, 3) a total of four hours of their time across five sequential days and one day at three-month follow-up, 4) identification as gay, and 5) current enrollment as an undergraduate at a public university in the United States. If participants indicated that they were comfortable with these requirements, the researcher then contacted them by telephone and directed them to a secure electronic website containing the consent form for the study, which the researcher and participant reviewed together. The consent form included information about potential risks and benefits of study participation. Participants were told that potential risks of the study included feelings of depression and anxiety while participating, as well possible disturbances in sleep and appetite. Participants were also informed that potential benefits include longer-term increases in overall well-being. Participants were told of the payment schedule including the receipt of a total of \$100.00 for participation in all aspects of the study (\$10 pretest, \$45 disclosure sessions, \$20 posttest, \$25 follow-up). The researcher also indicated that participants could withdraw from the study at any time without losing the remuneration that they had received up until the point of withdrawal from the study. Participants were also informed that their name would not be linked to any of the information that they disclosed or to any other data unless they indicated an intent to harm themselves or another person, or if they reported currently committing any child abuse. At the end of each session, participants were provided with the contact information of their university counseling center. They were also encouraged to contact the researcher via telephone or email if they experienced any distress during the study.

The researcher or a qualified research assistant was available via email and telephone for the duration of the study in the event that any problems arose. At the beginning of each disclosure session, a statement on the website reminded each participant that feelings of sadness and anxiety are common at that stage of the study. At the end of each disclosure session, the participant received a message to contact the researcher if he or she experienced any adverse psychological effects from participating in the study. The researcher also reviewed each disclosure essay daily in order to assess any reported attempt to harm oneself or another person, any report of child abuse, or any other disclosure requiring immediate attention. Appendix A includes a brief overview of the procedures and measures that were used from consent to follow-up.

*Pretest.* Participants completed a demographic assessment, including measures related to sexual orientation (e.g., self-label of sexual orientation, openness, parental acceptance of sexual orientation, relationship status, gender conformity), and geographic location (e.g., geographical location of high school, geographical location of current residence). Participants were then asked to review instructions about the overall procedure and to complete pretest measures (see Appendix A for a listing of measures given to each participant at each point throughout the study).

*Disclosure.* Participants were then assigned to one of the three conditions. The researchers sent participants a link to the website specific to each day and condition before 11:00 AM on the specified day. Before all sessions, the computer program assessed whether each participant was alone in a quiet, secure, distraction-free environment. If a participant answered “no” to any one item in a series of questions assessing the quality of his environment, the computer program prevented him from

proceeding with the study until he telephoned the researcher, who then directed the participant to a suitable environment. Each participant was then instructed to write about the assigned topic for 20 minutes.

Immediately before and after each disclosure session, participants completed the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), a standardized measure of mood. After each session, participants were also asked several questions related to the event that was disclosed during that session including ratings of the severity of the event, recentness of the event, extent of previous disclosure of the event, self-perceived personal quality of the disclosure, and self-perceived expressiveness of the disclosure. Participants were also reminded to avoid discussing the study with anyone unless they experience psychological distress, in which case they were advised to contact the researcher, the counseling center at their university, or any other mental health professional.

The three groups received the following instructions at the beginning of the first session:

This study is an extremely important project looking at writing. Over the next three days, you will be asked to write about one of several different topics for 20 minutes each day. Every day for the next three days, we will give you the instructions for that particular day. You will then be asked to find a secure, quiet, distraction-free environment where you can complete the writing. The computer program will tell you when to begin and when to end. At the end of each writing session, you will be given a very brief questionnaire to complete.

The only rule we have about your writing is that you write non-stop for the entire time. If you run out of things to write about, just repeat what you have already written. In your writing, don't worry about how you write, your grammar, or sentence structure. Just write. Different people will be asked to write about different topics. Please do not talk with anyone about the experiment. You will only have to participate this week and one day three months from now.

Another thing is that sometimes people feel a little sad or depressed after writing. If that happens, it is completely normal. Most people say that these feelings go away in an hour or so. If at any time over the course of the experiment you feel upset or distressed, please contact our research office immediately [emergency lab number].

One more thing. Your writing is completely confidential. We will ask you to indicate your code number (not your name) at the beginning of each writing session. I promise that none of the experimenters, including me, will link your writing to you. The one exception is that if you indicate that you intend to harm yourself or others, or if you mention that you are abusing a child, we are legally bound to match your number with your name. Above all, we respect your privacy. If you have any questions, please contact the researcher at [emergency lab number].

*Experimental condition 1.* The instructions for the experimental condition 1 (the condition in which participants *did not* read their previous days' writing) were:

Studies show that, as gay men, nearly all of us have experienced stressful events because we are gay, ranging from small events like being teased for being “faggy” to big things like coming out, being rejected by family or friends, or being physically harmed for being gay. These events lead many of us to feel ashamed, guilty, or anxious. I would like you to write about the most stressful (painful) gay-related situation that you have encountered or the thing that is the most personally difficult for you about being gay. Write about your deepest thoughts and feelings about being gay in that event or situation. The important thing is that you write about your deepest thoughts and feelings. Ideally, whatever you write about should deal with something very personal that you have not talked about with others in detail (Day 1).

Today, I would like you to continue writing about the most difficult (painful) event or situation that you have encountered because you are gay or the most personally difficult thing for you about being gay. It could be the same topic that you talked about yesterday or it could be something different. But today, I really want you to explore your very deepest emotions and thoughts. Remember to keep writing for 20 minutes. (Day 2).

You have survived the first two days, and today is the last one. In your writing today, I again want you to explore your deepest thoughts and feelings about the most difficult (painful) thing that has happened to you because you are gay. Remember that this is the last day of writing, so you might want to wrap everything up. For example, you can write about how this experience relates to your current life and your future. But feel free to go in any direction you feel most comfortable with and delve into your deepest emotions and thoughts...(Day 3).

*Experimental condition 2.* The instructions for the experimental condition 2 (the condition in which participants read their previous days' writing) were:

Studies show that, as gay men, nearly all of us have experienced stressful events because we are gay, ranging from small events like being teased for being “faggy” to big things like coming out, being rejected by family or friends, or being physically harmed for being gay. These events lead many of us to feel ashamed, guilty, or anxious. I would like you to write about the most stressful (painful) gay-related situation that you have encountered or the thing that is the most personally difficult for you about being gay. Write about your deepest thoughts and feelings about being gay in that event or situation. The important thing is that you write about your deepest thoughts and feelings. Ideally, whatever you write about should deal with something very personal that you have not talked about with others in detail (Day 1).

When you click the button below, the screen will display what you wrote yesterday. Please read what you wrote carefully. After you have read your writing, click the button below. [At this point, the participants' writing from Day 1 appeared.] When you have finished reading what you wrote yesterday, click the button below. [Immediately after participants pressed the button, the following appeared:] You just read your writing about a stressful event that you faced related to being gay or the most personally difficult thing for you about being gay. Today, I would like you to continue writing about the most difficult (painful) event or situation that you have encountered because you are gay or the most personally difficult thing for you about being gay. What are your thoughts and feelings after reading about yourself in that situation? In your writing today, focus on your very deepest thoughts and feelings about seeing yourself in that situation. Remember to keep writing for 20 minutes. Today, I really want you to explore your very deepest emotions and thoughts...(Day 2).

When you click the button below, the screen will display what you wrote yesterday. Please read what you wrote carefully. After you have read your writing, click the button below. [At this point, the participant's writing from Day 2 appeared.] When you have finished reading what you wrote yesterday, click the button below. [Immediately after participants pressed the button, the following appeared:] You just read your writing about a stressful event that you faced related to being gay or the most personally difficult thing for you about being gay. You have survived the first two days, and today is the last one. In your writing today, I again want you to explore your deepest thoughts and feelings about the most difficult (painful) thing that has happened to you because you are gay. Remember that this is the last day of writing, so you might want to wrap

everything up. For example, you can write about how this experience relates to your current life and your future. But feel free to go in any direction you feel most comfortable with and delve into your deepest emotions and thoughts... (Day 3).

*Control condition.* The instructions for the control group were:

Today, I want you to describe in detail what you have done since you woke up this morning. It is important that you describe things exactly as they occurred. Do not mention your own emotions, feelings, or opinions. Your description should be as objective as possible—I just want to know the facts. (Days 1-3; adapted from Pennebaker, Colder, & Sharp, 1990).

*Posttest and follow-up.* On the day following the final disclosure session, participants completed posttest measures in addition to a brief questionnaire that assessed their general mood and attitudes about the experiment. They then answered a series of questions assessing any general negative or positive impact that the experiment may have had on them. All participants were provided with the contact information of the researcher.

Three months after the last disclosure session, participants were asked to complete follow-up measures. These measures were identical to those administered at pretest in addition to questions assessing the number and type of people to whom participants disclosed their sexual orientation across the three months between posttest and follow-up. At the end of the study, the researcher emailed a debriefing statement to each participant in order to explain the purpose of the study.

*Outcome Measures (see Appendices B through L for actual measures)*

*General psychological well-being.* Participants completed the *SCL-90* (Derogatis, Lipman, & Covi, 1973; Appendix C), a commonly used 90-item self-report checklist that assesses a broad range of psychological problems and symptoms of psychopathology. Final scores yield both global symptom indices and nine subscale scores (i.e.,

somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism). Participants endorsed how much each of the 90 symptoms has distressed or bothered them during the previous week using a five-point scale with the endpoints, *not at all* and *extremely*. Cronbach's alpha was .97 at pretest in the current sample.

Participants also completed the *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977; Appendix D), a 20-item self-report symptom rating scale used to measure depressive symptoms during the past week, with an emphasis on the affective, depressed mood component of depression. Participants indicated the frequency of occurrence of each symptom over the past week on a 4-point scale with the endpoints *rarely or none of the time (less than 1 day)* and *most or all of the time (5-7 days)*. Cronbach's alpha was .87 at pretest in the current sample.

*Physical health.* The *Pennebaker Inventory of Limbic Languidness* (PILL; Pennebaker, 1982; Appendix E) is a 54-item scale that measures the frequency of a group of common physical symptoms and sensations. The PILL has been used frequently in other studies that have used a design similar to that used in the present study (Smyth, 1998). Participants rated the frequency with which they experience each of the 54 symptoms on a five-point scale with the endpoints *have never or almost never experienced the symptom* and *more than once every week*. In the current sample, Cronbach's alpha was .93 at pretest.

*Self-Concealment Scale* (Larson & Chastain, 1990; Appendix F). The Self-Concealment Scale is a ten-item scale that assesses tendency to conceal personal, distressing information. Participants responded to each item using a five-point Likert



scale with the endpoints *strongly disagree* to *strongly agree*. Sample items include: “Some of my secrets have really tormented me” and “I have negative thoughts about myself that I never share with anyone.” In the present sample, Cronbach’s alpha was .83 at pretest.

*Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988; Appendix G).* The PANAS is a 20-item checklist of positive and negative mood descriptors. It yields separate positive and negative affect scores for each participant. Participants completed the PANAS at pretest, posttest, and immediately before and after each disclosure session. Several studies have included the PANAS as a measure of pre- and post-writing affect and most have shown significant increases in negative affect for participants in emotional disclosure conditions (and not in control conditions) both across the course of individual sessions and across the total duration of the experiment (Smyth, 1998). The PANAS was used in this study in order to determine shifts in affect across sessions as well as to compare the patterns of overall affective change between the experimental and control groups. Participants indicated the extent to which each of the following descriptors characterized their present mood using a five-point Likert scale with the endpoints *very slightly or not at all* and *extremely*. At pretest Cronbach’s alpha in the current sample was .90 for the negative affect subscale, .92 for the positive affect subscale, and .88 for the total scale.

*Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988; Appendix H).* The Multidimensional Scale of Perceived Social Support is a 12-item measure of the amount of perceived support from three sources: family, friends, and significant other. Example items from each of those three respective domains

include: “I get the emotional help and support I need from my family,” “I can talk about my problems with my friends,” and “There is a special person who is around when I am in need.” Participants indicated their agreement with each item using a seven-point Likert scale ranging from *very strongly disagree* to *very strongly agree*. Cronbach’s alpha in the present sample was .86 at pretest.

*Gay-specific social functioning.* Gay-specific social functioning was assessed with a measure of gay-related rejection sensitivity and gay-related self-esteem. Gay-related rejection sensitivity was assessed with the recently established *Gay-Related Rejection Sensitivity Scale* containing 14-items in a self-report format (Pachankis, Goldfried, & Ramrattan, in press; Appendix I). The initial pool of items for the scale was generated by a sample of 75 gay men at gay-related venues in New York City who were asked to indicate situations in which they may be rejected because of their sexual orientation. Those situations that were mentioned most frequently and that independent coders deemed representative of various domains of functioning (e.g., work, family, medical) were included on the final measure. A community sample of 149 gay men then completed the instrument along with other common measures of gay-specific functioning and overall psychological functioning, providing evidence of the strong psychometric properties of the scale. The scale assesses the likelihood of expecting rejection by non-gay others in more or less ambiguous situations and is associated with social anxiety, assertiveness, internalized homophobia, parental acceptance of one’s sexual orientation, and openness about and comfort with one’s sexual orientation. Participants indicated the degree to which they would expect rejection as a result of their sexual orientation on a

six-point scale with the endpoints, *very unlikely* and *very likely*. At pretest Cronbach's alpha was .80 in the current sample.

Gay-related self-esteem was measured with the *Rosenberg Self-Esteem Scale* (Rosenberg 1965; Appendix J) which included modified instructions assessing self-esteem related to oneself as a gay man. In this study, then, the RSE was used to measure how positively or negatively participants viewed themselves as gay men. Participants complete the 10 items of the RSE using a Likert-type scale with four points, 1 = *strongly agree*, 2 = *agree*, 3 = *disagree*, 4 = *strongly disagree*. The RSE generally has high reliability. In this study, higher scores on the RSE indicate lower self-esteem. Sample items include: "I take a positive attitude toward myself," "I certainly feel useless at times," and "At times I think I am no good at all." Cronbach's alpha in the current sample was .86 at pretest.

*Disclosure Impact Measure* (Appendix K). Participants answered seven questions about the extent to which their written disclosures were distressing, personal, influential, meaningful, and revealing; the extent to which they had talked to another person about the event described in their writing; and the degree to which the writing made them want to talk to others about the event. Each of the seven questions was assessed on a seven-point Likert scale.

*Experiencing Scale (EXP)*; Klein, Mathieu, Gendlin, & Kiesler, 1969). The EXP scale is an empirically derived, observer-rated instrument that assesses a participant's involvement in the therapeutic process using a 7-point scale. A low score indicates detachment from the event described whereas a high score indicates a high degree of cognitive and affective involvement in disclosing the event. The scale also assesses the

extent to which participants attempt to reorganize the event and its associated meaning in their narrative of the event. The scale has been correlated with level of disclosure, cognitive change in therapy, and successful therapy outcome (Klein, Mathieu-Coughlan, & Kiesler, 1986). Although the EXP training manual (Klein et al., 1969) extensively describes the seven points of the scale, a brief description of the endpoints and midpoint is offered here as an example of the disclosure content and style captured by the stages:

Stage 1: “external events; refusal to participate; impersonal; detached”

Stage 4: “descriptions of feelings and personal experiences; self-descriptive; associative”

Stage 7: “full, easy presentation of experiencing; all elements confidently integrated; expansive; illuminating; confident; buoyant”

Four undergraduate coders were trained to rate each disclosure session for each participant using the EXP training transcripts and manual. Trainers received approximately 35 hours of training in a weekly group format. For each disclosure transcript, the raters obtained a modal rating (the rating that best characterizes the experiencing level of the entire disclosure session) and a peak rating (the highest rating for the participant for that session). The intraclass correlation (ICC) coefficient was used to determine reliability among the four raters. The ICC for modal rating was .88; the ICC for peak rating was also .88. Any discrepancies were resolved by discussion in weekly group meetings over the course of two semesters. In this way, one modal and one peak rating was obtained for each disclosure session for each participant.

### *Other Items Assessed*

At pretest, participants completed additional items including 1) general background information (e.g., age, race/ethnicity, current location, childhood location, 2) past therapy experience, and 3) gay-specific functioning (e.g., comfort being gay, openness about sexual orientation, age of first awareness and disclosure of gay identity, disclosure of sexual orientation to parents, and parental acceptance/rejection of sexual orientation). At follow-up, participants were asked to indicate 1) the number and relationship of individuals to whom they first disclosed their sexual orientation during the three months between posttest and follow-up, 2) whether or not they had sought therapy during those three months, and 3) the perceived impact of study participation on overall functioning, including the amount to which they had thought about and talked to another person about the topic of their writing since participating in the study three months previously (Appendix L).

## RESULTS

### *Data Screening*

Certain scales (e.g., CESD, Rosenberg Self-Esteem Scale, PANAS) contained reverse-worded items, which were re-scored accordingly. Next, for all days and participants, data were carefully checked for missing values. Missing values were relatively infrequent given the automated nature of responding via computer and data that was missing was determined to be missing at random. Missing data-points were substituted with the mean of all other participants' responses for that item.

Of the 231 submitted essays, all except eight were submitted on sequential days. Of those eight, six were submitted on the day after they were due and two were submitted two days after they were due. Also, two participants submitted their first days' writing the day after it was due and eleven participants submitted their posttest data the day after it was due. All participants completed their follow-up data during the week that they were assigned to complete it, which occurred three months after posttest submission.

### *Preliminary Analyses: Participant Background*

The final breakdown of participants by group was as follows: 27 participants in experimental group 1 (writing without reading), 25 participants in experimental group 2 (writing after reading the previous day's writing), and 25 participants in the control group.

Participants completed a variety of questions specifically related to their sexual orientation. The mean age at which participants reported that they first became aware that they were attracted to other males was 10.55 ( $SD = 3.01$ ). They reported identifying this attraction as "gay" at a mean age of 14.19 ( $SD = 2.58$ ) and first telling another person

of this identity at a mean age of 15.74 ( $SD = 2.58$ ). Of the 77 participants, 63 reported disclosing their sexual orientation to their mothers (or other primary female caregivers) whereas only 44 reported disclosing their sexual orientation to their father (or other primary male caregivers). For those participants who disclosed their sexual orientation to their mothers, they did so at a mean age of 17.33 ( $SD = 2.16$ ). The mean age of disclosure to fathers was 17.68 ( $SD = 2.31$ ).

Participants reported currently being relatively open about and comfortable with their sexual orientation. Openness was measured on a 7-point Likert scale (1 = sexual orientation completely hidden from others, 4 = sexual orientation not quite hidden but not quite open, 7 = completely open with others about sexual orientation). Participants' mean openness score was 5.87 ( $SD = 1.04$ ) and the mean comfort rating was 4.25 ( $SD = 1.04$ ). Comfort with being gay was measured on a 5-point Likert scale (1 = very uncomfortable being gay, 5 = very comfortable being gay).

Participants were asked how likely it is that a stranger could identify them as gay. Thirty-eight participants (49.4%) indicated that this was not likely, 29 (37.7%) indicated that this was likely, and 10 (13%) indicated that this was very unlikely to occur. They were also asked to indicate their degree of relative masculinity/femininity in comparison to other guys their age. Seventy-six participants indicated the following responses to that question: much more feminine ( $n = 3$ , 3.9%), more feminine ( $n = 25$ , 32.5%), about the same ( $n = 44$ , 57.1%), more masculine ( $n = 3$ , 3.9%), and much more masculine ( $n = 1$ , 1.3%).

Twenty-two participants (28.6%) reported being in psychotherapy at some point in their lives. Sixteen (20.8%) reported seeking therapy for issues related to their sexual orientation. Eight (10.4%) reported being in therapy at the time of the study.

Participants were asked to identify the US state in which they attended high school and college. The vast majority (94.8%) of participants attended high school and college in the same state. Participants attended high school in the following regions of the US: Midwest = 28 (36.4%), Northeast = 21 (27.3%), South = 6 (7.8%), Southwest = 13 (16.9%), West = 8 (10.4%), blank = 1 (1.3%). Participants attended college in the following regions: Midwest = 28 (36.4%), Northeast = 20 (26.0%), South = 5 (6.5%), Southwest = 13 (16.9%), West = 10 (13.0%), blank = 1 (1.3%). Participants were also asked to indicate the relative size of the place they attended high school and college. The breakdown of size of high school location was as follows: rural = 8 (10.4%), small town = 17 (22.1%), small city = 11 (14.3%), suburb = 28 (36.4%), large city = 13 (16.9%). Likewise, the breakdown of size of college location is as follows: rural = 4 (5.2%), small town = 17 (22.1%), small city = 14 (18.2%), suburb = 8 (10.4%), large city = 33 (42.9%), blank = 1 (1.3%).

#### *Manipulation Check*

Participants in the experimental groups, who disclosed a gay-related stressor, should report that their writing was significantly more distressing, personal, influential, meaningful, and revealing than participants in the control condition, who wrote about what they had done since they awoke that day. Compared to participants in the control group, participants in the experimental groups should also report being significantly more likely to talk to another person about the events described in their writing as well as a



significantly higher degree of wanting to talk to another person about the events described in their writing. Comparing the experimental and control groups on these measures is one way to test whether or not participant disclosure had the general impact that was intended.

Therefore, data for each of the seven disclosure impact measures were averaged across the three days of writing. Data were compared for participants in the control group, experimental group 1 (writing), and experimental group 2 (writing after reading). A one-way multivariate analysis of variance (MANOVA) was used to compare the three groups on the seven disclosure impact measures. Table 1 displays means and standard deviations for each of these variables by group. Pairwise group means were compared using the Bonferroni method for posthoc comparisons. Results revealed no significant differences on any of the seven variables between the two experimental groups. Each experimental group scored significantly higher than the control group on all of the variables.

#### *Preliminary Analyses: Pretest Correlations*

Table 2 shows bivariate correlations for gay-specific background variables (i.e., gender conformity, likelihood of being identified as gay, comfort being gay, openness about sexual orientation) and major variables measured at pretest. Overall, the measures of gay-related social functioning (e.g., comfort being gay, openness about sexual orientation, gay-related rejection sensitivity, gay-related self-esteem) yielded the expected direction of association with measures of psychological well-being and illness (e.g., SCL-90, CES-D, PILL, Self-Concealment Scale, Negative Affect, and perceived social support).

### *Main Effect of Group: Pretest, Posttest, and Follow-Up Comparisons*

From Table 3 it is clear that no differences were found between the two experimental groups at posttest or follow-up on any relevant outcome measures (Hypothesis 3), suggesting that disclosure after reading the previous days' writing failed to confer a significant advantage over disclosing without reading the previous days' writing. All further analyses in this study therefore involved the combination of the two experimental groups without differentiation between the group that read the previous days' writing and the group that did not engage in this task.

Table 4 displays the main effect of group (experimental versus control) on relevant outcome measures at posttest and three-month follow-up (Hypotheses 1 and 2). For each of the outcome measures analyzed at posttest and follow-up, the pretest score on that respective measure was entered as a covariate in analyses of covariance (ANCOVA). Results reveal that participants in the experimental groups reported significantly higher positive affect than the control group on the day following writing, after controlling for levels of positive affect reported at pretest. Openness about and comfort with being gay were assessed only at pretest and three-month follow-up. Table 4 shows that participants in the experimental groups reported being significantly more open about their sexual orientation than participants in the control group at three-month follow-up, after controlling for reported pretest levels of openness about their sexual orientation. All other comparisons between experimental and control group participants were nonsignificant at posttest and follow-up.

### *Association of Level of Emotional Experiencing During Disclosure with Outcome Variables*

Four undergraduate research assistants coded the modal and peak level of emotional experiencing for each day of writing for each participant using the Experiencing Scales (*EXP*; Klein, Mathieu, Gendlin, & Kiesler, 1969). Participants received a score of 1 through 7 for each day's writing. The mean (across writing submissions) modal *EXP* score for participants in the experimental condition was 2.39 ( $SD = .47$ ). The mean (across three writing submissions) peak *EXP* score for participants in the experimental condition was 3.42 ( $SD = .52$ ). The mean (across writing submissions) modal *EXP* score for participants in the control condition was 1.32 ( $SD = .35$ ). The mean (across three writing submissions) peak *EXP* score for participants in the control condition was 2.40 ( $SD = .48$ ). The two groups (experimental, control) were significantly different from each other on both mean mode and mean peak scores,  $t(75) = 10.17, p < .0001$  and  $t(75) = 8.19, p < .0001$ , respectively. No significant difference was found between the two original experimental groups (writing only, reading previous day's writing before writing) for either *EXP* mode,  $t(50) = .66, p = .51$  or *EXP* peak,  $t(50) = .75, p = .46$ .

In order to determine the effect of emotional experiencing on outcome measures, I examined the differences between participants who exhibited low levels of emotional experiencing in their writing versus participants who exhibited high levels of emotional experiencing in their writing (Hypothesis 4). I therefore performed a median split of modal *EXP* scores (averaged across all three days of writing) for participants in the experimental group only. The median was 2.33 with  $n = 21$  for the low *EXP* group and  $n = 31$  for the high *EXP* group. I only included experimental participants in this analysis, as control participants exhibited low levels of emotional experiencing. Also, it would not

be particularly meaningful to assess the level of emotional experiencing in describing control participants' activities since waking up on each day on which they wrote. I then compared the means of the low and high EXP groups on all relevant outcome measures at posttest and three month follow-up using ANCOVAs controlling for pretest measures of each respective variable.

Table 5 display the mean EXP score for each group on each outcome measure and significance test results for all comparisons between the two groups. Although there were no significant effects for these ANCOVAs, there were two marginally significant effects: the negative affect scale at posttest and the gay-related self-esteem measure at three-month follow-up. Mean scores on both of these measures were higher for high EXP participants, so that participants high in EXP across their three days of writing reported more negative affect on the day following the writing and lower self-esteem after three months than participants in the low EXP condition.

To provide a more sensitive test of the association between level of emotional experiencing and outcome measures, I conducted a series of partial Pearson correlation analyses of outcome measures with modal EXP scores, removing the influence of participants' pretest scores for each of the respective outcome variables for participants in the experimental group only. A significant positive partial correlation was found between modal EXP and the negative affect scale at posttest,  $r(49) = .33, p < .05$ . A significant negative partial correlation was found between modal EXP and the item that assessed comfort being gay at three-month follow-up,  $r(49) = -.28, p < .05$ . A marginally significant negative partial correlation was found for the Gay-Related Rejection Sensitivity measure at three-month follow-up,  $r(49) = -.24, p = .10$ .

### *Association of Topic Severity with Outcome Variables*

Next, I tested the hypothesis that writing about a more severe topic would yield significantly more improvement on relevant outcome measures than writing about a less severe topic for those participants in the experimental group (Hypothesis 5). To compare those who wrote about a severe topic to those who wrote about a less severe topic, a median split was performed on topic severity summed across all three days of writing for participants in the experimental group. As topic severity was measured on a seven-point scale, the total severity for the three days of writing was 21.00. The median severity score (summed across all three days of writing) was 14.00. Twenty-seven participants scored at or below the median and twenty-five participants scored above the median.

ANCOVA results revealed that participants in the high severity group reported significantly higher levels of gay-related rejection sensitivity at posttest than participants in the low severity group after controlling for pretest scores on this measure (see Table 6). The difference between groups also approached significance ( $p = .08$ ) in the same direction on the inventory of physical symptoms, such that participants in the high severity group reported more physical symptoms on the day after writing than participants in the low severity group after controlling for pretest scores on this measure.

Results reveal that participants in the low severity group reported significantly higher negative affect than participants in the high severity group at three month follow-up (see Table 6). As these comparisons were made after controlling for pretest negative affect scores, this supports the hypothesis that participants in the high severity group experienced more benefit, as assessed by this particular measure, than participants in the low severity group. The difference between the two severity groups approached

significance ( $p = .06$ ) on the depression inventory at three month follow-up such that those participants who wrote about a more severe event reported fewer depressive symptoms after three months than those participants who wrote about a less severe event. No other comparisons on outcome measures between these two groups yielded a significant difference (see Table 6).

In order to test whether those participants in the experimental group who wrote about a high severity event would disclose their sexual orientation to more people at the end of three months than participants in the experimental group who wrote about a low severity event, I conducted a Chi-square analysis of Severity (low, high) X Disclosure (having come out to 0 people, having come out to one or more people). The Chi-square ( $n = 52$ ) was significant,  $\chi^2 = 4.89$   $p = .03$  (see Figure 1).

To provide a more sensitive test of the association between topic severity and outcome measures for participants in the experimental group, I conducted a series of partial Pearson correlation analyses with topic severity scores removing the influence of participants' pretest scores for each of the respective variables. Significant positive partial correlations were found between severity and posttest depression (CESD) scores,  $r(49) = .31$ ,  $p < .05$ , posttest physical symptom (PILL) scores,  $r(49) = .36$ ,  $p < .01$ , and posttest gay-related rejection sensitivity scores,  $r(49) = .41$ ,  $p < .01$ . A negative partial correlation was found between topic severity and follow-up negative affect scores,  $r(49) = -.30$ ,  $p < .05$ , and comfort with being gay,  $r(49) = .25$ ,  $p = .07$ .

#### *Association of Previous Disclosure of Event with Outcome Variables*

I then tested the hypothesis that participants who had disclosed their writing topic to few others (or no one) before participating would benefit more from written disclosure

of the event than participants who had previously disclosed their writing topic more frequently (Hypothesis 6). I only used participants in the experimental groups to test this hypothesis, as it is unlikely that, for participants in the control group, previously disclosing what they had done since waking up that day would have much of an impact on outcome measures. To test this hypothesis, I established two groups of participants within the experimental groups by dividing the participants at the median score (median = 4.00) for responses to the item: “How much have you actually talked about this event or situation with another person?” to create the two groups (low previous disclosure and high previous disclosure). The low previous disclosure group included 22 participants, whereas the high previous disclosure group included 30 participants.

I then compared the means of these two groups on all relevant outcome measures at posttest and three month follow-up using ANCOVAs controlling for pretest measures of each respective variable. Table 7 show that there was no significant difference between the low and high previous disclosure groups.

To provide a more sensitive test of the association between level of previous disclosure of the event and outcome measures, I conducted a series of partial Pearson correlation analyses of outcome measures with level of previous disclosure removing the influence of participants’ pretest scores for each of the respective variables for participants in the experimental group only. Similar to the low / high disclosure group comparisons, no significant associations were found between level of previous disclosure and any outcome measure.

*Association of Tendency to Conceal with Outcome Variables*

Next, I tested the hypothesis that participants who reported a higher tendency to conceal would benefit more from the emotional disclosure intervention than participants who reported a lower tendency to conceal (Hypothesis 7). To compare those participants with a higher tendency to conceal with those participants with a lower tendency to conceal, a median split was performed on the Self-Concealment Scale for participants in the experimental group (Larson & Chastain, 1990). The median summed severity score was 28.00. Twenty-seven participants scored at or below the median and twenty-five participants scored above the median.

ANCOVA results reveal that the only significant difference between low conceal and high conceal participants was on the three-month follow-up item that assessed the percentage of friends that are gay men. Participants in the high conceal group reported a greater proportion of friends who are gay men after three months than participants in the low conceal group. (See Table 8 for means and significance test results for each of the ANCOVAs conducted.)

To provide a more sensitive test of the association between tendency to conceal and outcome measures, I conducted a series of partial Pearson correlation analyses of outcome measures with self-concealment (SCS) scores removing the influence of participants' pretest scores for each of the respective variables for participants in the experimental group only. A marginally significant positive partial correlation was found between previous disclosure and posttest SCL-90 scores,  $r(49) = .23, p = .10$ . All other partial association between level of previous disclosure and outcome measures were nonsignificant.

*Association of Condition X Tendency to Conceal Interaction with Outcome Variables*



In order to further test whether the ability to benefit from the writing intervention was a function of participants' tendency to conceal, I conducted a series of nominal (condition: experimental vs. control) by quantitative (conceal) tests of interactions with each relevant measure as outcome controlling for participants' respective pretest scores on that measure. This first required centering the concealment variable (original concealment minus mean concealment for entire sample). To test each interaction, I then carried out a hierarchical regression entering the two predictors (condition, concealment) as well as the pretest score for the particular outcome variable of interest in the first block, then entering the interaction term (condition X concealment) in the second block. The increment's significance yielded the significance of the interaction.

Table 9 shows  $t$ , partial  $r$  and partial  $R^2$  for the separate interaction tests carried out for each outcome measure at posttest and three-month follow-up. There were no significant condition X concealment interactions for any posttest or follow-up variables.

#### *Association of Social Support with Outcome Variables*

In order to determine whether those participants who reported lower levels of social support benefited more from writing about a stressful gay-related event than participants who reported high levels of social support, I first created two groups (low support and high support) within those participants in the experimental group. I then compared the two groups on posttest and follow-up measures after controlling for pretest scores on each respective measure (Hypothesis 8).

At posttest, participants in the high support group reported significantly lower SCL-90 scores than participants in the low support group (see Table 10). Participants in the high support group also reported lower CES-D scores at posttest than participants in

the low support group and this difference approached significance ( $p = .09$ ). At three-month follow-up, participants in the low support group, consistent with expectations, reported significantly lower negative affect and fewer physical illness symptoms than participants in the high support group. Further, participants in the low support group reported a higher percentage of gay male friends at follow-up than participants in the high support group. All other comparisons between the low and high support groups were non-significant.

To provide a more sensitive test of the association between social support and outcome measures, I conducted a series of partial Pearson correlation analyses with social support (SSQ) scores removing the influence of participants' pretest scores for each of the respective variables for participants in the experimental group only. A significant negative partial correlation was found between social support and percentage of friends who are gay men at follow-up,  $r(49) = -.28, p < .05$ . A marginally significant positive partial correlation was found between social support and posttest negative affect scores,  $r(49) = .23, p = .10$ .

#### *Association of Condition X Social Support Interaction with Outcome Variables*

In order to further test whether the ability to benefit from the writing intervention was a function of amount of participants' social support, I conducted a series of nominal (condition: experimental vs. control) by quantitative (social support) tests of interactions with each relevant measure as outcome controlling for participants' respective pretest scores on that measure. This first required centering the social support variable (original social support minus mean social support for entire sample). To test each interaction, I then carried out a hierarchical regression entering the two predictors (condition, social

support) as well as the pretest score for the particular outcome variable of interest in the first block, then entering the interaction term (condition X social support) in the second block. The increment's significance yielded the significance of the interaction.

Table 11 shows  $t$ , partial  $r$  and partial  $R^2$  for the separate interaction tests carried out for each outcome measure at posttest and three-month follow-up. A significant condition X social support interaction was found for the follow-up SCL-90 and CESD measures. Tests of this interaction with all other outcome variables yielded a nonsignificant effect.

I graphed the two significant interactions following the recommendations and formulas proposed by Aiken and West (1991) to graphically depict the interactions between the categorical and continuous variables. I present the procedure that I used for determining the graphic representation of the condition X social support interactions for the two significant outcome measures—the SCL-90 and CESD—below.

For the condition X social support interaction with follow-up SCL-90 scores as the outcome variable, I used the following equation to determine the slope of the regression line for each condition:

$$\text{SCL90POST} = a + b_1 (\text{SOCSUPPCENT}) + b_2 (\text{COND}) + b_3 (\text{SCL90PRE}) + b_4 (\text{COND})(\text{SOCSUPPCENT})$$

Entering  $bs$  derived from the regression analyses, the equation becomes:

$$\text{SCL90POST} = 77.80 + 1.77 (\text{SOCSUPPCENT}) + 2.37 (\text{COND}) + .45 (\text{SCL90PRE}) - 1.64 (\text{COND})(\text{SOCSUPPCENT})$$

The equation was then solved for the two separate conditions which were dummy coded such that the experimental group = 1 and control group = 2. For the experimental group,

substituting the designated dummy code (1) and the mean value for the pretest SCL-90 ( $M = 157.00$ ), the equation became:

$$150.82 + .13 (\text{SOCSUPPCENT})$$

For the control group, substituting the designated dummy code (2) and the mean value for the pretest SCL-90, the equation was:

$$153.19 - 1.51 (\text{SOCSUPPCENT})$$

Using the formula  $r = b (SD_X/SD_Y)$ , it was determined that the slope of the regression line (Social Support X SCL-90) for the experimental group was  $.13 (12.82/47.98) = .03$ . For the control group, the slope of the regression line was  $-1.51 (12.82/47.98) = -.40$ . To graphically depict these slopes, I solved the two equations above using the lowest and highest values ( $-37.77, 22.23$ ) of social support centered. The regression lines for both groups are depicted in Figure 2.

The interaction was significant, as indicated by the product term having a significant unique effect,  $t (72) = 2.04, p < .05$ , effect size (partial  $r$ ) =  $.23$ . The pattern of the interaction was that the association of SCL-90 scores with social support scores was stronger (more positive) for those in the experimental group than for those in the control group. Figure 2 illustrates this pattern by showing the regression lines (based on the overall regression equation) for social support predicting SCL-90 scores for each group. The significance of this interaction suggests that the ability to benefit from this intervention in terms of overall psychological symptoms at three-month follow-up is partially a function of social support. That is, participants with lower levels of social support endorsed fewer symptoms if they were assigned to the experimental group as opposed to the control group. Participants with higher levels of social support actually

endorsed more symptoms if they were assigned to the experimental group as opposed to the control group.

I also tested the significance of the separate slopes for participants in the experimental group and participants in the control group. The slope for participants in the experimental group was non-significant,  $b = .14$ ,  $t(49) = .30$ ,  $p = .77$ . However, the slope for participants in the control group was significant,  $b = -1.55$ ,  $t(22) = -2.15$ ,  $p < .05$ . Therefore, levels of social support significantly moderated the decrease in SCL-90 scores for control group participants, but not for experimental group participants.

Here I present the procedure that I used for graphically depicting the condition X social support interaction for the follow-up CESD as the outcome. For this interaction, I used the following equation:

$$\text{CESDPOST} = a + b_1 (\text{SOCSUPPCENT}) + b_2 (\text{COND}) + b_3 (\text{CESDPRE}) + b_4 (\text{COND})(\text{SOCSUPPCENT})$$

Entering  $bs$  derived from the regression analyses, the equation becomes:

$$\text{CESDPOST} = 22.67 + .37 (\text{SOCSUPPCENT}) - .65 (\text{COND}) + .37 (\text{SCL90PRE}) - .36 (\text{COND})(\text{SOCSUPPCENT})$$

The equation was then solved for the two separate conditions which were dummy coded such that the experimental group = 1 and control group = 2. For the experimental group, substituting the designated dummy code (1) and the mean value for the pretest CESD ( $M = 36.13$ ), the equation became:

$$35.25 + .02 (\text{SOCSUPPCENT})$$

For the control group, substituting the designated dummy code (2) and the mean value for the pretest CESD, the equation was:

34.60 - .34 (SOCSUPPCENT)

Using the formula  $r = b (SD_X/SD_Y)$ , it was determined that the slope of the regression line (Social Support X CESD) for the experimental group was .02 ( $12.82/9.79$ ) = .03. For the control group, the slope of the regression line was -.34 ( $12.82/9.79$ ) = -.45. To graphically depict these slopes in Figure 3, I solved the two equations above using the lowest and highest values (-37.77, 22.23) of social support centered. The regression lines for both groups are depicted in Figure 3.

The interaction was significant, as indicated by the product term having a significant unique effect,  $t(72) = 2.05$ ,  $p < .05$ , effect size (partial  $r$ ) = .24. The pattern of the interaction was that the association of CES-D scores with social support scores was stronger (more positive) for those in the experimental group than for those in the control group. Figure 3 illustrates this pattern by showing the regression lines (based on the overall regression equation) for social support predicting CES-D scores for each group. The significance of this interaction suggests that the ability to benefit from this intervention in terms of depression scores at three-month follow-up is partially a function of social support. That is, participants with lower levels of social support reported lower depression scores if they were assigned to the experimental group as opposed to the control group. Participants with higher levels of social support actually reported higher depression scores if they were assigned to the experimental group as opposed to the control group.

I also tested the significance of the separate slopes for participants in the experimental group and participants in the control group. The slope for participants in the experimental group was non-significant,  $b = .04$ ,  $t(49) = .38$ ,  $p = .71$ . However, the

slope for participants in the control group was significant,  $b = -.39$ ,  $t(22) = -3.19$ ,  $p < .01$ .

Therefore, levels of social support significantly moderated the decrease in depression scores for control group participants, but not for experimental group participants.

## DISCUSSION

The primary purpose of this study was to determine the effectiveness of a written disclosure intervention in a sample of individuals that is likely to have experienced higher-than-average levels of trauma and stress and that is also likely to experience difficulty sharing this trauma and stress with others. Although there were no differences between the experimental and control group participants on most measures of psychological and physical health improvement, participants who were assigned to write about gay-related stress in fact reported significantly greater increases in openness about their sexual orientation after three months than participants who were assigned to write about mundane events.

Overall, these findings suggest that this intervention may have the greatest impact on gay-specific social functioning. Those participants who wrote about a gay-related stressor were more likely to report greater openness about being gay at three-month follow-up. This finding alone suggests the effectiveness of this portable, easy-to-implement intervention for improving the psychosocial functioning of gay men. Previous studies have found that being assigned to write about a specific type of topic may be likely to yield a significant effect in the particular domain in which that specific topic occurs. For example, Lepore and Greenberg (2002) found that writing about the break-up of a relationship more frequently resulted in repairing that relationship after writing than writing about a neutral topic. Similarly, Spera, Buhrfeind, and Pennebaker (1994) found that writing about a recent job loss more frequently led to finding employment than writing about a neutral topic. In the case of the present study, gay-related functioning improved as a result of writing about gay-related stress.



The lack of other robust experimental versus control group differences may be explained by one or more of the present study's limitations. Participation in the present study was open to all gay male students at public universities and was not limited to only those individuals who had experienced a gay-related trauma. This recruitment strategy was predicated on the assumption that all gay men have experienced at least some sort of gay-related stressor or trauma. The recent meta-analysis of 146 emotional disclosure studies by Frattaroli (2006) did not find a significant effect on physical or psychological health outcomes depending on whether or not studies limited participation to those individuals who had experienced a true trauma. However, it is possible that participants in the present study wrote about traumatic or stressful event that had occurred in the relatively distant past, which raises the possibility that these traumas had already been experientially resolved before study participation. In fact, Frattaroli (2006) found that studies in which participants wrote about a trauma that occurred in the previous 15 months yielded greater effect sizes than studies in which participants wrote about traumas that occurred beyond that time frame. Although the men in this study were relatively young, it is possible that their most salient gay-related stress occurred many years prior, although this cannot be examined further given that no data were collected to assess time elapsed since the disclosed event.

A stronger effect may have been found if follow-up data were collected closer to the time of disclosure (e.g., a one month follow-up as opposed to the presently used three month follow-up). It is possible that the effects of the study dissipated by the three-month follow-up. Frattaroli (2006) found that studies that followed participants for less than one month yielded larger effect sizes than studies that followed participants for more

than one month. The data of the present study are incapable of revealing a gradual decrease over time, as follow-up data was only collected at the one follow-up assessment time point.

Still other limitations of the study may have impacted the results. For example, the posttest and follow-up measures relied on participant self-report of psychological and physical health as opposed to more objective indicators (e.g., informant report, behavioral observation, physiological measures) of these variables. Reliance on self-reported physical health symptoms has been shown to be particularly problematic as these measures often reflect overall negative affect instead of physical health symptoms per se (e.g., Watson & Pennebaker, 1989).

Given the design of the present study, it is unclear whether the same pattern of findings would result from 1) writing about any type of trauma--gay-related or not--or 2) writing about a specific type of gay-related stressor, such as disrupted relationships with parents. It seems logical to hypothesize that writing about the most stressful or traumatic event in one's life unrelated to sexual orientation would not necessarily yield the one main effect of the present study, namely increasing one's openness with his sexual orientation. However, it is possible that writing about the most severe stressor regardless of its relevance to sexual orientation may have a stronger impact on the non-gay-related outcome measures used in this study such as the measures of psychological and physical health. To test this, future studies would have to include a comparison group that writes about the most stressful or traumatic event ever encountered regardless of its relevance to sexual orientation.

It would also be useful for future research to determine whether writing about a specific stressful event related to sexual orientation would lead to greater improvement in the domains most related to that event. One particularly fruitful domain warranting such an application of this type of research is relationships with parents. Gay men often report disrupted relationships with their parents, likely as a result of disclosing information related to their sexual orientation and the confusion, sadness, shame, and anger that may follow for both the gay individual and his parents (Radkowsky & Siegel, 1997). As a result, gay men may be at particular risk for experiencing unfinished business with their parents. Unfinished business implies that a stressful event remains experientially (and actually) unresolved (Greenberg & Foerster, 1996). A task such as emotional written disclosure would lend itself particularly well to an unfinished event with the expected goal of facilitating greater experiential resolution of the event, and potentially even resolution of the event in actuality.

It was hypothesized that reading one's previous writing about a stressful or traumatic event would facilitate greater cognitive-affective resolution of the event as it allows a greater understanding of the event from a potentially different (e.g., more objective, self-regulatory) viewpoint than the person had previously utilized (Resick & Schnicke, 1992). Counter to expectations, reading the previous days' disclosure did not heighten the effect of the intervention. If reading one's previous writing had in fact resulted in greater improvement, this would have lent support to the exposure or self-regulatory explanations of written disclosure's effectiveness, but the absence of such a finding does not rule out these explanatory hypotheses. For example, reading one's emotional writing from the previous day may not have offered a powerful adjunctive

exposure over-and-above writing about a gay-related trauma itself (a task in which participants in both groups engaged). It is also possible that the added exposure afforded by reading an account of one's stress or trauma must occur in a corrective context in order for this added exposure to be more effective than simply writing about it. Although participants in the present study wrote and read in a *safe* context, they did not necessarily write and read in a *corrective* context. Such a maximally corrective context would involve a direct confrontation with one's distorted beliefs, expectations, or schema and it is possible that this most effectively occurs in the context of individual psychotherapy (Resick & Schnicke, 1992). That is, reading one's writing about the stress or trauma may not have facilitated the perspective necessary for significant change over-and-above writing about the event.

This study also examined moderating variables to explain potential mechanisms underlying the effectiveness of an emotional disclosure task for gay men. The examination of these variables (i.e., emotional experiencing, topic severity, previous disclosure of the event, tendency toward self-concealment, social support) yielded additional findings discussed below.

There was no significant difference between participants who engaged in high versus low emotional experiencing in their writing. However, participants who demonstrated higher levels of emotional experiencing in their writing experienced a marginally significant decrease in gay-related self-esteem at three-months compared to participants who demonstrated lower levels of emotional experiencing in their writing. Also unexpectedly, there was a significant negative correlation between level of

emotional experiencing and comfort with one's sexual orientation three months following the writing.

The day following their writing, participants who wrote about a more severe topic reported a greater increase in depressive symptoms, physical symptoms, and gay-related rejection sensitivity than participants who wrote about a less severe topic. However, participants who wrote about a more severe topic were significantly more likely to report a decrease in negative affect and depressive symptoms at three-month follow-up than participants who wrote about a less severe topic. After three months, participants who wrote about a more severe topic were also more likely to disclose their sexual orientation to at least one other person than participants who wrote about a less severe topic although there was a marginally significant negative correlation between topic severity and comfort being gay at three-month follow-up.

The present study found that previous disclosure of the event was not significantly associated with any outcome measure. In her recent meta-analysis of emotional disclosure studies, Frattaroli (2006) found that across the 146 studies that she analyzed, previous disclosure of the stressful event had a marginally significant effect such that those participants who were told to write about a previously undisclosed trauma reported marginally greater psychological health benefits than those participants who were not given this instruction. Although all participants in the present study were given the instruction that they should disclose a topic about which they have talked to few others, I further examined the effect of previous disclosure by comparing those who reported having shared their topic with many versus few other people. Still, I found no significant

difference between those who chose to write about a previously disclosed versus previously undisclosed topic.

Participants in the experimental group with a higher tendency to conceal personal information reported an increase in proportion of gay friends after three months than participants in the experimental group with a lower tendency to conceal such information. Among those participants in the experimental group, there was a marginally significant positive correlation between tendency to conceal personal information and overall psychological symptoms the day after writing. Whether a participant was assigned to the experimental or control condition did not impact the relationship between tendency to conceal personal information and improvement on any psychological or physical health measure. In other words, for all participants, the ability to benefit from this intervention as measured by any outcome measure did not seem to be a function of an individuals' tendency to conceal.

Participants' levels of perceived social support yield the most robust findings in this study. Participants in the experimental group who perceived lower levels of social support experienced a significantly greater decrease in physical health symptoms and negative affect three months following writing than participants in the experimental group who perceived higher levels of social support. Participants who perceived lower levels of social support also reported a higher proportion of gay friends three months after writing. Further, the results of this study suggest that the ability to benefit from writing about gay-related stress may be a function of levels of perceived social support. This is supported by the finding that participants who reported lower levels of social support benefited from being assigned to the emotional writing condition (as opposed to the

control condition) in terms of fewer overall psychological symptoms and depressive symptoms compared to participants with higher levels of social support, for whom assignment to the emotional writing group yielded more overall psychological and depressive symptoms than assignment to the control group.

Topic severity yielded important effects for participants in this study. Not surprisingly, writing about a highly stressful event had the immediate impact of increasing gay-related rejection sensitivity, physical health symptoms, and depressive symptoms. After three months, though, those who wrote about a more stressful event reported lower negative affect and lower depressive symptoms and were more likely to disclose their sexual orientation to at least one person than participants who wrote about a less severe topic. Still, there was a marginally significant negative correlation between severity and comfort being gay. It is important to keep in mind that participants were given the option to write about any gay-related stressful event they chose. One can only assume that participants wrote about the *most* stressful gay-related event they had encountered. Those participants who were in the high severity group then could also be those participants who had encountered more severe gay-related stress in their lifetimes. Therefore, these particular findings can also be possibly understood to mean that participants with more severe gay-related stress overall are more likely to benefit from such an intervention than those who have not encountered such highly stressful events related to their sexual orientation.

Overall, the results of this study suggest that an emotional disclosure writing intervention is most effective for those gay men with lower levels of social support. Gay men overall may be particularly at risk for having few people to whom to disclose

stressful events related to their sexual orientation and this study suggests that a written disclosure intervention may be most effective for those gay men with relatively few people to discuss this stress or trauma. Three months following written disclosure about a gay-related stressor, those gay men with lower levels of social support reported fewer physical illness symptoms, lower negative affect, and a higher percentage of gay male friends than participants with higher levels of social support. Results also revealed that participants with low levels of social support benefited more from being assigned to the experimental condition rather than the control condition (in terms of lower overall psychological health and depressive symptoms) than participants with higher levels of social support.

The present study offers support for the validity of the recently established gay-related rejection sensitivity measure of Pachankis, Goldfried, and Ramrattan (in press). The gay-related rejection sensitivity measure assesses gay men's anxious expectations of rejection in relatively ambiguous social settings. Existing data support the reliability and convergent and discriminant validity of the measure, but the data of the present study are the first to support the measure's sensitivity to a real-world event—in this case, the written disclosure of a gay-related stressor or trauma. Topic severity had a significant impact on participants' scores on this measure. On the day immediately following disclosure, participants who wrote about a relatively severe gay-related stressor or trauma had higher scores on this measure than participants who wrote about a less severe topic. It seems then, not surprisingly, that exposure to a personally stressful gay-related topic leads to a greater likelihood to perceive rejection from other situations as assessed by this measure. As this study did not include a group in which participants were assigned to



write about a trauma or stressor unrelated to sexual orientation, it is impossible to determine whether this measure's sensitivity is limited to gay-specific domains or whether it would have been impacted by writing about any severe topic.

The results of this study provide information to mental healthcare professionals about the effectiveness of disclosing gay-related stress. Therapists working with gay male clients can easily incorporate a disclosure component into their work with gay men who are suffering as a result of a relatively severe gay-related stressor and a lack of social support outlets in which to disclose this stress. These findings can also be used by other providers (e.g., school guidance counselors) who may have limited resources, may be particularly likely to encounter individuals suffering from negative gay-related events (e.g., peer teasing), and could readily implement such a portable written disclosure intervention.

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Table 1

Mean Disclosure Impact Scores Compared Between Experimental and Control Groups as a Manipulation Check<sup>a,b</sup>

Measure	Experimental 1 <i>n</i> = 27	Experimental 2 <i>n</i> = 25	Control <i>n</i> = 25	<i>F</i>
Distress	4.42 (1.06) <sub>a</sub>	4.99 (1.16) <sub>a</sub>	2.33 (.88) <sub>b</sub>	45.41****
Personal	5.70 (.84) <sub>a</sub>	5.48 (.97) <sub>a</sub>	3.36 (1.24) <sub>b</sub>	40.26****
Influential	5.69 (.91) <sub>a</sub>	5.48 (1.32) <sub>a</sub>	2.92 (.97) <sub>b</sub>	52.04****
Meaningful	5.82 (.90) <sub>a</sub>	5.40 (.99) <sub>a</sub>	2.82 (1.01) <sub>b</sub>	71.75****
Revealing	5.47 (1.04) <sub>a</sub>	5.38 (1.07) <sub>a</sub>	2.77 (1.07) <sub>b</sub>	53.17****
Actually Talk	3.85 (1.46) <sub>a</sub>	4.07 (1.55) <sub>a</sub>	2.47 (1.07) <sub>b</sub>	9.91****
Want to Talk	3.87 (1.50) <sub>a</sub>	4.19 (1.96) <sub>a</sub>	2.67 (1.02) <sub>b</sub>	6.82**

\*\* *p* < .01      \*\*\*\* *p* < .0001

<sup>a</sup> Standard deviations are presented in parentheses. Significantly different group means have different subscripts. Pairwise group means were compared using the Bonferroni method for posthoc comparisons at *p* < .05.

<sup>b</sup> Distress = How distressing is the event or situation that you wrote about?; Personal = How personal was your writing today?; Influential = How much does the event or situation that you wrote about affect your life?; Meaningful = How meaningful was your writing today?; Revealing = How much did you reveal your emotions in your writing today?; Actually Talk = How much have you actually talked about this event or situation with another person?; Want to Talk = How much do you want to talk to someone about this event or situation?

Table 2

Correlations Among Major Variables at Pretest<sup>a</sup>

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. GC	--	.05	-.62**	-.12	-.07	.01	-.08	-.13	.02	.14	.00	-.28**	.02
2. Comfort		--	.02	.43**	-.07	-.03	.15	-.24*	-.06	.07	.06	-.29*	-.24*
3. Identifiable			--	.31**	-.01	-.02	.09	-.03	-.02	-.12	.11	.40**	-.14
4. Open				--	-.06	-.03	.17	-.17	-.14	-.14	-.18	.04	-.12
5. SCL-90					--	.77**	.58**	.40**	.61**	.13	-.31**	.13	.45**
6. CESD						--	.42**	.43**	.54**	-.23**	-.35**	.21	.57**
7. PILL							--	.22*	.42**	-.08	-.18	-.02	.13
8. SCS								--	.38**	-.13	-.24*	.29*	.41**
9. NA									--	.08	-.27*	.17	.25*
10. PA										--	.21	-.21	-.47**
11. MSPSS											--	.06	-.44**
12. RS												--	.16
13. RSES													--

\* $p < .05$ \*\* $p < .01$

Table 2 continued

<sup>a</sup> GC = gender conformity; comfort = comfort being gay; identifiable = participants' self-reported likelihood of being identified as gay by a stranger; open = openness with sexual orientation; SCL-90 = Symptom Checklist 90; CESD = Center for Epidemiological Studies Depression scale; PILL = Pennebaker Inventory of Limbic Languidness; SCS = Self-Concealment Scale; NA = Negative Affect; PA = Positive Affect; MSPSS = Multidimensional Scale of Perceived Social Support; RS = Rejection Sensitivity; RSE = Rosenberg Self-Esteem Scale (adapted for gay-specific self-esteem)

Table 3

Mean Pretest, Posttest, and Follow-Up Scores for Experimental Groups 1 and 2 and Control Group<sup>a b c</sup>

Measure	Experimental 1 Mean ( <i>SD or SE</i> ) <i>n</i> = 27	Experimental 2 Mean ( <i>SD or SE</i> ) <i>n</i> = 25	Control Mean ( <i>SD or SE</i> ) <i>n</i> = 25	<i>F</i>	<i>p</i>
<b>SCL-90</b>					
Pretest	160.46 (50.40)	143.36 (31.48)	166.90 (53.76)	1.73	.19
Posttest	150.38 (5.47)	151.84 (5.76)	157.35 (5.72)	.42	.66
Follow-up	150.92 (8.11)	152.76 (8.54)	155.30 (8.48)	.07	.93
<b>CES-D</b>					
Pretest	35.59 (7.89)	34.16 (6.58)	38.68 (11.80)	1.69	.20
Posttest	36.61 (1.45)	36.36 (1.51)	38.63 (1.52)	.67	.52
Follow-up	35.39 (1.76)	35.31 (1.84)	34.90 (1.85)	.02	.98
<b>PILL</b>					
Pretest	109.57 (25.08)	100.90 (17.98)	108.95 (29.67)	.97	.38
Posttest	100.68 (2.52)	101.88 (2.63)	104.67 (2.61)	.63	.53
Follow-up	108.15 (3.42)	104.96 (3.58)	106.94 (3.55)	.21	.81
<b>NA</b>					
Pretest	17.93 (7.48)	16.96 (7.00)	20.24 (9.14)	1.14	.33
Posttest	16.44 (1.08)	15.33 (1.13)	17.72 (1.13)	1.11	.34
Follow-up	17.48 (1.50)	17.68 (1.57)	19.00 (1.57)	.28	.76
<b>PA</b>					
Pretest	31.37 (8.97)	27.28 (8.06)	29.04 (9.94)	1.35	.27
Posttest	22.19 (1.35) <sub>a</sub>	26.05 (1.41) <sub>a</sub>	19.24 (1.39) <sub>b</sub>	5.96	.00**
Follow-up	24.56 (1.48)	27.27 (1.54)	25.02 (1.52)	.90	.41
<b>RS</b>					
Pretest	48.16 (11.00)	52.51 (12.78)	51.39 (12.72)	.91	.41
Posttest	50.60 (1.94)	50.30 (2.01)	46.39 (2.00)	1.40	.25
Follow-up	47.41 (1.91)	50.16 (1.98)	46.02 (1.98)	1.13	.33
<b>RSES</b>					
Pretest	18.33 (4.02)	19.32 (4.65)	21.20 (5.91)	2.28	.11
Posttest	19.92 (.68)	18.27 (.70)	19.57 (.71)	1.57	.22
Follow-up	19.78 (.77)	18.42 (.79)	18.37 (.80)	1.04	.36
<b>Comfort</b>					
Pretest	4.52 (.89)	4.04 (1.21)	4.16 (.94)	1.52	.23
Follow-up	4.03 (.22)	4.17 (.23)	4.16 (.23)	.12	.89
<b>Openness</b>					
Pretest	5.89 (1.12)	5.80 (.87)	5.92 (1.15)	.09	.92
Follow-up	6.21 (.18) <sub>a</sub>	5.98 (.18)	5.52 (.18) <sub>b</sub>	3.72	.03*

\**p* < .05\*\**p* < .01

Table 3 continued

<sup>a</sup> Participants in experimental group 1 disclosed without reading their previous days' writing; participants in experimental group 2 disclosed after reading their previous days' writing.

<sup>b</sup> Adjusted means are reported for posttest and follow-up, as pretest measures were entered as covariates for these analyses. Significantly different group means have different subscripts. Pairwise group means were compared using the Bonferroni method for posthoc comparisons at  $p < .05$ . In parentheses, standard deviations are reported for pretest while standard errors are reported for posttest and follow-up.

<sup>c</sup> SCL-90 = Symptom Checklist 90; CESD = Center for Epidemiological Studies Depression scale; PILL = Pennebaker Inventory of Limbic Languidness; NA = Negative Affect; PA = Positive Affect; RS = Rejection Sensitivity; RSE = Rosenberg Self-Esteem Scale (adapted for gay-specific self-esteem); comfort = comfort being gay; openness = openness with sexual orientation

Table 4

Mean Pretest, Posttest, and Follow-Up Scores for Combined Experimental Groups and Control Group<sup>a,b</sup>

Measure	Experimental Mean ( <i>SD or SE</i> ) <i>n</i> = 52	Control Mean ( <i>SD or SE</i> ) <i>n</i> = 25	<i>F</i>	<i>p</i>
<b>SCL-90</b>				
Pretest	152.24 (42.84)	166.90 (53.76)	1.67	.20
Posttest	151.07 (3.93)	157.37 (5.68)	.82	.37
Follow-up	151.78 (5.82)	155.33 (8.42)	.12	.73
<b>CES-D</b>				
Pretest	34.90 (7.26)	38.68 (11.80)	3.00	.09 <sup>+</sup>
Posttest	36.49 (1.04)	38.63 (1.51)	1.34	.25
Follow-up	35.35 (1.26)	34.90 (1.84)	.04	.84
<b>PILL</b>				
Pretest	105.40 (22.18)	108.95 (29.67)	.35	.56
Posttest	101.25 (1.80)	104.67 (2.60)	1.17	.28
Follow-up	106.62 (2.45)	106.92 (3.54)	.01	.95
<b>NA</b>				
Pretest	17.46 (7.20)	20.24 (9.14)	2.10	.15
Posttest	15.91 (.78)	17.72 (1.13)	1.72	.91
Follow-up	17.58 (1.08)	19.00 (1.56)	.56	.46
<b>PA</b>				
Pretest	29.40 (8.71)	29.04 (9.94)	.03	.87
Posttest	24.05 (.99)	19.23 (1.42)	7.78	.00**
Follow-up	25.86 (1.06)	25.01 (1.53)	.21	.65
<b>RS</b>				
Pretest	50.25 (11.97)	51.39 (12.72)	.15	.70
Posttest	50.46 (1.38)	46.39 (1.99)	2.82	.10 <sup>+</sup>
Follow-up	48.74 (1.37)	46.01 (1.98)	1.29	.26
<b>RSES</b>				
Pretest	18.81 (4.32)	21.20 (5.91)	4.06	.05*
Posttest	19.12 (.50)	19.60 (.72)	.29	.60
Follow-up	19.11 (.55)	18.38 (.81)	.55	.46
<b>Comfort</b>				
Pretest	4.29 (1.07)	4.16 (.99)	.26	.62
Follow-up	4.10 (.16)	4.16 (.23)	.05	.83
<b>Openness</b>				
Pretest	5.85 (1.00)	5.92 (1.15)	.08	.77
Follow-up	6.10 (.13)	5.52 (.18)	6.66	.01*

<sup>+</sup> *p* < .10      \* *p* < .05      \*\* *p* < .01

Table 4 continued

<sup>a</sup> Adjusted means are reported for posttest and follow-up, as pretest measures were entered as covariates for these analyses. In parentheses, standard deviations are reported for pretest while standard errors are reported for posttest and follow-up.

<sup>b</sup> SCL-90 = Symptom Checklist 90; CESD = Center for Epidemiological Studies Depression scale; PILL = Pennebaker Inventory of Limbic Languidness; NA = Negative Affect; PA = Positive Affect; RS = Rejection Sensitivity; RSE = Rosenberg Self-Esteem Scale (adapted for gay-specific self-esteem); comfort = comfort being gay; openness = openness with sexual orientation



Table 5

Means for Low and High EXP (Median Split Within Experimental Group) on Relevant Outcome Measures at Pretest, Posttest, and Follow-up<sup>a b</sup>

Measure	Low EXP Mean ( <i>SD or SE</i> ) <i>n</i> = 21	Hi EXP Mean ( <i>SD or SE</i> ) <i>n</i> = 31	<i>F</i>	<i>p</i>
<b>SCL-90</b>				
Pretest	138.69 (27.02)	161.42 (49.17)	3.71	.06 <sup>+</sup>
Posttest	148.08 (5.96)	147.11 (4.87)	.02	.90
Follow-up	145.46 (9.32)	151.95 (7.62)	.28	.60
<b>CES-D</b>				
Pretest	34.14 (6.17)	35.42 (7.97)	.38	.54
Posttest	34.85 (1.61)	36.14 (1.32)	.38	.54
Follow-up	34.37 (2.10)	35.10 (1.72)	.07	.79
<b>PILL</b>				
Pretest	103.95 (18.36)	106.39 (24.68)	.15	.70
Posttest	98.88 (2.96)	101.11 (2.44)	.34	.57
Follow-up	104.70 (3.73)	106.31 (3.07)	.11	.74
<b>NA</b>				
Pretest	16.19 (6.06)	18.32 (7.85)	1.10	.30
Posttest	13.91 (1.11)	16.43 (.91)	3.06	.09 <sup>+</sup>
Follow-up	16.84 (1.64)	17.30 (1.34)	.05	.83
<b>PA</b>				
Pretest	30.10 (8.33)	28.94 (9.07)	.22	.64
Posttest	22.95 (1.56)	24.90 (1.29)	.92	.34
Follow-up	24.69 (1.72)	26.77 (1.42)	.87	.36
<b>RS</b>				
Pretest	50.13 (8.62)	50.33 (13.93)	.00	.95
Posttest	50.83 (2.15)	49.79 (1.77)	.14	.71
Follow-up	48.95 (2.11)	48.17 (1.74)	.08	.78
<b>RSES</b>				
Pretest	17.76 (3.35)	19.52 (4.79)	2.12	.15
Posttest	17.80 (.83)	18.95 (.68)	1.14	.29
Follow-up	17.29 (.80)	19.40 (.66)	4.05	.05 <sup>+</sup>
<b>Comfort</b>				
Pretest	4.33 (1.24)	4.26 (.96)	.06	.81
Follow-up	4.18 (.26)	4.07 (.22)	.10	.75
<b>Openness</b>				
Pretest	5.90 (.94)	5.81 (1.05)	.12	.73
Follow-up	6.19 (.15)	6.00 (.12)	.99	.32
<b>% Friends Gay</b>				
Pretest	2.62 (.97)	2.59 (.98)	.02	.90
Follow-up	2.54 (.16)	2.66 (.13)	.32	.57

Table 5 continued

<sup>+</sup>  $p < .10$       <sup>\*</sup>  $p < .05$

<sup>a</sup> Adjusted means are reported for posttest and follow-up, as pretest measures were entered as covariates for these analyses. In parentheses, standard deviations are reported for pretest while standard errors are reported for posttest and follow-up.

<sup>b</sup> SCL-90 = Symptom Checklist 90; CESD = Center for Epidemiological Studies Depression scale; PILL = Pennebaker Inventory of Limbic Languidness; NA = Negative Affect; PA = Positive Affect; RS = Rejection Sensitivity; RSE = Rosenberg Self-Esteem Scale (adapted for gay-specific self-esteem); comfort = comfort being gay; openness = openness with sexual orientation; % Friends Gay = percentage of friends who are gay men

Table 6

Means for Low Severe and High Severe Disclosure Topic (Median Split Within Experimental Group) on Relevant Outcome Measures at Pretest, Posttest, and Follow-up<sup>a b</sup>

Measure	Low Severity Mean ( <i>SD or SE</i> ) <i>n</i> = 27	Hi Severity Mean ( <i>SD or SE</i> ) <i>n</i> = 25	<i>F</i>	<i>p</i>
<b>SCL-90</b>				
Pretest	158.46 (50.57)	145.52 (32.23)	1.19	.28
Posttest	141.93 (5.05)	153.52 (5.25)	2.50	.12
Follow-up	157.12 (7.95)	140.91 (8.27)	1.97	.17
<b>CES-D</b>				
Pretest	35.85 (7.57)	33.88 (6.91)	.96	.33
Posttest	34.72 (1.41)	36.58 (1.47)	.83	.37
Follow-up	37.21 (1.79)	32.21 (1.86)	3.72	.06 <sup>+</sup>
<b>PILL</b>				
Pretest	106.80 (22.73)	103.88 (21.94)	.22	.64
Posttest	97.01 (2.54)	103.66 (2.64)	3.29	.08 <sup>+</sup>
Follow-up	106.38 (3.29)	104.88 (3.42)	.10	.75
<b>NA</b>				
Pretest	16.89 (6.27)	18.08 (8.16)	.35	.56
Posttest	15.87 (1.00)	14.93 (1.04)	.43	.52
Follow-up	19.16 (1.37)	14.91 (1.43)	4.60	.04 <sup>*</sup>
<b>PA</b>				
Pretest	26.85 (8.89)	32.16 (7.78)	5.22	.03 <sup>*</sup>
Posttest	25.03 (1.41)	23.12 (1.47)	.83	.37
Follow-up	24.82 (1.55)	27.13 (1.62)	1.01	.32
<b>RS</b>				
Pretest	48.94 (13.30)	51.67 (10.43)	.67	.42
Posttest	46.94 (1.79)	53.74 (1.86)	6.92	.01 <sup>*</sup>
Follow-up	48.36 (1.87)	48.62 (1.94)	.01	.92
<b>RSES</b>				
Pretest	19.63 (3.95)	17.92 (4.59)	2.08	.16
Posttest	18.58 (.74)	18.39 (.77)	.03	.86
Follow-up	19.37 (.72)	17.66 (.74)	2.70	.11
<b>Comfort</b>				
Pretest	4.30 (1.20)	4.28 (.94)	.00	.96
Follow-up	3.96 (.23)	4.28 (.24)	.93	.34
<b>Openness</b>				
Pretest	6.04 (.94)	5.64 (1.04)	2.10	.15
Follow-up	6.07 (.13)	6.09 (.14)	.01	.94

<sup>+</sup> *p* < .10

<sup>\*</sup> *p* < .05

<sup>\*\*</sup> *p* < .01

Table 6 continued

<sup>a</sup> Adjusted means are reported for posttest and follow-up, as pretest measures were entered as covariates for these analyses. In parentheses, standard deviations are reported for pretest while standard errors are reported for posttest and follow-up.

<sup>b</sup> SCL-90 = Symptom Checklist 90; CESD = Center for Epidemiological Studies Depression scale; PILL = Pennebaker Inventory of Limbic Languidness; NA = Negative Affect; PA = Positive Affect; RS = Rejection Sensitivity; RSE = Rosenberg Self-Esteem Scale (adapted for gay-specific self-esteem); comfort = comfort being gay; openness = openness with sexual orientation

Table 7

Means for Low and High Previous Disclosure Topic (Median Split Within Experimental Group) on Relevant Outcome Measures at Pretest, Posttest, and Follow-up<sup>a,b</sup>

Measure	Low Previous Disclosure Mean ( <i>SD or SE</i> ) <i>n</i> = 22	Hi Previous Disclosure Mean ( <i>SD or SE</i> ) <i>n</i> = 30	<i>F</i>	<i>p</i>
<b>SCL-90</b>				
Pretest	153.44 (42.16)	131.36 (44.07)	.03	.87
Posttest	152.89 (5.61)	143.56 (4.80)	1.60	.21
Follow-up	148.52 (8.94)	149.92 (7.65)	.01	.91
<b>CES-D</b>				
Pretest	34.68 (7.28)	35.07 (7.36)	.04	.85
Posttest	36.58 (1.56)	34.91 (1.34)	.66	.42
Follow-up	32.74 (2.01)	36.32 (1.72)	1.83	.18
<b>PILL</b>				
Pretest	102.30 (23.70)	107.68 (21.11)	.75	.39
Posttest	102.37 (2.89)	98.62 (2.47)	.97	.33
Follow-up	107.76 (3.64)	104.12 (3.12)	.57	.45
<b>NA</b>				
Pretest	18.09 (6.92)	17.00 (7.47)	.29	.59
Posttest	15.69 (1.11)	15.21 (.95)	.11	.74
Follow-up	16.43 (1.59)	17.62 (1.36)	.33	.57
<b>PA</b>				
Pretest	32.59 (8.13)	27.07 (8.50)	5.56	.02*
Posttest	23.98 (1.59)	24.20 (1.35)	.01	.92
Follow-up	28.24 (1.70)	24.24 (1.44)	3.09	.09 <sup>+</sup>
<b>RS</b>				
Pretest	49.53 (12.72)	50.78 (11.59)	.13	.72
Posttest	52.44 (2.07)	48.58 (1.77)	2.01	.16
Follow-up	50.98 (2.01)	46.65 (1.72)	2.69	.11
<b>RSES</b>				
Pretest	18.18 (3.58)	19.27 (4.79)	.80	.38
Posttest	18.74 (.81)	18.30 (.69)	.17	.69
Follow-up	18.26 (.81)	18.76 (.69)	.23	.64
<b>Comfort</b>				
Pretest	4.50 (.60)	4.13 (1.31)	1.50	.23
Follow-up	4.08 (.26)	4.14 (.22)	.03	.88
<b>Openness</b>				
Pretest	5.86 (1.04)	5.83 (.99)	.01	.92
Follow-up	6.12 (.15)	6.04 (.13)	.17	.69

Table 7 continued

<sup>+</sup>  $p < .10$       <sup>\*</sup>  $p < .05$

<sup>a</sup> Adjusted means are reported for posttest and follow-up, as pretest measures were entered as covariates for these analyses. In parentheses, standard deviations are reported for pretest while standard errors are reported for posttest and follow-up.

<sup>b</sup> SCL-90 = Symptom Checklist 90; CESD = Center for Epidemiological Studies Depression scale; PILL = Pennebaker Inventory of Limbic Languidness; NA = Negative Affect; PA = Positive Affect; RS = Rejection Sensitivity; RSE = Rosenberg Self-Esteem Scale (adapted for gay-specific self-esteem); comfort = comfort being gay; openness = openness with sexual orientation

Table 8

Means for Low and High Conceal (Median Split Within Experimental Group) on Relevant Outcome Measures at Pretest, Posttest, and Follow-up<sup>a b</sup>

Measure	Low Conceal Mean ( <i>SD or SE</i> ) <i>n</i> = 27	Hi Conceal Mean ( <i>SD or SE</i> ) <i>n</i> = 25	<i>F</i>	<i>p</i>
<b>SCL-90</b>				
Pretest	146.96 (40.56)	157.95 (45.31)	.85	.36
Posttest	141.80 (5.03)	153.66 (5.23)	2.65	.11
Follow-up	140.93 (7.91)	158.39 (8.23)	2.32	.13
<b>CES-D</b>				
Pretest	34.48 (6.70)	35.36 (7.92)	.19	.67
Posttest	35.13 (1.42)	36.14 (1.47)	.25	.62
Follow-up	32.90 (1.80)	36.86 (1.88)	2.31	.14
<b>PILL</b>				
Pretest	98.74 (15.52)	112.60 (26.08)	5.52	.02*
Posttest	101.76 (2.67)	98.53 (2.78)	.67	.42
Follow-up	103.93 (3.36)	107.52 (3.50)	.52	.47
<b>NA</b>				
Pretest	15.89 (5.89)	19.16 (8.16)	2.78	.10 <sup>+</sup>
Posttest	14.50 (1.00)	16.41 (1.04)	1.71	.20
Follow-up	16.79 (1.45)	17.46 (1.51)	.10	.75
<b>PA</b>				
Pretest	29.70 (9.45)	29.08 (8.03)	.07	.80
Posttest	23.76 (1.39)	24.49 (1.44)	.13	.72
Follow-up	26.11 (1.53)	25.73 (1.59)	.03	.86
<b>RS</b>				
Pretest	46.29 (11.39)	54.53 (11.29)	6.86	.01*
Posttest	50.56 (1.96)	49.83 (2.05)	.06	.80
Follow-up	48.53 (1.92)	48.43 (2.00)	.00	.97
<b>RSES</b>				
Pretest	18.37 (4.18)	19.28 (4.50)	.57	.45
Posttest	18.17 (.73)	18.83 (.76)	.40	.53
Follow-up	18.38 (.73)	18.73 (.76)	.12	.74
<b>Comfort</b>				
Pretest	4.59 (.89)	3.96 (1.17)	4.86	.03*
Follow-up	4.07 (.24)	4.16 (.25)	.07	.79
<b>Openness</b>				
Pretest	5.85 (.77)	5.84 (1.21)	.00	.97
Follow-up	6.18 (.13)	5.97 (.14)	1.31	.26
<b>% Friends Gay</b>				
Pretest	2.47 (.89)	2.74 (1.05)	1.06	.31
Follow-up	2.41 (.14)	2.82 (.14)	4.25	.05*

Table 8 continued

<sup>+</sup>  $p < .10$       <sup>\*</sup>  $p < .05$

<sup>a</sup> Adjusted means are reported for posttest and follow-up, as pretest measures were entered as covariates for these analyses. In parentheses, standard deviations are reported for pretest while standard errors are reported for posttest and follow-up.

<sup>b</sup> SCL-90 = Symptom Checklist 90; CESD = Center for Epidemiological Studies Depression scale; PILL = Pennebaker Inventory of Limbic Languidness; NA = Negative Affect; PA = Positive Affect; RS = Rejection Sensitivity; RSE = Rosenberg Self-Esteem Scale (adapted for gay-specific self-esteem); comfort = comfort being gay; openness = openness with sexual orientation



Table 9

*T*-score and Effect Sizes for Condition (Experimental vs. Control) X Tendency to Conceal Interactions for Relevant Outcome Measures at Posttest and Follow-up<sup>a b</sup>

Variable	df	<i>t</i>	Partial <i>r</i>	Partial <i>R</i> <sup>2</sup>
<b>SCL-90</b>				
Posttest	1, 72	.60	.07	.00
Follow-up	1, 72	.51	.06	.00
<b>CESD</b>				
Posttest	1, 72	.44	.05	.00
Follow-up	1, 72	.02	.00	.00
<b>PILL</b>				
Posttest	1, 72	.46	.05	.00
Follow-up	1, 72	1.42	.17	.03
<b>NA</b>				
Posttest	1, 72	1.33	.16	.03
Follow-up	1, 72	.28	.03	.00
<b>PA</b>				
Posttest	1, 72	.37	.04	.00
Follow-up	1, 72	1.59	.18	.03
<b>RS</b>				
Posttest	1, 72	.58	.07	.00
Follow-up	1, 72	1.45	.17	.03
<b>RSE</b>				
Posttest	1, 72	.31	.04	.00
Follow-up	1, 72	.03	.00	.00
<b>Comfort</b>				
Follow-up	1, 72	.29	.03	.00
<b>Openness</b>				
Follow-up	1, 72	.22	.83	.69
<b>% Friends Gay</b>				
Follow-up	1, 72	.96	.11	.01

<sup>a</sup> Pretest measures were entered in the first step of each regression analysis to control for their influence on the outcome.

<sup>b</sup> SCL-90 = Symptom Checklist 90; CESD = Center for Epidemiological Studies Depression scale; PILL = Pennebaker Inventory of Limbic Languidness; NA = Negative Affect; PA = Positive Affect; RS = Rejection Sensitivity; RSE = Rosenberg Self-Esteem Scale (adapted for gay-specific self-esteem); comfort = comfort being gay; openness = openness with sexual orientation; % Friends Gay = percentage of friends who are gay men

Table 10

Means for Low and High Social Support (Median Split Within Experimental Group) on Relevant Outcome Measures at Pretest, Posttest, and Follow-up<sup>a,b</sup>

Measure	Low Social Support Mean ( <i>SD or SE</i> ) <i>n</i> = 26	Hi Social Support Mean ( <i>SD or SE</i> ) <i>n</i> = 26	<i>F</i>	<i>p</i>
<b>SCL-90</b>				
Pretest	161.96 (50.13)	142.53 (32.16)	2.77	.10 <sup>+</sup>
Posttest	155.21 (5.09)	139.79 (5.09)	4.47	.04*
Follow-up	146.77 (8.32)	151.89 (8.32)	.18	.67
<b>CES-D</b>				
Pretest	37.23 (7.84)	32.58 (5.89)	5.86	.02*
Posttest	37.42 (1.44)	33.82 (1.44)	2.95	.09 <sup>+</sup>
Follow-up	34.18 (1.93)	35.44 (1.93)	.20	.65
<b>PILL</b>				
Pretest	111.57 (24.88)	99.24 (18.02)	4.28	.04*
Posttest	100.71 (2.72)	99.71 (2.72)	.07	.80
Follow-up	100.77 (3.29)	110.55 (3.29)	4.25	.04*
<b>NA</b>				
Pretest	18.73 (8.06)	16.19 (6.11)	1.64	.21
Posttest	16.12 (1.02)	14.71 (1.02)	.95	.34
Follow-up	14.96 (1.41)	19.27 (1.41)	4.63	.04*
<b>PA</b>				
Pretest	26.69 (6.85)	32.12 (9.63)	5.48	.02*
Posttest	23.33 (1.45)	24.90 (1.45)	.56	.46
Follow-up	26.86 (1.59)	25.00 (1.59)	.65	.43
<b>RS</b>				
Pretest	51.18 (10.94)	49.32 (13.07)	.31	.58
Posttest	51.05 (1.93)	49.37 (1.93)	.38	.54
Follow-up	47.41 (1.89)	49.55 (1.89)	.64	.43
<b>RSES</b>				
Pretest	21.04 (.84)	16.58 (3.08)	18.72	.00**
Posttest	19.10 (.80)	17.88 (.80)	1.01	.32
Follow-up	18.28 (.81)	18.81 (.81)	.19	.67
<b>Comfort</b>				
Pretest	4.19 (.80)	4.38 (1.30)	.41	.52
Follow-up	3.95 (.24)	4.29 (.24)	1.04	.31
<b>Openness</b>				
Pretest	5.62 (1.20)	6.08 (.69)	2.89	.10 <sup>+</sup>
Follow-up	6.03 (.14)	6.13 (.14)	.25	.62
<b>% Friends Gay</b>				
Pretest	2.46 (1.03)	2.74 (.91)	1.04	.31
Follow-up	2.88 (.13)	2.34 (.13)	7.94	.01*

Table 10 continued

<sup>+</sup>  $p < .10$       <sup>\*</sup>  $p < .05$       <sup>\*\*</sup>  $p < .01$

<sup>a</sup> Adjusted means are reported for follow-up, as pretest measures were entered as covariates for these analyses. In parentheses, standard deviations are reported for pretest while standard errors are reported for posttest and follow-up.

<sup>b</sup> SCL-90 = Symptom Checklist 90; CESD = Center for Epidemiological Studies Depression scale; PILL = Pennebaker Inventory of Limbic Languidness; NA = Negative Affect; PA = Positive Affect; RS = Rejection Sensitivity; RSE = Rosenberg Self-Esteem Scale (adapted for gay-specific self-esteem); comfort = comfort being gay; openness = openness with sexual orientation; % Friends Gay = percentage of friends who are gay men

Table 11

T-score and Effect Sizes for Condition (Experimental vs. Control) X Social Support Interactions for Relevant Outcome Measures at Posttest and Follow-up<sup>a,b</sup>

Variable	df	<i>t</i>	Partial <i>r</i>	Partial <i>R</i> <sup>2</sup>
<b>SCL-90</b>				
Posttest	1, 72	.90	.11	.01
Follow-up	1, 72	2.04*	.23	.05
<b>CESD</b>				
Posttest	1, 72	.67	.08	.01
Follow-up	1, 72	2.05*	.24	.06
<b>PILL</b>				
Posttest	1, 72	.64	.08	.01
Follow-up	1, 72	.85	.10	.01
<b>NA</b>				
Posttest	1, 72	1.34	.16	.03
Follow-up	1, 72	.93	.11	.01
<b>PA</b>				
Posttest	1, 72	1.50	.18	.03
Follow-up	1, 72	1.69 <sup>+</sup>	.20	.04
<b>RS</b>				
Posttest	1, 72	.09	.01	.00
Follow-up	1, 72	.05	.01	.00
<b>RSE</b>				
Posttest	1, 72	.77	.09	.01
Follow-up	1, 72	.35	.04	.00
<b>Comfort</b>				
Follow-up	1, 72	.08	.01	.00
<b>Openness</b>				
Follow-up	1, 72	.58	.07	.00
<b>% Friends Gay</b>				
Follow-up	1, 72	1.68	.20	.04

\*  $p < .05$       <sup>+</sup>  $p < .10$

<sup>a</sup> Pretest measures were entered in the first step of each regression analysis to control for their influence on the outcome.

<sup>b</sup> SCL-90 = Symptom Checklist 90; CESD = Center for Epidemiological Studies Depression scale; PILL = Pennebaker Inventory of Limbic Languidness; NA = Negative Affect; PA = Positive Affect; RS = Rejection Sensitivity; RSE = Rosenberg Self-Esteem Scale (adapted for gay-specific self-esteem); comfort = comfort being gay; openness = openness with sexual orientation; % Friends Gay = percentage of friends who are gay men

## Figure Captions

*Figure 1.* Effect of topic severity on disclosure of sexual orientation to at least one other person three months following writing.

*Figure 2.* Interaction of condition (experimental, control) on psychological symptoms as measured by the SCL-90 three months after writing, controlling for pretest SCL-90 scores.

*Figure 3.* Interaction of condition (experimental, control) on depression scores as measured by the CES-D three months after writing, controlling for pretest CESD scores.

Figure 1

	Lo severity	Hi severity
Came out to 0 people	18	9
Came out to at least 1 person	9	16

Figure 2

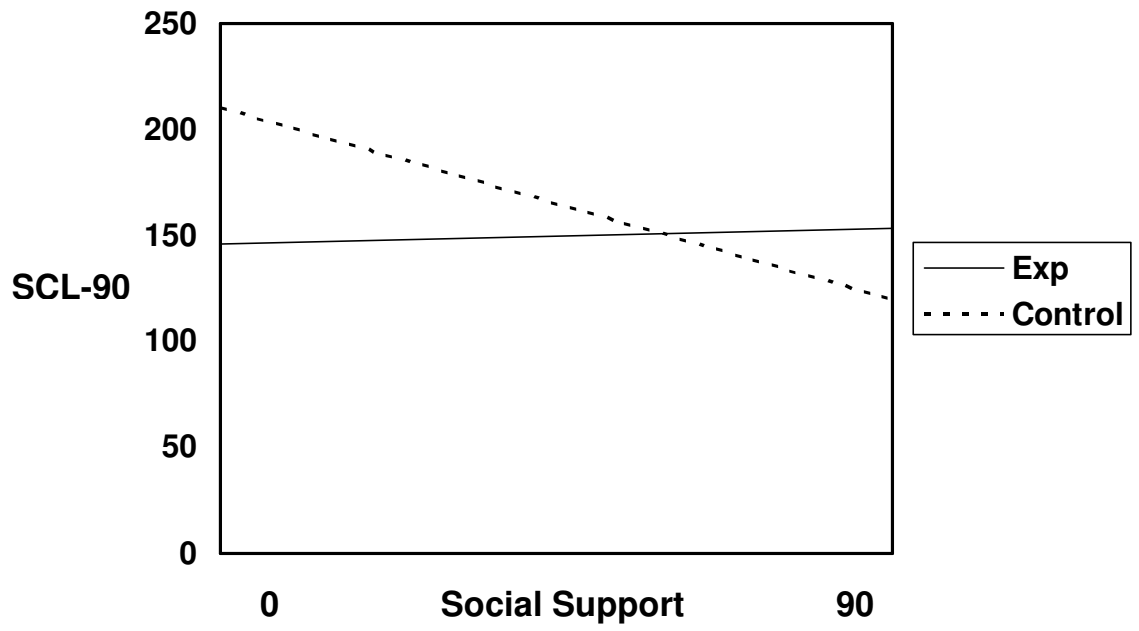
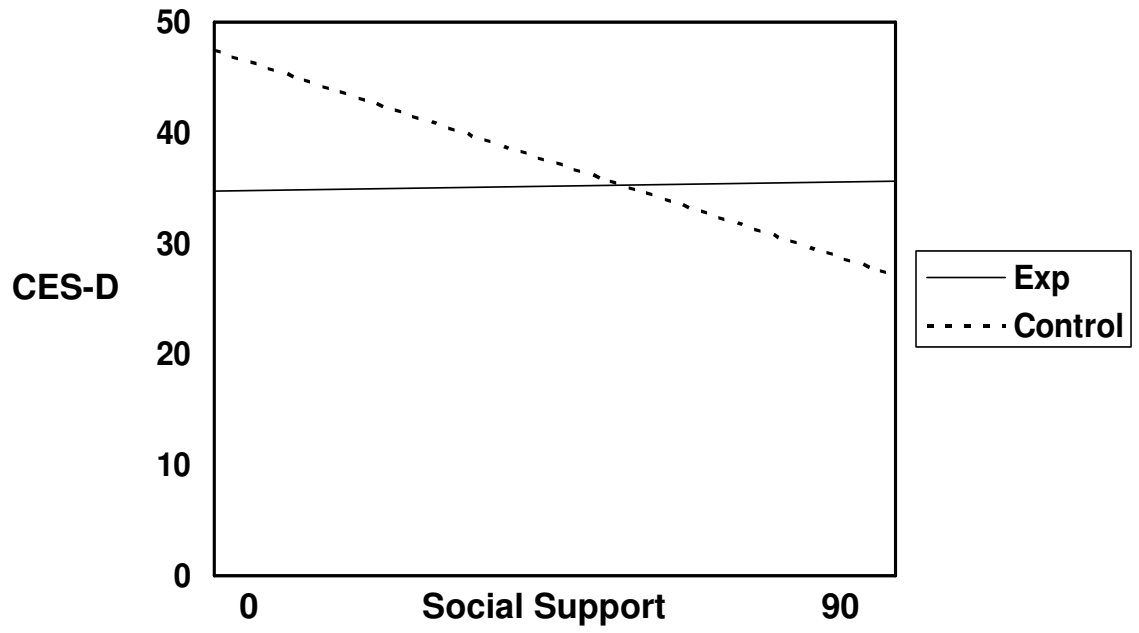


Figure 3





## Appendices

Appendix A. Procedure

Appendix B. Background Assessment

Appendix C. Symptom Checklist 90 (SCL-90)

Appendix D. Center for Epidemiological Studies Depression scale (CES-D)

Appendix E. Pennebaker Inventory of Limbic Languidness

Appendix F. Self-Concealment Scale

Appendix G. Positive and Negative Affect Scale (PANAS)

Appendix H. Multidimensional Scale of Perceived Social Support

Appendix I. Rejection Sensitivity--Gay

Appendix J. Rosenberg Self-Esteem Scale (modified for current study)

Appendix K. Disclosure Impact Measure

Appendix L. Follow-Up Impact of Disclosure

## Appendix A

<u>Time</u>	<u>Procedure</u>			<u>Measures</u>
	<u>Experimental Group</u>	<u>Experimental Group (Reads Previous Day's Writing)</u>	<u>Control Group</u>	
Pretest	Consent Pretest Questionnaire	Consent Pretest Questionnaire	Consent Pretest Questionnaire	Demographics SCL-90 CES-D PILL Therapy Experience Self-Concealment Social Support Affect Gay-Related Self-Esteem Rejection Sensitivity-Gay Openness, Comfort
Disclosure #1	Disclose gay-related threat	Disclose gay-related threat	Disclose today's events	Before: Affect After: Affect After: Assessment of Disclosure
Disclosure #2	Disclose gay-related threat	Before: Read Disclosure #1  Disclose gay-related threat	Disclose today's events	Before: Affect After: Affect After: Assessment of Disclosure
Disclosure #3	Disclose gay-related threat	Before: Read Disclosure #2  Disclose gay-related threat	Disclose today's events	Before: Affect After: Affect After: Assessment of Disclosure
Posttest	Posttest questionnaire	Posttest questionnaire	Posttest questionnaire	SCL-90 CES-D PILL Self-Concealment Affect Gay-Related Self-Esteem Rejection Sensitivity-Gay
3-month Follow-up	Follow up questionnaire	Follow up questionnaire	Follow up questionnaire	SCL-90 CES-D PILL Self-Concealment Affect Gay-Related Self-Esteem Rejection Sensitivity-Gay Openness, Comfort

Appendix B

**Background Assessment**

Participant # \_\_\_\_\_

**Thank you for agreeing to participate in this study. Please take as much time as you need to answer each of the following questions accurately. Select the answer that BEST describes your experiences. It is important that you do not leave any item unanswered.**

1. Today's Date: \_\_\_/\_\_\_/\_\_\_\_\_

2. Age: \_\_\_\_\_

3. How would you describe yourself now?

- a. gay
- b. bisexual, but mostly gay
- c. bisexual, equally gay and heterosexual
- d. bisexual, but mostly heterosexual
- e. heterosexual
- f. queer
- g. uncertain, don't know for sure

4. Ethnicity (circle one):

- a. Black/African American
- b. White/Caucasian
- c. Latino/Hispanic
- d. Asian
- e. Native American
- f. Pacific Islander
- g. Caribbean
- h. other (please list): \_\_\_\_\_

5. In what state or country did you attend high school? \_\_\_\_\_

6. In what state or country do you live now? \_\_\_\_\_

7. How would you describe the location of your high school?

- a. rural
- b. small town
- c. small city
- d. suburb
- e. large city

8. How would you describe the location of your college?

- a. rural
- b. small town
- c. small city
- d. suburb
- e. large city

9. How religious are you? (circle a number)

1	2	3	4	5
not at all	not very	somewhat	very	extremely

10. Circle the number that best describes how open in general you are now about your sexual orientation? (circle a number)

1	2	3	4	5	6	7
sexual orientation hidden from others completely	sexual orientation hidden from others with a few exceptions	Sexual orientation somewhat hidden from others	sexual orientation not quite hidden but not quite open	somewhat open with others about sexual orientation	open with others about sexual orientation with a few exceptions	Completely open with others about sexual orientation

11. Right now, how comfortable do you feel being gay? (circle a number)

1	2	3	4	5
very uncomfortable	somewhat uncomfortable	neither comfortable nor uncomfortable	somewhat comfortable	very comfortable

12. If other people compare you to other guys your age, would others say that you are: (circle a number)

1	2	3	4	5
much more feminine	more feminine	about the same	more masculine	much more masculine

13. How likely do you think that other people who don't know you (such as a stranger) would identify you as gay?

- a. not likely                      b. likely                      c. very likely

14. Are you currently involved in a romantic relationship?

- a. Yes                      b. No

If yes, is this person (circle one)                      male                      female

If yes, how long have you been in a relationship with this person? \_\_\_\_ years \_\_\_\_ months

If yes, how satisfied are you with your relationship? (circle a number)

1	2	3	4	5
very dissatisfied	mostly dissatisfied	mixed	mostly satisfied	very satisfied

15. How old were you when you first became aware that you were attracted to people of the same sex, even though you might not have labeled these feelings?

\_\_\_\_ years old

16. How old were you when you first considered yourself as not heterosexual?

\_\_\_\_ years old

17. How old were you when you first told someone for any reason that you were not heterosexual?

\_\_\_\_\_ years old (or circle:) never

Then, how did you label your sexual orientation (circle one):

gay bisexual other (please specify): \_\_\_\_\_

18. Have you told your mother (closest female guardian) that you are not heterosexual?

NA. not applicable a. yes b. no

If yes, at what age did you tell her? \_\_\_\_\_

If yes, how tolerant was she towards your sexual orientation *when you told her?* (circle a number)

1	2	3	4	5	6	7
completely tolerant and accepting	mostly tolerant and accepting	somewhat tolerant and accepting	neither accepting nor rejecting	somewhat hostile and rejecting	mostly hostile and rejecting	completely hostile and rejecting

If yes, how tolerant is she towards your sexual orientation *currently?* (circle a number)

1	2	3	4	5	6	7
completely tolerant and accepting	mostly tolerant and accepting	somewhat tolerant and accepting	neither accepting nor rejecting	somewhat hostile and rejecting	mostly hostile and rejecting	completely hostile and rejecting

19. Have you told your father (closest male guardian) that you are not heterosexual?

NA. not applicable a. yes b. no

If yes, at what age did you tell him? \_\_\_\_\_

If yes, how tolerant was he towards your sexual orientation *when you told him?* (circle a number)

1	2	3	4	5	6	7
completely tolerant and accepting	mostly tolerant and accepting	somewhat tolerant and accepting	neither accepting nor rejecting	somewhat hostile and rejecting	mostly hostile and rejecting	completely hostile and rejecting

If yes, how tolerant is he towards your sexual orientation *currently?* (circle a number)

1	2	3	4	5	6	7

completely tolerant and accepting	mostly tolerant and accepting	somewhat tolerant and accepting	neither acceptin g nor rejecting	Somewhat hostile and rejecting	mostly hostile and rejecting	completely hostile and rejecting
---	--	--	---	---	---------------------------------------	--

20. How often have you been verbally harassed (e.g., taunted, threatened, insulted, chased) because of your being gay?  
approximately \_\_\_\_\_ separate instances

21. How often have you been physically harmed (e.g., hit, kicked) because of your being gay?  
approximately \_\_\_\_\_ separate instances

22. How many times has someone threatened to tell someone else that you are gay?  
approximately \_\_\_\_\_ separate instances

23. Currently, how many of your good friends are gay or bisexual men?

1	2	3	4	5
none	less than half	about half	more than half	all

24. Currently, how many of your good friends are lesbian or bisexual women?

1	2	3	4	5
none	less than half	about half	more than half	all

25. With how many people have you had sexual experiences in the past 3 months? For this question, sexual experiences refer to any times that you have had genital contact to orgasm even if intercourse did not take place. (Please estimate to the best of your ability).

Same sex \_\_\_\_\_  
Opposite sex \_\_\_\_\_

26. How many times have you had unprotected anal intercourse in the past 3 months with someone other than a steady partner? \_\_\_\_\_

27. How many times have you had unprotected vaginal intercourse in the past 3 months with someone other than a steady partner?

28. How many alcoholic drinks do you consume each month, on average? \_\_\_\_\_

29. Have you ever been in psychotherapy? Yes No

30. Are you currently in psychotherapy? Yes No

31. Have you ever been in psychotherapy for issues related to being gay? Yes  
No

## Appendix C

### SCL-90

Now, you're going to go through a list of problems that people sometimes have. Read each one carefully and indicate the number that best describes how much that problem has distressed or bothered you during the past seven (7) days including today.

0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely

#### HOW MUCH WERE YOU DISTRESSED BY:

1. Headaches \_\_\_\_\_
2. Nervousness or shakiness inside \_\_\_\_\_
3. Repeated unpleasant thoughts that won't leave your mind \_\_\_\_\_
4. Faintness or dizziness \_\_\_\_\_
5. Loss of sexual interest or pleasure \_\_\_\_\_
6. Feeling critical of others \_\_\_\_\_
7. The idea that someone else can control your thoughts \_\_\_\_\_
8. Feeling others are to blame for most of your troubles \_\_\_\_\_
9. Trouble remembering things \_\_\_\_\_
10. Worried about sloppiness or carelessness \_\_\_\_\_
11. Feeling easily annoyed or irritated \_\_\_\_\_
12. Pains in heart or chest \_\_\_\_\_
13. Feeling afraid in open spaces or on the streets \_\_\_\_\_
14. Feeling low in energy or slowed down \_\_\_\_\_
15. Thoughts of ending your life \_\_\_\_\_
16. Hearing voices that other people do not hear \_\_\_\_\_
17. Trembling \_\_\_\_\_
18. Feeling that most people cannot be trusted \_\_\_\_\_
19. Poor appetite \_\_\_\_\_
20. Crying easily \_\_\_\_\_
21. Feeling shy or uneasy with the opposite sex \_\_\_\_\_
22. Feeling of being trapped or caught \_\_\_\_\_
23. Suddenly scared for no reason \_\_\_\_\_
24. Temper outbursts that you could not control \_\_\_\_\_
25. Feeling afraid to go out of your house alone \_\_\_\_\_
26. Blaming yourself for things \_\_\_\_\_
27. Pains in lower back \_\_\_\_\_
28. Feeling blocked in getting things done \_\_\_\_\_
29. Feeling lonely \_\_\_\_\_
30. Feeling blue \_\_\_\_\_
31. Worrying too much about things \_\_\_\_\_
32. Feeling no interest in things \_\_\_\_\_
33. Feeling fearful \_\_\_\_\_

34. Your feelings being easily hurt \_\_\_\_\_
35. Other people being aware of your private thoughts \_\_\_\_\_
36. Feeling other do not understand you or are unsympathetic \_\_\_\_\_
37. Feeling that people are unfriendly or dislike you \_\_\_\_\_
38. Having to do things very slowly to insure correctness \_\_\_\_\_
39. Heart pounding or racing \_\_\_\_\_
40. Nausea or upset stomach \_\_\_\_\_
41. Feeling inferior to others \_\_\_\_\_
42. Soreness of your muscles \_\_\_\_\_
43. Feeling that your are watched or talked about by others \_\_\_\_\_
44. Trouble falling asleep \_\_\_\_\_
45. Having to check and double check what you do \_\_\_\_\_
46. Difficulty making decisions \_\_\_\_\_
47. Feeling afraid to travel on buses, subways, or trains \_\_\_\_\_
48. Trouble getting your breath \_\_\_\_\_
49. Hot or cold spells \_\_\_\_\_
50. Having to avoid certain things, places, or activities because they frighten you  
\_\_\_\_\_
51. Your mind going blank \_\_\_\_\_
52. Numbness or tingling in parts of your body \_\_\_\_\_
53. A lump in your throat \_\_\_\_\_
54. Feeling hopeless about the future \_\_\_\_\_
55. Trouble concentrating \_\_\_\_\_
56. Feeling weak in parts of your body \_\_\_\_\_
57. Feeling tense or keyed up \_\_\_\_\_
58. Heavy feelings in your arms or legs \_\_\_\_\_
59. Thoughts of death or dying \_\_\_\_\_
60. Overeating \_\_\_\_\_
61. Feeling uneasy when people are watching or talking about you \_\_\_\_\_
62. Having thoughts that are not your own \_\_\_\_\_
63. Having urges to beat, injure, or harm someone \_\_\_\_\_
64. Awakening in the early morning \_\_\_\_\_
65. Having to repeat the same actions such as touching, counting, or washing \_\_\_\_\_
66. Sleep that is restless or disturbed \_\_\_\_\_
67. Having urges to break or smash things \_\_\_\_\_
68. Having ideas or beliefs that others do not share \_\_\_\_\_
69. Feeling very self conscious with others \_\_\_\_\_
70. Feeling uneasy in crowd, such as shopping or at a movie \_\_\_\_\_
71. Feeling everything is an effort \_\_\_\_\_
72. Spells of terror or panic \_\_\_\_\_
73. Feeling uncomfortable about eating or drinking in public \_\_\_\_\_
74. Getting into frequent arguments \_\_\_\_\_
75. Feeling nervousness when you are left alone \_\_\_\_\_
76. Others not giving you proper credit for your achievements \_\_\_\_\_
77. Feeling lonely even when you are with people \_\_\_\_\_
78. Feeling so restless you couldn't sit still \_\_\_\_\_



79. Feelings of worthlessness \_\_\_\_\_
80. The feeling that something bad is going to happen to you \_\_\_\_\_
81. Shouting or throwing things \_\_\_\_\_
82. Feeling afraid you will faint in public \_\_\_\_\_
83. Feeling that people will take advantage of you if you let them \_\_\_\_\_
84. Having thoughts about sex that bother you a lot \_\_\_\_\_
85. The idea that you should be punished for your sins \_\_\_\_\_
86. Thoughts and images of a frightening nature \_\_\_\_\_
87. The idea that something serious is wrong with your body \_\_\_\_\_
88. Never feeling close to another person \_\_\_\_\_
89. Feelings of guilt \_\_\_\_\_
90. The idea that something is wrong with your mind \_\_\_\_\_

Appendix D

**CES-D**

Now, you'll go through a list of the ways you might have felt or behaved. Please indicate how often you have felt or behaved this way during the past week using the scale below.

Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

1. I was bothered by things that usually don't bother me. \_\_\_\_\_
2. I did not feel like eating; my appetite was poor. \_\_\_\_\_
3. I felt that I could not shake off the blues even with help from my family or friends. \_\_\_\_\_
4. I felt I was just as good as other people. \_\_\_\_\_
5. I had trouble keeping my mind on what I was doing. \_\_\_\_\_
6. I felt depressed. \_\_\_\_\_
7. I felt that everything I did was an effort. \_\_\_\_\_
8. I felt hopeful about the future. \_\_\_\_\_
9. I thought my life had been a failure. \_\_\_\_\_
10. I felt fearful. \_\_\_\_\_
11. My sleep was restless. \_\_\_\_\_
12. I was happy. \_\_\_\_\_
13. I talked less than usual. \_\_\_\_\_
14. I felt lonely. \_\_\_\_\_
15. People were unfriendly. \_\_\_\_\_
16. I enjoyed life. \_\_\_\_\_
17. I had crying spells. \_\_\_\_\_
18. I felt sad. \_\_\_\_\_
19. I felt that people dislike me. \_\_\_\_\_
20. I could not get "going." \_\_\_\_\_

In the past 6 months, how many days have you been sick? \_\_\_\_\_

In the past 6 months, how many days have you seen a doctor because you felt sick? (this does not include regularly scheduled doctor's visits) \_\_\_\_\_

In the past 6 months, how many days have you had to restrict your usual activity (e.g., stay home, miss class) due to being sick? \_\_\_\_\_

## Appendix E

### PILL

This is another list of problems that people sometimes have. These problems all have to do with your body. Most people have experienced most of them at one time or another. Using this scale, indicate how frequently you experience each symptom. If your eyes tend to water once every week or two, you would answer "D" for this first question.

A	B	C	D	E
Have never or almost never experienced the symptom	Less than 3 or 4 times per year	Every month or So	Every week or so	More than once every week

___ 1. Eyes water	___ 27. Hemorrhoids
___ 2. Itchy eyes or skin	___ 28. Swollen joints
___ 3. Ringing in ears	___ 29. Stiff or sore muscles
___ 4. Temporary deafness or hard of hearing	___ 30. Back pains
___ 5. Lump in throat	___ 31. Sensitive or tender skin
___ 6. Choking sensations	___ 32. Face flushes
___ 7. Sneezing spells	___ 33. Tightness in chest
___ 8. Running nose	___ 34. Skin breaks out in rash
___ 9. Congested nose	___ 35. Acne or pimples on face
___ 10. Bleeding nose	___ 36. Acne/pimples other than face
___ 11. Asthma or wheezing	___ 37. Boils
___ 12. Coughing	___ 38. Sweat even in cold weather
___ 13. Out of breath	___ 39. Strong reactions to insect bites
___ 14. Swollen ankles	___ 40. Headaches
___ 15. Chest pains	___ 41. Feeling pressure in head
___ 16. Racing heart	___ 42. Hot flashes
___ 17. Cold hands or feet even in hot weather	___ 43. Chills
___ 18. Leg cramps	___ 44. Dizziness
___ 19. Insomnia or difficulty sleeping	___ 45. Feel faint
___ 20. Toothaches	___ 46. Numbness or tingling in any part of body
___ 21. Upset stomach	___ 47. Twitching of eyelid
___ 22. Indigestion	___ 48. Twitching other than eyelid
___ 23. Heartburn or gas	___ 49. Hands tremble or shake
___ 24. Abdominal pain	___ 50. Stiff joints
___ 25. Diarrhea	___ 51. Sore muscles
___ 26. Constipation	___ 52. Sore throat
___ 53. Sunburn	___ 54. Nausea

Appendix F

**Self-Concealment Scale**

Now, you'll read 10 statements. Please indicate how much you agree with each of these statements using this scale.

1	2	3	4	5
Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree

1. I have an important secret that I haven't shared with anyone. \_\_\_\_\_
2. If I shared all my secrets with my friends, they'd like me less. \_\_\_\_\_
3. There are lots of things about me that I keep to myself. \_\_\_\_\_
4. Some of my secrets have really tormented me. \_\_\_\_\_
5. When something bad happens to me, I tend to keep it to myself. \_\_\_\_\_
6. I'm often afraid I'll reveal something I don't want to. \_\_\_\_\_
7. Telling a secret often backfired and I wish I hadn't told it. \_\_\_\_\_
8. I have a secret that is so private I would lie if anybody asked me about it. \_\_\_\_\_
9. My secrets are too embarrassing to share with others. \_\_\_\_\_
10. I have negative thoughts about myself that I never share with anyone. \_\_\_\_\_

Appendix G

**PANAS**

Now, you'll read a number of words that describe different feelings and emotions. As you read each item, indicate the appropriate answer in the space next to that word. Indicate to what extent you have these feelings CURRENTLY. Use the following scale to determine your answers.

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
very slightly or not at all	a little	moderately	quite a bit	extremely
interested	_____	irritable	_____	
distressed	_____	alert	_____	
excited	_____	ashamed	_____	
upset	_____	inspired	_____	
strong	_____	nervous	_____	
guilty	_____	determined	_____	
scared	_____	attentive	_____	
hostile	_____	jittery	_____	
enthusiastic	_____	active	_____	
proud	_____	afraid	_____	

## Appendix H

### Social Support Questionnaire

Please use the following scale to indicate how strongly you agree or disagree with the following statements:

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Very strongly disagree	Strongly agree	Mildly agree	Neutral	Mildly disagree	Strongly disagree	Very strongly agree

- \_\_\_\_\_ 1. There is a special person who is around when I am need.
- \_\_\_\_\_ 2. There is a special person with whom I can share my joys and sorrows.
- \_\_\_\_\_ 3. My family really tries to help me.
- \_\_\_\_\_ 4. I get the emotional help and support I need from my family.
- \_\_\_\_\_ 5. I have a special person who is a real source of comfort to me.
- \_\_\_\_\_ 6. My friends really try to help me.
- \_\_\_\_\_ 7. I can count on my friends when things go wrong.
- \_\_\_\_\_ 8. I can talk about my problems with my family.
- \_\_\_\_\_ 9. I have friends with whom I can share my joys and sorrows.
- \_\_\_\_\_ 10. There is a special person in my life who cares about my feelings
- \_\_\_\_\_ 11. My family is willing to help me make decisions.
- \_\_\_\_\_ 12. I can talk about my problems with my friends.

Appendix I

**Rejection Sensitivity--Gay**

Please read the following descriptions of situations and answer the question that follows each one using the scale below. Imagine each situation as vividly as you can, as if you were actually there:

1	2	3	4	5	6
Very unlikely					Very likely

1. You bring a male partner to a family reunion. Two of your old-fashioned aunts don't come talk to you even though they see you.

How likely is it that they didn't talk to you because of your sexual orientation?  
\_\_\_\_\_ (1-6)

2. A 3-year old child of a distant relative is crawling on your lap. His mom comes to take him away.

How likely is it that the mom took him away because of your sexual orientation?  
\_\_\_\_\_ (1-6)

3. You've been dating someone for a few years now, and you receive a wedding invitation to a straight friend's wedding. The invite was addressed only to you, not you and a guest.

How likely is it that the invite was addressed only to you because of your sexual orientation? \_\_\_\_\_ (1-6)

4. You go to a job interview and the interviewer asks if you are married. You say that you and your partner have been together for 5 years. You later find out that you don't get the job.

How likely is it that you didn't get the job because of your sexual orientation? \_\_\_\_\_ (1-6)

5. You are going to have surgery, and the doctor tells you that he would like to give you an HIV test.

How likely is it that he gave you an HIV test because of your sexual orientation?  
\_\_\_\_\_ (1-6)

6. You go to donate blood and the person who is supposed to draw your blood turns to her co-worker and says, "Why don't you take this one?"

How likely is it that asked her co-worker to draw your blood because of your sexual orientation? \_\_\_\_\_(1-6)

7. You go get an STD check-up, and the man taking your sexual history is rude towards you.

How likely is it that he is rude towards you because of your sexual orientation? \_\_\_\_\_(1-6)

8. You bring a guy you are dating to a fancy restaurant of straight patrons, and you are seated away from everyone else in a back corner of the restaurant.

How likely is it that you were seated there because of your sexual orientation? \_\_\_\_\_(1-6)

9. Only you and a group of macho men are on a subway train late at night. They look in your direction and laugh.

How likely is it that they are laughing at you because of your sexual orientation? \_\_\_\_\_(1-6)

10. You and your partner are on a road trip and decide to check into a hotel in a rural town. The sign out front says there are vacancies. The two of you go inside, and the woman at the front desk says that there are no rooms left.

How likely is it that she lied to you because of your sexual orientation? \_\_\_\_\_(1-6)

11. You go to a party and you and your partner are the only gay people there. No one seems interested in talking to you.

How likely is it that no one talked to you because of your sexual orientation? \_\_\_\_\_(1-6)

12. You are in a locker room in a straight gym. One guy nearby moves to another area to change clothes.

How likely is it that he moved to another area to change because of your sexual orientation? \_\_\_\_\_(1-6)

13. Some straight colleagues are talking about baseball. You force yourself to join the conversation, and they dismiss your input.



How likely is it that they dismissed your input because of your sexual orientation?  
\_\_\_\_\_ (1-6)

14. Your colleagues are celebrating a co-worker's birthday at a restaurant. You are not invited.

How likely is it that they did not invite you because of your sexual orientation?  
\_\_\_\_\_ (1-6)

Appendix J

**Rosenberg Self-Esteem Scale (modified)**

Gay Self-Esteem

Below is a list of statements dealing with your general feelings about yourself as a gay man. Answer these questions as you think of yourself as a GAY MAN.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

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

Appendix K

**Disclosure Impact Measure**

How distressing is the event or situation that you wrote about?

1	2	3	4	5	6	7
not distressing at all			moderately distressing		extremely distressing	

How much do you want to talk to someone about this event or situation?

1	2	3	4	5	6	7
not at all			moderately		very much	

How much have you actually talked about this event or situation with another person?

1	2	3	4	5	6	7
not at all			moderately		very much	

How much does the event or situation that you wrote about affect your life?

1	2	3	4	5	6	7
not at all			moderately		very much	

How personal was your writing today?

1	2	3	4	5	6	7
not personal at all			moderately personal		very personal	

How meaningful was your writing today?

1	2	3	4	5	6	7
Not meaningful at all			moderately meaningful		very meaningful	

How much did you reveal your emotions in your writing today?

---

1	2	3	4	5	6	7
not at all			moderately			very much

Appendix L

**Follow-Up Impact of Disclosure**

All of the following questions refer to your thoughts and feelings surrounding your participation in the three-day writing experiment that you participated in three months ago.

1	2	3	4	5	6	7
not at all			moderately			very much

1. In the past three months, how much have you thought about what you wrote in this study?
2. In the past three months, how much have you talked to other people about what you wrote?
3. Looking back on the experiment, to what degree do you feel that the experiment had a positive long-lasting effect on you?
4. Looking back on the experiment, to what degree do you feel that the experiment had a negative long-lasting effect on you?
5. In the past three months, how happy have you felt?
6. In the past three months, how sad or depressed have you felt?
7. Looking back on the writing experiment, to what degree was the experiment valuable or meaningful for you?
8. Now that the experiment is completed, could you tell us how it may have influenced you in the long-run? What have been the positive effects as well as the negative effects?
9. If you had the chance to do it over again, would you participate in this study:  
definitely yes\_\_\_\_  
probably yes\_\_\_\_  
don't know\_\_\_\_  
probably no\_\_\_\_  
definitely no\_\_\_\_
10. In the past three months, how many people have you come out to (told you are gay for the first time)?

11. In the past three months, have you come out to your mom (primary female caregiver)?
12. In the past three months, have you come out to your dad (primary male caregiver)?
13. In the past three months, have you come out to any other family members?  
  
How many family members TOTAL have you come out to in the past three months?
14. In the past three months, have you come out to any friends?  
  
How many friends TOTAL have you come out to in the past three months?
15. Any other comments you have about the experiment will be greatly appreciated: