UNIVERSITY OF CALIFORNIA

Santa Barbara

The Impact of Autonomy Support on Identity Disclosure and Well-being among Sexual Minority Individuals

A dissertation submitted in partial satisfaction of the

requirements for the degree of Doctor of Philosophy

in Psychological & Brain Sciences

by

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ACKNOWLEDGEMENTS

I would like to thank my family, friends, mentors, collaborators, and research assistants, without whom I could not have completed this dissertation and my degree.

First and foremost, I would like to thank my parents, Miriam and Richard, and my sister, Alex, who have provided me with unconditional love and have truly supported my autonomy throughout my whole life. I do not need research to convince me that such love and support is instrumental to positive identity development. I am who and where I am today because of you.

Thank you to Nikki Legate and Netta Weinstein, my first and forever research collaborators. Thank you for being such incredible mentors and friends and for collaborating with me on much of the research presented in this dissertation.

Thank you also to my colleague and friend Matthew Cieslak for a fruitful and fun collaboration. Thank you for sticking with me throughout what seemed at times to be a never-ending project and for the countless hours you put in creating MEAP, the software that made this research possible. I will forever be in awe of your programming skills and your ability to explain the most complicated processes and formulae with clarity and simplicity- and of course of how much you can bench press.

I would also like to thank the many research assistants who worked with me on these three studies. The hours you put in running subjects, and scoring and coding data are what made this work possible. I am particularly grateful to Brett Ouimette for his contributions to this research and for his friendship when I needed it most.

Thank you to all of my friends from UCSB for providing me with moments of joy during a rough 6 years. Extra special thanks to Jessica Cornick for being my comrade and ally in the lab. Your company and support allowed me to hold on to some of my sanity.

Thank you to my committee for your feedback and assistance in completing and developing this paper. Thank you to my advisor Dr. Jim Blascovich for giving me the opportunity to be a graduate student and to learn cardiovascular physiology. Thank you to Dr. Brenda Major for welcoming me to your lab meetings and discussing theory with me and to the much-sought-after Dr. Karen Nylund-Gibson for serving on yet another extra-departmental committee. I would especially like to thank Dr. Nancy Collins for invaluable statistical advice and all-around mentorship for this dissertation and over the past six years.

Lastly, there are not enough thank yous in the world to adequately express my gratitude to my brilliant, caring, beautiful, and ever-patient partner and collaborator in life and love, Molly Metz. Thank you for providing the perfect combination of emotional and instrumental support throughout this process and always. Thank you for hugging me, feeding me, brainstorming with me, proofreading my work, and for being the best friend and partner I could ever imagine. You are the best thing to come out of my time in graduate school. Thank you for not letting me give-up on myself. I love you!

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ABSTRACT

The Impact of Autonomy Support on Identity Disclosure and Well-being among Sexual Minority Individuals

by

William S. Ryan

Much of the early research on sexual minority (SM) mental health emphasized the importance of "coming out" or disclosing one's sexual orientation in developing a positive sense of self. While some research indicates that disclosure is beneficial, other work has failed to find such well-being benefits. Drawing on self-determination theory (Ryan & Deci, 2000) the present work addresses the inconsistency in this relation between coming out and well-being. Study 1 indicates that negative reactions to disclosure exert a lasting impact on well-being outcomes and that this influence was exerted via the thwarting of autonomy. Study 2 results suggest that perceiving autonomy support from one's social contexts was associated with greater disclosure and well-being, especially among those with high levels of internalized stigma. Study 3 indicates that recalling disclosure experiences impacts well-being in the short-term as well, with positive experiences associated with greater well-being than negative experiences. Cardiovascular results from Study 3 suggest that the relating both positive and negative coming out experiences is associated with increased blood pressure. Taken together, results highlight the stress associated with disclosure and the importance of supportive social relationships and environments in promoting disclosure and well-being among SM individuals especially among high risk individuals. These findings suggest that interventions designed to increase the provision of autonomy support may be particularly effective in promoting well-being among SM individuals.

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The Impact of Autonomy Support on Identity Disclosure and Well-being among Sexual Minority Individuals

Though a large body of literature has shown that sexual minority (SM) individuals (i.e. lesbian, gay, and bisexual (LGB) individuals) on average have worse well-being than heterosexuals (The Pew Research Center, 2011), there is wide variation in mental health outcomes within SM populations. Indeed, new research suggests that although some SM individuals suffer costs to well-being (e.g. King et al., 2008), others are thriving, with well-being that is higher than their heterosexual counterparts (Juster, Smith, Ouellet, Sindi, & Lupien, 2013).

Much of the early research on SM mental health emphasized the importance of "coming out" or disclosing one's sexual orientation in developing a positive sense of self (e.g., Cain, 1991; Cass, 1984; Ragins, 2004; Wells & Kline, 1987). Although a good deal of evidence suggests that individuals who disclose their sexual orientation have higher well-being than those who do not (Juster et al., 2013; Morris, Waldo, & Rothblum, 2001; Green, Derlega, & Matthews, 2006; Cole, Kemeny, Taylor, & Visscher, 1996), other work indicates that this is not uniformly the case (Ragins, 2004; Pachankis, Cochran, & Mays, 2015; Fredriksen-Goldsen, Kim, Barkan, Muraco, & Hoy-Ellis, 2013). Thus, the emphasis on disclosure as a means of improving the health and well-being of SM individuals does not address the wide range in well-being among those who are "out." Moreover, research on "coming out" often fails to address within-person variation in "outness" as individuals selectively disclose their identities across different relationships and contexts.

So what accounts for the wide variation in well-being outcomes among SMs? The present research explores this question using Self-Determination Theory (SDT; Deci &

Ryan, 1985, 2000; Ryan & Deci, 2000, 2017) to examine the qualities of relationships and social contexts that influence decisions about identity disclosure, and the psychological and relational experiences that follow.

The Stigma of Sexual Minority Identities

Though increasingly accepted in many cultures, SM identities continue to be subject to stigma, or the devaluation of an identity within specific social contexts or cultural milieus (Crocker, Major, & Steele, 1998; Goffman, 1963). Following Goffman's (1963) original and classic definition, the stigma associated with SM identities is due to their being perceived as the result of some moral or personal failing on the part of the individual. Like drug addiction or mental illness, SMs are fall in the category of "blemishes of character" (Goffman, 1963, Crocker, et al., 1998). As perceived personal failings, such stigmas are considered to be *controllable* (Crocker et al., 1998), eliciting attributions of blame and justification of negative treatment (Weiner, Perry, and Magnusson, 1988). Where SM identities are perceived to violate moral notions of purity and sanctity, they may evoke additional judgment, disgust, and hatred (Haidt & Kesebir, 2010).

The stigma attached to SM identities remains pervasive, manifesting itself at the structural, interpersonal, and intrapersonal levels (Herek, Gillis, & Cogan, 2009). At the structural level, stigma may take the form of same-sex marriage bans, a lack of legal protections against discrimination in employment and housing, exclusion from military and religious institutions, and in some cases criminalization of same-sex sexual behavior (Corrigan et al., 2005; Link & Phelan, 2001). Structural stigma may also manifest in community norms that implicitly or explicitly express bias against SM identities (Hatzenbuehler, et al., 2014). At the interpersonal level, the prejudicial attitudes and

negative emotions that accompany SM stigma, may lead to rejection, social ostracism, discrimination, property crimes, and physical and verbal harassment and assault from strangers, acquaintances, and even close others (D'Augelli, 2002, 2006; Faulkner & Cranston, 1998; Herek, 2009; Mays & Cochran, 2001).

At the intrapersonal level, situations in which one's stigmatized identity is salient may activate social identity threat, or the concern that one might be devalued, discriminated against, rejected, or stereotyped because of one's social identity (Major & O'Brien, 2005; Steele et al., 2002). Due in part to past experiences witnessing or experiencing anti-SM bias, individuals vary in their chronic sensitivity to and concerns about identity-based devaluation (Major, Mendes, & Dovidio., 2013). Elevated stigma concern can manifest in increased vigilance for signs of mistreatment and greater attention to potential threats, even at a preconscious level (Kaiser, Vick, & Major, 2006). These processes may lead individuals to interpret events or interactions as discriminatory even when underlying motives are ambiguous or not specifically identity-related (Major et al., 2013). The anticipation, vigilance, rumination, and uncertainty surrounding one's identity-based treatment lead to increased stress and associated affective, cognitive, and physiological consequences (Schmader, Johns, & Forbes, 2008) and undermines both mental and physical health (e.g. Crocker, et al., 1998; Meyer, 2013; C. Ryan, Russell, Huebner, Diaz, & Sanchez, 2010). Inundated with negative messages and treatment, SM individuals may also come to internalize the equation of SM identities to personal failings, perhaps even before they are aware of their own SM status. Internalized stigma, or the internalization and application of negative attitudes to the self, has been shown to be associated with reports of past and anticipated discrimination and rejection and is a particularly potent risk factor for SM well-

being deficits.

Identity Concealment & Disclosure

Like other identities, stigmatized identities range in the extent to which others can readily observe the bearer's stigmatized status (Goffman, 1963; Crocker, et al., 1998). SM identities, however, are generally concealable, which poses unique challenges (Pachankis, 2007) that are not often experienced by individuals with readily visible stigmas, particularly when managing inter- and intrapersonal stigma. Given the stigma and the potential risks associated with SM identities, many individuals choose to conceal this identity (Frable, 1993; Jones et al., 1984; Legate, Ryan, & Weinstein, 2012). To some degree, concealment is a function of experiencing or anticipating direct or indirect social costs of coming out. Thus, for many, a SM identity may take the form of a secret, defined as a form of silence or withholding of knowledge compelled by the threat of sanctions for disclosure (Shils, 1956). Though secrets are often kept to protect the self and others, secrets perpetuate shame and guilt (Karpel, 1980), and come with costs to mental and physical health (e.g., Pennebaker & Chung, 2011).

Concealment of sexual identity specifically has been shown to take a toll on cognitive resources (Critcher & Ferguson, 2014), inhibit the authentic expression of identity (Bosson, Weaver, & Prewitt-Freilino, 2012), interfere with the maintenance and formation of close relationships (Pachankis, 2007), and reduce sources of social support (Frable, Platt, & Hoey, 1998). Perhaps in part for these reasons, concealment in SM populations has been linked with diminished psychological and physical health (e.g., Cole, Kemeny, Taylor, & Visscher, 1996; Greene, Derlega, & Matthews, 2006; Gross & Levenson, 1993; Morris, Waldo, & Rothblum, 2001; Smart & Wegner, 2000; Ullrich, Lutgendorf, & Stapleton,

2003). This is even true at a within-person level of analysis. Using experience sampling methods, Beals, Peplau, and Gable (2009) found that gay and lesbian individuals reported lower psychological well-being (self-esteem, positive affect, and satisfaction with life) on days when they concealed rather than disclosed their sexual identity.

Mixed Results of Identity Disclosure

Despite how critical coming out may be for self-acceptance and overall well-being for SM individuals (Cain, 1991; Ragins, 2004; Wells & Kline, 1987), the link between coming out and well-being may be complicated by a person's interpersonal context. In fact some research suggests that coming out is not consistently beneficial (Cole, Kemeny, & Taylor, 1997; D'Augelli, 2002; Igartua, Gill, & Montoro, 2003; Legate et al., 2012; McGregor et al., 2001; Oetjen & Rothblum, 2000). The challenges inherent to disclosing a concealable stigma have been documented in diverse domains including mental illness (e.g., Quinn, Kahng, & Crocker, 2004), epilepsy (Kleck, 1968), HIV, infertility, unemployment, and abortion (Major & Gramzow, 1999), among others (Pachankis, 2007). For SM individuals, disclosure is one of the most stressful processes faced (Hershberger, Pilkington, & D'Augelli, 1997), with short-term risks of harassment, victimization, and suicidality increasing following disclosure (D'Augelli, 2002; Igartua et al., 2003). Concern over whether, when, and to whom to disclose one's sexual orientation is also a form of social identity threat that can similarly increase stress and tax cognitive resources (Madera, 2010; Pachankis, 2007). Deciding whether or not to come out as an SM may be particularly stressful because it is, in many ways, a double-bind; one must choose between two undesirable outcomes: risking discrimination or rejection from others, or concealing an important part of oneself.

These mixed results on whether coming out is beneficial suggest the importance of looking more closely at coming out experiences and their relation to well-being. Increasingly, research on the disclosure of specific concealable stigmas (e.g., sexual orientation, mental illness, abortion status) indicates that the reactions of the confidant shape the impact that disclosure has on well-being. For example, in a study by Major et al. (1990), those who received mixed support after disclosing an abortion evidenced poorer adjustment relative to women who received either unequivocal support or who did not disclose at all. Chaudoir and Quinn (2010) examined the influence of motivation on disclosure and found that those who disclosed a stigmatized identity (including mental illness, medical condition, psychological issue, sexual orientation) for other-focused reasons (e.g., because the person felt especially close to the confidant) had more positive first-disclosure experiences. Positive experiences, in turn, related to current self-esteem and this effect was mediated by fear of disclosure.

In relation to SM individuals specifically, a number of studies have examined SM adolescents' perceptions of parental reactions to disclosure (see D'Augelli & Hershberger, 1993; D'Augelli, Hershberger, & Pilkington, 1998; Hetrick & Martin, 1987; Savin-Williams, 1989). One study found that only about half of mothers and one-third of fathers were perceived by their SM children to be accepting of their identity (D'Augelli, 2006). Results from this and other studies suggest that parental rejection is a primary risk factor for SM youth (D'Augelli, 2006; D'Augelli & Hershberger, 1993; Hetrick & Martin, 1987; Savin-Williams, 1989; Savin-Williams, & Dube, 1998). SM youth who perceived acceptance from their parents report higher self-esteem than those whose disclosures were not met with such acceptance (Savin-Williams, 1989).

Taken together, this research suggests that the interpersonal context in which individuals disclose is critical to the well-being outcomes that follow. What remains to be examined, however, are the psychological mechanisms by which this impact occurs. Here I propose and test one potential mechanism, the experience of autonomy need satisfaction.

Autonomy Support in Relationships

SDT (Deci & Ryan, 1985, 2000; Ryan & Deci, 2000) posits that people have a need for *autonomy,* the feeling that they are able to be truly themselves and act in accord with their internal values and feelings, rather than on the basis of external controls or contingencies. Autonomous behaviors are those that the individual can congruently endorse and enact. Interpersonal relationships and social contexts range in the extent to which they support or thwart one's autonomy (Lynch, La Guardia, & Ryan, 2009; Ryan, La Guardia, Solky-Butzel, Chirkov, & Kim, 2005). Autonomy is supported when others convey acceptance for who one truly is. Conversely, autonomy is undermined by relationships and contexts that are evaluative, controlling, or judgmental and when others make their support and love contingent on the fulfillment of specific expectations (Deci & Ryan, 2000). Such contingent support puts one in a position whereby autonomy must be sacrificed in order to preserve the relationship (Rogers, 1961; Roth, Assor, Niemiec, Ryan, & Deci, 2009).

Experiencing autonomy has been empirically linked to a host of positive outcomes including improved psychological well-being (e.g., Ryan & Deci, 2000), physical health (e.g., Williams, Grow, Freedman, Ryan, & Deci, 1996), and increased satisfaction at work (e.g., Richer, Blanchard, & Vallerand, 2002) and in relationships (La Guardia, Ryan, Couchman, & Deci, 2000). Furthermore, research in SDT demonstrates that parents who thwart autonomy have children who behave in less autonomous ways and are at greater risk

of mental health issues (e.g., Assor, Roth, & Deci, 2004 ; Roth et al., 2009), and these deleterious effects of being around autonomy-thwarting others hold across the lifespan (e.g., Grolnick & Ryan, 1989; La Guardia et al., 2000).

Autonomy support helps people to express themselves authentically and behave in ways that are consistent with deeply held values (La Guardia & Ryan, 2007; Lynch et al., 2009; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997). These findings are especially poignant when the challenges of SM self-disclosure are considered. Given the profoundly personal nature of identity disclosure and the potential for rejection, initial disclosure of one's sexual orientation to important others may be particularly critical in shaping subsequent self- and identity-related attitudes. Furthermore, disclosure to one's parents may be especially impactful insofar as parent–child relationships are central to identity development and feelings of self-worth (Grolnick & Ryan, 1989; Joussemet, Landry, & Koestner, 2008). In support of this idea, Weinstein, W. Ryan, and colleagues (2012) found that individuals who perceived their parents to be autonomy-thwarting were more likely to develop contingent, or unstable, self-esteem and an incongruent sexual identity that reflected a failure to accept and express same-sex attractions.

Present Research

In the three studies that follow, I examine the role of autonomy support from close others and within relational contexts and its association with well-being and the impact of coming out on well-being. Study 1 examines the impact of close others' reactions to identity disclosure on well-being and whether autonomy need satisfaction may partially account for the relation between the valance of others' reactions and current well-being. Study 2 examines the interaction between autonomy support provided within interpersonal contexts

and internalized stigma, an intrapersonal risk factor for poor well-being, testing whether autonomy support may be particularly beneficial to individuals with high levels of internalized stigma. Study 3 expands on these questions by examining the impact of retelling one's most positive and negative coming out experiences on current well-being. Within these retellings the mediating role of autonomy support is examined, but this time operationalized through coding the narratives of experience for extent of autonomy support, rather than self-report. Study 3 also begins to examine the physiological concomitants of disclosure, assessing stress-related cardiovascular reactivity while discussing positive and negative coming out experiences.

Study 1: Reactions of Close Others to Coming Out and Their Impact on Well-Being

Study 1 examines the coming out process, focusing on individuals' initial experience of coming out as well as their experiences disclosing to important others including their mother, father, and best friend. I examine coming out milestones for descriptive purposes (when people first realized they were might hold a sexual minority identity, when they first disclosed, to whom they first disclosed), as well as specific behaviors that represent positive or negative reactions (capturing both valence of the reaction, as well as its intensity). This work connects the existing literature on coming out with the theoretical framework of SDT to help explain why others' reactions to coming out impact current well-being. I postulate that the intensity of positive versus negative reactions to coming out impacts well-being by either supporting or thwarting perceived autonomy in the relationship. Intuitively one may think that disclosure would always lead to greater well-being and a sense that one can be oneself in the relationship. However, a negative reaction when first coming out to an important family member or friend is likely to leave one feeling evaluated and rejected, and

thus perhaps less free to be authentic. Receiving a positive reaction after coming out will likely lead one to feel like one can more fully be oneself. The autonomy need satisfaction that follows from such a reaction should promote well-being, in keeping with past research (Vansteenkiste & Ryan, 2013). Thus, I expect that the relative satisfaction of autonomy needs will account for why positive reactions promote wellbeing and negative reactions undermine well-being.

Specifically, I hypothesize that the more negative the reaction a disclosure is met with, the more detrimental the reaction's effect on well-being, as indicated by current symptoms of depression and low self-esteem. I also advance the parallel hypothesis that positive reactions would be associated with greater well-being. Furthermore, I hypothesize that autonomy need satisfaction in these relationships post-disclosure would be the mechanism through which these effects occur. In other words, I expect that people experience more autonomy in relationships where reactions are positive, and less autonomy following negative reactions to identity disclosure. These experiences of autonomy are in turn expected to mediate the effects of reaction to coming out on wellbeing.

Study 1 fills several gaps in the existing literature. First, although disclosure reactions have been recognized as an important factor in the determination of psychological and physical health outcomes (e.g. D'Augelli et al., 1998; Quinn & Earnshaw, 2013) little work has examined specific behavioral reactions to SM identity disclosure (Chaudoir & Quinn, 2010). Moreover, the mechanism by which positive or negative reactions impact well-being have not been well-studied (Chaudoir & Fisher, 2010; but see Chaudoir & Quinn, 2010 for an exception) and few studies examine specific disclosure events, with most aggregating across multiple experiences (e.g., Beals et al., 2009) or considering overall

outness (Mohr & Fassinger, 2000) as the variable of interest. Even fewer studies have examined the psychological mechanisms underlying the impact of initial disclosure experiences and those with close others, both of which hold particular meaning for individuals. The present research is thus novel in that it examines and describes initial and specific disclosure experiences with close others, the impact of specific types of reactions across important relationships, and one mechanism through which reactions affect wellbeing- namely the perception of autonomy. This is important because autonomy need satisfaction in close relationships has been shown to be critical to self-acceptance and wellbeing (e.g., La Guardia et al., 2000), though the link has not yet been extended to disclosure of a stigmatized identity. Here, I explore whether the perception of autonomy support accounts for the differential well-being outcomes that follow from receiving positive and negative reactions to disclosure of a stigmatized identity.

Method

Participants

Participants were recruited via Amazon Mechanical Turk (MTurk), an online forum that allows businesses and researchers to connect with workers who can complete posted tasks for payment. MTurk is being utilized increasingly in research and empirical work supports the quality of data collected through this interface (Buhrmester, Kwang, & Gosling, 2011). Only registered users identifying as lesbian, gay, or bisexual over the age of 18 and residing in the USA, Great Britain, and Canada were recruited for participation in this 20–30 min survey. Of the 108 people who completed this survey, 58 identified as female, 46 as male, 1 as transgender male to female (MTF), and one as transgender female to male. Two participants did not report their gender. Twenty-eight self-identified as lesbian, 25 as gay,

and 55 as bisexual (34 female, 20 male, 1 MTF). Participants ranged in age from 18 to 61 (M = 27.94, SD = 10.23). Seventy-four percent were white/Caucasian (n = 80), 6.5% Asian/Pacific Islander (n = 7), 12% black (n=13), 4.6% Hispanic (n = 5), and 1.9% Native American (n = 2), with one person declining to specify.

Procedure

The survey consisted of demographic questions as well as a series of questions relating to the age at which participants realized their own sexual orientation; whether, when, and to whom this information was disclosed and the perceived reaction to disclosure. The survey was designed to pipe participants through these questions according to their reactions. Specifically, participants were asked how old they were when they first became aware of their sexual orientation. They were then asked to select the identity of the person to whom they first "came out", indicated the age at which they did so, and responded to questions about confidant reactions and autonomy support. Participants indicated whether and when they came out to their mother, father, and best friend (or whether this relationship did not apply) and completed the same items assessing reactions and autonomy support separately for each confidant. If participants had already selected their mother, father, or best friend as their first disclosure target, questions for this target were skipped such that participants answered items only once for each target. Finally, participants completed measures of current global self-esteem and depression, employed as indices of psychological wellbeing.

Measures

Positive and negative reactions. Participants were asked to indicate the extent to which each person (first, mother, father, best friend) responded to their identity disclosure in

19 possible ways using a 5-point Likert-type scale (1- *not at all*, 5- *very much*). Items were generated by the researchers on the basis of written accounts of coming out experiences and discussions with SM individuals about their disclosure experiences. Items were subjected to a factor analysis, and two factors emerged representing positive reactions and negative reactions. These explained 36.91 and 24.62% of the variance, respectively. Six of these items refer to negative reactions (e.g., "be furious" and "cry"). The remaining 13 items refer to positive reactions including, "try to see things my way" and "thanked me for sharing". Factor loadings ranged from .64 to .86. Responses to these items were averaged to form subscales reflecting the extent to which each disclosure target reacted negatively or positively. Thus, a total of eight subscales were formed, two for each target (e.g., mother's positive reaction, and mother's negative reaction; see Figures 1a and 1b). Cronbach's alphas for positive and negative reactions from first person, mother, father, and best friend ranged from .88 to .97, suggesting high item homogeneity among these subscales. Two broader subscales reflecting positive and negative reactions averaged over each disclosure partner were also computed.

Autonomy need satisfaction was assessed for each disclosure target via the 3-item autonomy subscale of the Basic Psychological Need scale (La Guardia et al., 2000). Autonomy need satisfaction with each disclosure partner was assessed using items with stems adjusted to match the identity of each disclosure target. Example items include, "When I am with my [mother], I feel free to be who I am" and "When I am with my [mother], I feel pressured to behave in certain ways" (reverse scored). Participants responded on a 7-point Likert-type scale. Cronbach's alphas for autonomy need satisfaction ranged from .77 to .79. As with reaction variables, overall autonomy need satisfaction was

computed by averaging across disclosure targets.

Depression was measured via four items taken from the CES-D (Radloff, 1977). I selected four items on the basis of face validity and high factor loadings from previous research from the 20-item scale to reduce participant burnout after answering the same set of questions about multiple people in their lives. Sample items include, "I was bothered by things that usually don't bother me" and "I felt hopeful about the future" (reverse coded). Participants indicated how often they felt this way in general during the past week using one of four response options that ranged from " rarely or none of the time (less than 1 day)" to "Most of the time (5–7 days)". Cronbach's alpha for this sample was .69.

Self-esteem. Four items from the Rosenberg Self-Esteem Scale (Rosenberg, 1979) assessed participants' sense of self-esteem over the past week. Participants indicated their agreement with statements such as "I feel that I am a person of worth, at least on an equal plane with others" and "at times I feel I am no good at all" (reverse coded) using a 5-point Likert-type scale. Cronbach's alpha for this sample was high ($\alpha = .87$).

Results

Preliminary Analyses

I first tested for differences in gender and sexual orientation among major study variables. Gender was marginally related to receiving positive reactions to disclosure ($t(100) = 1.88$, $p = .06$), receiving negative reactions ($t(99) = -2.01$, $p < .05$), and total autonomy support after coming out ($t(99) = 3.89$, $p < .001$). Group means indicates that women received more positive ($M = 3.72$, $SD = .85$) and less negative ($M = 1.72$, $SD = .92$) reactions to disclosure compared to men ($M = 3.41$, $SD = .79$; $M = 2.10$, $SD = .93$, respectively). Furthermore, women ($M = 5.89$, $SD = 1.18$), compared to men ($M = 5.01$, SD

= 1.03), reported higher levels of autonomy need satisfaction after self-disclosing.

One-way analyses of variance (ANOVA) indicated significant differences by sexual orientation in depression ($F(2, 100) = 3.15$, $p < .05$) and autonomy need satisfaction after coming out ($F(2, 102) = 3.16$, $p < .05$). *Post hoc* analyses using Tukey's HSD indicated that the effect on depression was driven by a significant difference between bisexuals (M = 2.10, SD = .72) and lesbians (M = 1.71, SD = .62), $p < .05$. Furthermore, the effect on autonomy was driven by a difference between bisexuals (M = 5.69, SD = 1.20) and gay men (M = 5.01, SD = 1.06), $p < .05$. Means and standard deviations for depression, anxiety, and autonomy need satisfaction with each disclosure target for each sexual orientation group appear in Table 1.

Due to these differences, gender, sexual orientation, and their interaction were controlled for in all primary analyses.[1] Table 2 displays correlations for variables related to disclosure to mother and father and Table 3 displays this same set of bivariate relations for first person and best friend. Across all relationships (mother, father, best friend, first person), positive reaction to disclosure was positively correlated with perceived autonomy support (rs ranged from .44 to .58, ps < .05). Negative reactions showed the opposite pattern, correlating negatively with perceived autonomy support following disclosure (rs range from -.61 to -.69, ps < .05).

Before proceeding to the primary analyses, I also examined to whom participants first disclosed their sexual orientation. Most participants chose to first disclose their sexual

[1] Whether or not gender was included as a control variable in these regression analyses the direction and significance of effects remained the same.

orientation to their best friend (n = 35) or another friend (n = 31). Thirteen participants first came out to a sibling, ten to their mother, and seven to another family member. No participants chose to come out to their father first. This is consistent with findings that fewer than 10% of youth first disclose to a parent (D'Augelli & Hershberger, 1993; Savin-Williams, 1990) and that they are much more likely to disclose to their mothers than to their fathers (D'Augelli et al., 1998). Comparing overall disclosure rates across the relationship categories of mother, father, and best friends indicated that participants were less likely to come out to their father (n = 36) relative to mother (n = 55) and best friend (n = 88).

Primary Analyses

First I tested the hypothesis that positive reactions to coming out are linked to lower depression and higher self-esteem, and that negative reactions have the opposite relation with these mental health outcomes. Four separate hierarchical regression analyses were conducted for each outcome variable (depression, self-esteem), one for each disclosure target (for a total of 8 models). The analyses for any specific disclosure partner (e.g. mother or father) only utilize data from those participants who came out to that partner. Results of these analyses and the size of the sample included in each are displayed in Tables 4 and 5. In each case, the outcome variable was regressed onto positive and negative reactions simultaneously after controlling for sexual orientation, gender, and their interaction.[2]

Results indicated that negative reactions had a much stronger influence on depression than did positive reactions. Indeed, negative reactions from first person, father,

[2] Adding time since first disclosure as a covariate does not change the significance or pattern of results.

and best friend all significantly predicted depression (*b*s ranged from .28 to .39, *p*s < .05). Results for mother were marginal (*b* = .27, *p* = .09). Positive reactions, in the context of any of the four relationships, did not significantly contribute to the explained variance in depression over and above negative reactions (*b*s ranged from -.03 to .08, *p*s > .10). These same analyses were repeated for self-esteem. Here, only negative reactions from father and best friend significantly predicted self-esteem (*b*s = -.58 and -.29, *p*s < .05). As with depression, positive reactions were not related to self-esteem over and above negative reactions in the context of any of the assessed relationships (all *p*s < .05).

Finally, mediation analyses were conducted to test the third hypothesis that autonomy need satisfaction after coming out would account for the relation between reactions and well-being outcomes. Only negative reactions were used as the predictor variables in both tests of mediation since positive reactions did not relate to wellness outcomes. I followed Hayes and Preacher's (2011) mediation script to calculate direct and indirect effects. In the first model, I used negative reactions (aggregated across all disclosure partners) as the predictor, post-disclosure autonomy as the mediator (also aggregated across partners), and a composite measure of well-being (collapsing self-esteem and depression, correlated at *r* = -.58, *p* < .01) as the outcome, controlling for sexual orientation. A separate model tested first disclosure reactions as the predictor and wellbeing as the outcome.

Post-disclosure autonomy did indeed explain why important others' negative reactions related to lower well-being (indirect effect = -.41, 95% bootstrap confidence interval (-.75 to -.08)). The effect of negative reactions on well-being was significant without (*t* = -3.40, *p* = .001), but not with (*t* = -.85, *p* > .15) post-disclosure autonomy present in analyses, suggesting full mediation (see Figure 2). I estimated the proportion of

variance explained in overall model following procedures outlined in MacKinnon (2008), and found that R^2 = .16. This pattern replicated for first disclosure experiences; negative reactions from the first person to whom participants came out had a negative effect on their well-being through post-disclosure autonomy (indirect effect = -.36, 95% CI: -63 to -.12). Results again suggested full mediation; negative reactions from one's first disclosure partner were significantly linked to lower well-being (t = -2.93, p = .004), but not after the mediator was included in the model (t = -.61, p > .15), with the model explaining .13 of the proportion of variance of current well-being. These findings thus support my expectation that negative reactions (from important others as well as the first person to whom participants disclosed (have a lasting negative effect on well-being because they undermine people's sense that they can "be themselves" in relationships.

Discussion

This first study was aimed at understanding experiences of coming out with a particular focus on the effects of important others' reactions following disclosure on SM individuals' psychological well-being. Specifically, I tested the hypothesis that negative reactions after coming out have deleterious effects on well-being because they thwart autonomy need satisfaction, or the sense that one can be oneself in important relationships. I also tested the complementary hypothesis that positive reactions would promote well-being by enabling people to be themselves with others.

Study 1 results indicated that negative, but not positive, reactions to disclosure had a significantly lasting impact on well-being. Specifically, receiving negative reactions from any of the relationship partners I examined was associated with greater depression. This same pattern of effects emerged when predicting self-esteem, but only in the case of fathers

and best friends. That negative reactions dominated in predicting well-being is supported by research indicating that humans are both more attuned to and affected by negative events and emotions (e.g., Frijda, 1988), particularly in the domain of interpersonal rejection (e.g., Williams, Forgas, & von Hippel, 2005). As well, it is consistent with other work suggesting that negative interpersonal exchanges surrounding stressful and stigmatizing events (e.g., abortion) uniquely predict distress, whereas positive support reactions predict adjustment (Major, Zubek, Cooper, Cozzarelli, & Richards, 1997).

Further, for coming out reactions from the first person and from important others (mom, dad, and best friend), autonomy need satisfaction following disclosure fully mediated the relation between negative reactions and well-being. This not only attests to the importance of autonomy to individual wellness (Ryan & Deci, 2000; Vansteenkiste & Ryan, 2013), but also to the strong and lasting impact that negative reactions to coming out have on SM individual's overall well-being. Taken together, these results suggest that perceiving stronger negative reactions to early disclosure experiences impacts depression and self-esteem by leaving one feeling a sense of disconnection from and an inability to express one's true self. Thus, results indicate that autonomy need satisfaction may be an important mechanism underlying previous findings linking coming out to improved well-being (e.g., Cain, 1991).

The present findings may help to explain the inconsistency of this positive relation between coming out and well-being. Whereas some research indicates disclosure to be beneficial (e.g., Ragins, 2004 ; Wells & Kline, 1987), other work had failed to find such well-being benefits (e.g., Cole et al., 1997; D'Augelli, 2002; McGregor et al., 2001; Oetjen & Rothblum, 2000). The current work suggests that the well-being outcomes that follow

from disclosure are heavily dependent on the perceived reaction to this disclosure and the implications this has for the self. Coming out to an autonomy-thwarting person, or someone whose positive regard is contingent on others acting in certain ways, was not associated with benefits to well-being. Study 1 provides a possible account of why this might be: with those who react with high levels of negativity, SM individuals learn they are not free to be themselves.

Though this research is novel in examining the mechanisms and outcomes of specific positive and negative reactions and their intensity to coming out among SMs, several limitations open promising avenues for future research. First, the sample used in these analyses was relatively small (N = 108) and participants were recruited from a single source, MTurk. Thus, whether the present findings generalize to larger samples and those recruited by other means remains a question for further study. However, data attesting to the representativeness of MTurk samples (Buhrmester et al., 2011) mitigates these concerns, as do the characteristics of the present study participants, which are consistent with previous investigations (e.g. D'Augelli & Hershberger, 1993; D'Augelli et al., 1998; Grov et al., 2006; Savin-Williams, 1990).

Another limitation of the present work is its cross-sectional nature and reliance on retrospective reports of coming out experiences, which are vulnerable to reporting biases. I found that greater negative reactions predict lower well-being, and that controlling for time since disclosure did not change the significance or pattern of these results. Still, it is possible that those with more depressive symptoms and lower self-esteem remember the reactions of others more negatively and feel less free to be themselves in their relationships.

The results of this study shed light on the question of whether coming out supports

SM well-being. The finding that negative reactions to sexual identity disclosure have a greater impact on well-being than positive reactions may, at first pass, seem discouraging. However, this result also implies that, so long as SM individuals are not met with rejection of this identity, they will not suffer costs to well-being long-term. Rather than requiring a carefully crafted, supportive, and politically correct reaction, disclosure may only need to be met with some measure of openness, or even just an absence of negativity from important others.

Study 2: Autonomy support as a Protective Factor for LGB individuals High in Internalized Stigma

Study 1 established that the reactions of close others to identity disclosure have important implications for SM individuals' well-being via their affordance of autonomy need satisfaction. In Study 2 I further explore the relations between autonomy support, disclosure, and well-being. Rather than focusing on close others and the act of disclosing itself, I examine disclosure as a continuous variable, recognizing that people can be more or less out in different contexts. Outness is therefore assessed across various social contexts (i.e. friends, family, peers or coworkers) as is the impact of autonomy support perceived from these social environments on disclosure and well-being in that environment. Whereas Study 1 focused on explaining between-person differences in well-being, Study 2 examines the role of autonomy support in predicting within-person differences in well-being across these different social contexts. Additionally, Study 2 assesses internalized stigma, a risk factor for mental health issues, and examines whether autonomy support might be especially beneficial for these individuals most at risk. Study 2 thus begins to examine how interpersonal and intrapersonal factors interact to impact well-being.

Internalized Stigma & Sexual Minority Mental Health

At greatest risk for well-being deficits are SM individuals who internalize the stigma about their sexual identity (Herrick et al., 2013; Meyer, 2013). SM individuals grow up aware of the negative stereotypes and attitudes associated with sexual minority identities and frequently witness or hear about prejudice and discrimination directed against others who identify as such. Because of these experiences SM individuals may come to internalize the negative attitudes and stigma associated with their identities and direct these towards the self, often leading to rejection and disparagement of this part of the self and potentially spilling over to evaluations of the self as a whole (Herrick et al., 2013; Meyer, 1995; Meyer, 2013).

This self-stigma, or *internalized homophobia* or *stigma*, acts as a form of minority stress as SMs experience and cope with identity-related tension and shame (Meyer, 2013). Internalized stigma therefore represents a significant risk factor for the development of mental health problems such as depression and anxiety (e.g., Hatzenbuehler, Dovidio, Nolen-Hoeksema, & Phills, 2009; Szymanski, Chung, & Balsam, 2001; Williamson, 2000). Among the range of minority stressors, internalized stigma may uniquely contribute to poor well-being because it influences psychological processes, self-concept, and coping behavior even in the absence of direct threats (Meyer, 1995). Moreover, internalized stigma may become self-perpetuating as it is associated with anticipating and perceiving more negative treatment on the basis of their identity (Meyer & Dean, 1998). Though the relations between internalized, anticipated, perceived, and experienced require further examination, there is strong evidence to suggest that internalized stigma is a risk factor for poor mental

health among SMs. A meta-analysis by Newcomb & Mustanski (2010) indicates that the association between internalized stigma and psychological distress in SM individuals is indeed consistent and these associations are as strong for lesbian and bisexual women as they are for gay and bisexual men. Given that individuals high in internalized stigma appear to be most vulnerable to developing depression and anxiety, research examining factors that may improve the well-being of this at-risk group is critical in reducing SM mental health disparities.

Autonomy Support, Internalized Stigma, and Disclosure

Because autonomy support conveys authentic support for the self (Ryan & Deci, 2000), it may be an especially critical issue for SM individuals, especially those who have internalized the negative stereotypes and stigma that many individuals still associate with sexual minorities. First, experiencing support for autonomy may help people to be themselves, increasing feelings of interpersonal safety and acceptance. For SMs who run the risk of being rejected or discriminated against by others on the basis of their sexual or gender identity, perceiving autonomy support from important others may thus signal safety in a sometimes not-so-safe world. Free from judgment, SM individuals might feel more inclined to reveal part of their identity that they might otherwise conceal. Moreover, for those high in internalized stigma, experiencing autonomy support may be particularly beneficial as research suggests that they are especially prone to fear rejection from others based on their sexual orientation (e.g., Pachankis, Goldfried, & Ramrattan, 2008) and are less likely than those with lower levels to disclose and discuss their sexual orientation with others (Herek, Cogan, Gillis & Glunt, 1998). Thus, although conceptually distinct from one another, internalized stigma, has been shown to be highly predictive of anticipated stigma

and fear of identity-based rejection. It follows, therefore, that SMs with high levels of internalized stigma may be particularly sensitive to the acceptance or safety felt within a social context, and that feeling acceptance is even more important in encouraging self-disclosure and well-being for these individuals. Thus, it might be expected that positive effects of autonomy support would be moderated by individual differences in internalized stigma.

Beyond the Coming Out Dichotomy

Coming out is generally used to refer to the events surrounding one's initial disclosure of sexual orientation to one's primary social circle as assessed in Study 1. Though these initial disclosure experiences may be particularly significant and impactful, it is important to consider that identity disclosure is hardly a one-time event. Rather it is a decision and a process that must be faced whenever an individual with a concealable stigma enters new situations or relationships (Bohan, 1996; Mohr & Fassinger, 2000). Indeed, gay and lesbian individuals have reported an average of three disclosure opportunities over the course of a two-week period (Beals et al., 2009). Despite often dichotomous language, disclosure coming out varies within persons and across relationships and contexts. Evidence suggests that SM individuals disclose selectively (e.g., Cole, 2006). In one study, only 23% of SM youth were out to everyone (D'Augelli, 2006). Variability exists also in the level of disclosure or outness of individuals within a given social context (Chaudoir & Fisher, 2010; Wessel, in press), and the degree to which one can openly discuss identity-relevant topics (Mohr & Fassinger, 2000). For example, a gay man's family and friends may both be aware of his sexual orientation, but he may only feel comfortable talking about dating, LGB rights, and other identity-relevant issues with his friends—not his family. Thus, this man displays

greater outness with his friends than with his family.

Moreover, coming out does not always take the form of a direct, verbal disclosure. Individuals may come out via writing a message addressed to a specific individual(s) or by posting to a broad audience of their friends, acquaintances, and/or family on social media. Sexual orientation, like other secrets, may also become known indirectly through innuendo or other signs (Bellman, 1979) including visual cues (Rudd, 1996), gestures (Johnson, Gill, Reichman, & Tassinary, 2007), and facial features (Rule, Ambady, Adams, & Macrae, 2008; Rule, Ambady, & Hallett, 2009). SM individuals may also be "outed" by others who are aware of the identity either with or without consent (Gross, 1999; Herek & Capitanio, 1996; Johansson & Percy, 1994). Indeed, as with other secrets, sexual orientation is not only an individual secret; other members of one's family and social network may also hold this knowledge (Bellman, 1979; Karpel, 1980) and attempt to regulate its spread (Imber-Black, Roberts, & Whiting, 1988). Therefore, operationalizing outness as disclosure per se may not adequately capture the extent to which an individual's identity is known to others. For these reasons and depending on the research question it may be beneficial to assess outness across multiple different contexts or relationships and as a continuous construct that considers not only whether the identity is known, but the extent to which it is openly discussed (Mohr & Fassinger, 2000).

Present Research

As discussed above, SM individuals with high levels of *internalized stigma*, or sexual prejudice directed toward the self, are more likely to experience significant deficits in psychological well-being, including greater symptoms of depression and anxiety, relative to both their heterosexual peers as well as to SMs who have lower levels of internalized stigma

(Herrick et al., 2013; Meyer, 2013). Research examining how social contexts can promote resilience especially among SMs high in internalized stigma is critical as it does not appear to be decreasing within this population despite greater societal acceptance (Newcomb & Mustanski, 2010) and research on factors that can promote resilience despite minority stress is lacking (Kwon, 2013).

Study 2 therefore extends Study 1 by examining whether an autonomy supportive social environment might be especially beneficial for those high in internalized stigma. First, I test whether autonomy support within a given social environment (e.g., with family, friends, and peers or coworkers) is associated with greater identity disclosure and well-being in that environment, especially for those high in internalized stigma. I utilize within-person analyses to examine whether perceived autonomy support in a given social context (family, friends, co-workers or peers) is associated with more outness and well-being in that context. I test these context-specific experiences side-by-side with between-person differences in internalized stigma, a characteristic that leaves individuals vulnerable to higher personal costs as a result of holding this often stigmatized identity. Specifically, I hypothesize that perceiving autonomy support will predict greater outness and well-being within that context and that this relation will be moderated by internalized stigma such that the relation between autonomy support and well-being will be particularly strong for individuals with high levels of internalized stigma.

Method

Participants

One-hundred and fifty-six lesbian, gay, and bisexual individuals (65 males, 88 females, 2 transgender males, 1 transgender female) living in the United Kingdom, and

primarily but not exclusively in the cities of London and Bristol, were recruited via word-of-mouth. The sample ranged in age from 18-55 years (M = 26.0 years, SD = 9.12 years), and 56% identified as lesbian, 22% identified as gay and 22% identified as bisexual. Sixty-four percent of participants completed an online survey and the rest completed the same survey using pencil and paper. In both cases, it was made clear that survey responses would be kept anonymous.

Procedure

Participants responded to questions about their level of outness, well-being, and perceptions of autonomy support from various groups of people (i.e., family, friends, and coworkers or school peers). They also completed a trait measure of internalized stigma, described below. Two individuals did not provide sufficient data and were excluded from all analyses. Two other individuals did not respond to the question assessing outness with coworkers/peers, but were included in all analyses as they provided sufficient data for multilevel models.

Measures

Revised Internalized Homophobia Scale (IHP-R). Nine items assessed feelings of internalized stigma among SMs (Herek et al., 1998; Meyer, 1995). Participants rated the items (e.g., ‘‘I feel that being gay, lesbian or bisexual is a personal shortcoming for me,” “I feel alienated from myself being lesbian, gay, or bisexual”) on a 5-point scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). Cronbach’s alpha for this scale was high (α = .89).

Autonomy Support Questionnaire (ASQ). Perceptions of autonomy support versus control in social contexts were assessed using the ASQ (Deci, La Guardia, Moller, Scheiner,

& Ryan, 2006). In order to reduce participant burden, participants responded to only five items from the ASQ (demonstrated to be top loading items from Legate et al., 2012) for each of the three social contexts (for a total of 15 items): family, friends, and coworkers or school peers. Items included "[My family members] encourage me to express my true emotions", and were paired with a scale ranging from 1 (*not at all true*) to 7 (*very true*). The five items were averaged to form an autonomy support score for each social context. Internal consistency was good across contexts (αs = .88 – .90).

Outness Inventory (OI). The OI (Mohr & Fassinger, 2000) assesses the extent to which individuals disclose their sexual orientation to various individuals. Rather than asking about specific individuals, I adapted the items to reflect the three social contexts of interest here (family, friends, co-workers or school peers). Participants rated the extent to which they disclosed their sexual orientation in each social context (for a total of 3 items) using a 7-point scale ranging from 1 (*[your family] definitely does not know about your sexual orientation status*) to 7 (*[your family] definitely knows about your sexual orientation status, and it is openly talked about*); 0 is marked when no such context exists in the participant's life.

Psychological well-being. Psychological well-being scores were derived from items selected from three well-validated instruments used in Legate et al. (2012) and were assessed across the three social contexts. Risk for depression was assessed with three items (e.g., "When I am with my [family], I feel sad") from the Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977). Self-esteem was measured with three items (e.g., "When I am with my [family], I feel dissatisfied with myself") from the Rosenberg Self-Esteem Scale (Rosenberg, 1979). Lastly, four items from the *General*

Health Questionnaire (Goldberg, & Hillier, 1979) assessed anxiety (e.g., "When I am with my [family], I feel nervous and uptight"). Participants were asked to rate their feelings in each context over the last month on a 7-point scale ranging from 1 (*not at all true*) to 7 (*very true*). Thus, participants completed a total of 30 well-being items, 10 for each social context. Internal consistency for depressive feelings (αs = .80 – .90) and anxiety (αs = .83 – .89) was high across contexts and was adequate for self-esteem (αs = .65-.76).

Results

Preliminary Results

For descriptive purposes, I examined whether there were mean differences in perceptions of autonomy support, outness, and well-being with each of the three social groups (i.e., family, friends, and coworkers/school peers) using analysis of variance (ANOVA). Supporting past research showing that SM individuals are selective in their disclosure, there were indeed significant differences in how out people were across social groups, $F(1.89, 285.76) = 70.48$, $p < .001$. There were also differences in perceptions of autonomy support across social groups, $F(1.71, 261.24) = 65.85$, $p < .001$. Similarly, feelings of depression $F(1.78, 272.52) = 18.04$, $p < .001$, anxiety $F(1.79, 273.27) = 31.84$, $p < .001$, and self-esteem $F(1.84, 281.87) = 13.27$, $p < .001$, differed across the social groups. In sum, people were most out with their friends and felt the most autonomy support and well-being with friends compared with family members and coworkers or school peers. See Table 6 for means, standard deviations, and results of pairwise comparisons between social groups.

Next, I tested for differences in autonomy support, outness, internalized stigma and well-being across the three sexual orientation categories as research often shows mean

differences between these groups (e.g., Semlyen et al., 2016). Only one difference emerged with outness, $F(2, 151) = 9.29$, $p < .001$; bisexuals were less out than both gay men ($p < .001$) and lesbians ($p < .001$), and the latter groups did not differ from one another ($p > .15$). There were no differences across sexual orientation groups for average perceived autonomy supportiveness, well-being variables, or trait levels of internalized stigma (Fs < 1.59, ps > .15; see Table 6).

I also examined correlations of variables aggregated across the three social groups to explore patterns between-persons. Greater outness was related to greater perceived autonomy support ($r = .47$, $p < .001$), lower anxiety ($r = -.19$ $p = .02$), marginally lower depressive feelings ($r = -.14$, $p = .08$), and greater self-esteem ($r = .14$, $p = .07$). Consistent with the literature, those with higher levels of internalized stigma were less out ($r = -.28$, $p < .001$) and reported greater anxiety ($r = .37$, $p < .001$), depression ($r = .36$, $p < .001$), and lower self-esteem ($r = -.30$, $p < .001$). More autonomy support was also associated with less internalized stigma ($r = -.23$, $p = .004$).

Multilevel Modeling

Next, I used hierarchical linear modeling software (HLM 7.0; Raudenbush et al., 2011) to test the hypotheses that autonomy support will predict outness, that autonomy support and outness will predict better well-being, and that internalized stigma will moderate the effects of autonomy support on outness and well-being. Multilevel models are able to accommodate the nested structure of the data and are better suited than ordinary-least squares regression to handle missing data (Bolger & Shrout, 2007; Little & Rubin, 1987). Unconditional models suggested that there was sufficient variance in outcomes at the within-person level (outness: 82%; depression: 36%; anxiety: 46%) to add predictors to the

model. For all models except when outness was the outcome variable, autonomy support and outness were simultaneous predictors at Level-1 (the within-person level). At Level-2 (the between-person level), internalized stigma was entered as a predictor of the intercept, and as a moderator of the slope of autonomy support. Also at Level-2, two dummy coded sexual orientation variables (gay and lesbian, coded 1, with bisexuals as the reference group, coded 0) were included as covariates in all analyses. Level-1 variables were centered on individual means as recommended by Bryk and Raudenbush (1992). All *b*s are the unstandardized regression coefficients, and Level-1 effects were set as random, or allowed to vary between individuals. For all multilevel results, 95% confidence intervals of the regression coefficients are presented.

Replicating results from prior research (Legate et al., 2012), I found that perceiving autonomy support in a social context was robustly linked to being more out in that context, $b = .67$, $SE = .07$, $p < .001$, 95% confidence interval CI [0.53 0.82]. Internalized stigma was related to being less out in any given social context ($b = -.41$, $SE = 0.12$, $p < .001$ CI [-0.64, -0.18]). Bisexuals were less out than gay men or lesbians ($ps < .01$). Next, I tested the interaction of autonomy support and internalized stigma to predict outness, $b = .15$, $SE = 0.09$, $p = .096$, CI [-0.02, 0.32]. Though the interaction was marginal, my hypothesis was mainly focused on the patterns for those low and high in internalized stigma rather than the difference in the slope of autonomy support between them, so I explored simple slopes. Using a macro for testing interactions in HLM (Preacher, Curran, & Bauer, 2006), I found that autonomy support was more strongly related to outness for those with higher levels of internalized stigma, $b = .79$ $SE = 0.10$, $p < .001$, CI [0.59, 0.98], compared to those with lower levels, $b = .56$, $SE = 0.10$, $p < .001$, CI [0.36, 0.76]. Simple effects indicate that when

autonomy support is low, those high in internalized stigma are significantly less out than those low in internalized stigma, b = -.60, SE = 0.10, $p <$ .001, CI [-0.93, -0.26]. However, when autonomy support is high, no significant differences in outness emerge by level of internalized stigma, b = -.21, SE = 0.16, p = .18, CI [–0.52, 0.09]. Though marginal, this interaction suggests that autonomy support is especially important for outness in those who are high in internalized stigma and that when autonomy support is high, these individuals are no less out than their low-internalized-stigma counterparts (see Table 7 for a summary of multilevel models and Figure 3 for predicted values).

Autonomy support experienced in different social groups predicted lower anxiety, b = -.33, SE = 0.06, p < .001, CI [-0.45, -0.22]. Being more out in a social group was also related to lower anxiety, b = -.08, SE = 0.03, p = .02, CI [-0.14, -0.01]. Sexual orientation was not related to anxiety (p > .15). Internalized stigma predicted greater anxiety, b = .55, SE = 0.11, p < .001, CI [0.33, 0.76], and interacted with autonomy support to predict anxiety, b = -.12, SE = 0.05, p = .01, CI [-0.22, -0.03] (see Figure 4). The relation between autonomy support and anxiety was stronger for those high in internalized stigma, b = -.43, SE = 0.07, p < .001, CI [-0.57, -0.28], as compared with those lower in internalized stigma, b = -.23, SE = 0.07, p < .001, CI [-0.36, -0.10].

Simple effects reveal that at both low, b = .71, SE = 0.13, p < .001, CI [0.44, 0.97], and high levels of autonomy support, b = .39, SE = 0.12, p = .001, CI [0.16, 0.61], those high in internalized stigma reported greater anxiety than those low in internalized stigma, and this effect was especially large when autonomy support was low.

Autonomy support predicted greater self-esteem, b = .32, SE = 0.06, p < .001, CI [0.20, 0.42]. Outness did not relate to self-esteem, b = .03, SE = 0.04, p = .42, CI [-0.04,

0.11], nor did sexual orientation ($p > .15$). Internalized stigma predicted lower self-esteem, b = -.48, SE = 0.12, $p < .001$, CI [-0.72, -0.23], and showed a marginal interaction with autonomy support, b = -.09, SE = 0.05, p = .07, CI [–0.19, 0.01]. Similar to the pattern with anxiety, the relation between autonomy support and self-esteem was stronger for those high in internalized stigma, b = .39, SE = 0.07, $p < .001$, CI [0.24, 0.53], as compared with those lower in internalized stigma, b = .24, SE = 0.07, $p <$ .001, CI [0.10, 0.38]. Simple effects again indicate that at both low and high levels of autonomy support, those low in internalized stigma reported greater self-esteem than those with high levels of internalized stigma, though again this effect was stronger at low levels of autonomy support, b = -.60, SE = 0.13, $p < .001$, CI [-0.85, -0.35], than high levels of autonomy support, b = -.35, SE = 0.16, p = .03, CI [-0.52, -0.04].

Autonomy support predicted lower depression, b = .21, SE = 0.06, p = .001, CI [-0.32, -0.09]. Being more out in a social group was also related to marginally lower depression, b = -.07, SE = 0.04, p = .057, CI [-0.14, 0.002]. Sexual orientation was not related to depression ($p > .15$). Internalized stigma predicted greater depression, b = .56, SE = 0.12, $p < .001$, CI [0.32, 0.80], and interacted with autonomy support, b = -.16, SE = 0.07, p = .03, CI [-0.30, -0.02] (see Figure 5). While autonomy support predicted lower depression among those high in internalized stigma, b = -.33, SE = 0.09, $p < .001$, CI [-0.52, -0.15], the slope of autonomy support for those low in internalized stigma was not significant, b = -.08, SE = 0.07, p = .25, CI [-0.21, 0.06]. Simple effects again indicate that at both low and high levels of autonomy support, those with high internalized stigma reported greater depression, b = .35, SE = 0.13, $p < .01$, CI [0.09, 0.60], than those with low internalized stigma, b = .78, SE = 0.18, $p < .001$, CI [0.42, 1.12], such that the difference in depression as a function of

internalized stigma is stronger at low levels of autonomy support.

Discussion

Results indicated autonomy support within a social context to be a robust predictor of being out as lesbian, gay, or bisexual in that context. Additionally, both perceptions of autonomy support and being out in a social context were associated with lower depression and anxiety and greater self-esteem. Consistent with the literature (Herek et al., 1998; Newcomb & Mustanski, 2010; Semlyen et al., 2016), those with higher levels of internalized stigma were less out across social contexts, and felt lower well-being than those with lower levels of internalized stigma. As hypothesized internalized stigma moderated the effects of autonomy support on outness and well-being (though some effects were marginal). Specifically, perceiving autonomy support was more strongly associated with experiencing lower depression and anxiety, and marginally with greater self-esteem and outness, in those with high levels of internalized stigma compared to those with lower levels. In the case of outness, this difference was such that in contexts in which perceived autonomy support was high, internalized stigma was unrelated to outness; outness was high across levels of internalized stigma. Depression and anxiety were higher and self-esteem lower for individuals high in internalized stigma (compared to those low in internalized stigma), though this difference was reduced under conditions of high autonomy support.

Given the novelty of these findings caution is needed when interpreting results. The effect size of interactions was relatively small and many were marginally significant, suggesting that interaction results might not replicate in another sample. However, the consistent pattern across multiple dependent variables (anxiety, depression, self-esteem, and outness) provides support for their reliability. Nevertheless, highly powered replications

with representative samples examining these interactions are thus an important direction for future research.

Study 2 adds significantly to the literature, not only by replicating and extending the links between autonomy-support and wellness for SM individuals, but also by examining this in an especially vulnerable group—namely those who have internalized stigma concerning their emerging or abiding minority sexual identity. The results of Study 2 support other research showing that a supportive social context can act as a buffer against minority stress to promote SM mental health (e.g., Hershberger & D'Augelli, 1995) and that this buffering effect may be particularly strong for those most likely to suffer from poor mental health outcomes - individuals with high internalized stigma (Newcomb & Mustanski, 2010).

Study 3: Narratives of Disclosure

Studies 1 and 2 have established the relationships between autonomy supportive contexts and well-being for persons who have disclosed their sexual identity to others. In Study 3 I further test the hypothesis that coming out events that are experienced as positive are those in which the SM individual's basic psychological need for autonomy is supported, and that disclosure events experienced as negative are characterized by the thwarting of this psychological need. To do so I elicited SM individuals' narratives about coming out experiences- their best, worst, and most recent experiences. Additionally, I examine the impact of retelling such positive vs. negative events on psychological well-being and cardiovascular reactivity and test the hypothesis that autonomy support mediates the impact of telling negative (versus positive) experiences on well-being and cardiovascular threat reactivity.

Sexual Minority Health Disparities

In addition to impacting well-being, holding a stigmatized identity may also impact physical health. Indeed, relative to heterosexuals, SMs rate their overall health to be poorer and report a greater number of acute and chronic health symptoms (for a review, see Lick, Durso, & Johnson, 2013). Research from social identity threat (e.g. Major & O'Brien, 2005) and minority stress (Meyer, 2013) perspectives suggest that these health discrepancies are largely due to the additional stress faced by SM individuals because of their stigmatized status. Manifestations of stigma at the structural, interpersonal, and intrapersonal level likely all contribute to stress as individuals contend with discrimination and rejection from society, themselves, and others (Major, et al., 2013).

Coming out is perhaps one of the most stressful experiences SM individuals face (Hershberger, Pilkington, & D'Augelli, 1997). Sadly, SM individuals frequently encounter prejudice and rejection from their friends and family members upon coming out (Pachankis, Goldfried, & Ramrattan, 2008). As demonstrated in Study 1, such rejection is associated with long-term deficits to well-being. Worry, distrust, rumination, and uncertainty about discrimination and rejection have been shown to increase blood pressure, decrease heart rate variability, and increase cortisol (Williams & Mohammed, 2009). When experienced chronically, activation and dysregulation of the HPA axis can increase the risk of cardiovascular disease and other stress-related ailments (Juster, McEwen, & Lupien, 2010).

Study 3 examines whether recalling positive and negative coming out experiences might impact current well-being as well as stress-related physiological reactivity (i.e. activation of the HPA axis) and again tests the mediating role of autonomy support.

Stress Reactivity in Sexual Minority Individuals

Though much is known about physiological responses to stress in general, to date little research has examined the physiological response to stigma-related stress among SMs. Of the few studies conducted thus far, most have focused on cortisol production. Findings of these studies, however, raise more questions than they answer. For example, Hatzenbuehler and McLaughlin (2014) found that SM young adults who grew up in states with greater structural stigma evidenced blunted cortisol responses (interpreted as consistent with patterns resulting from childhood trauma) following a laboratory stress task compared to SM participants who grew up in states with fewer restrictive policies. Examining interpersonal level influences, Burton, Bonanno, and Hatzenbuehler (2014) found that perceived parental support was associated with reduced cortisol reactivity during this same stress task while support from peers showed no association. Comparing the diurnal cortisol levels of SM and heterosexual participants, another study found that total cortisol output did not differ by sexual orientation (Juster, Smith, Ouellet, Sindi, & Lupien, 2013). However, SM individuals who had disclosed their sexual orientation evidenced lower levels of cortisol upon awakening than did those who had not disclosed, which the authors interpreted as indicating that disclosing to family may protect against physiological stress reactivity. Examining concealment in the workplace, Huebner and Davis (2005) found that gay men who came out at work evidenced *higher* total levels of cortisol during the workday than did those who concealed their identity.

These results appear contradictory in that both greater exposure to structural stigma (stress-inducing) and greater perceived parental support (stress-buffering) were associated with reduced cortisol reactivity. Moreover, concealment predicted both higher and lower

cortisol levels depending on how and in what context it was assessed. These results are particularly difficult to interpret as which patterns of cortisol reactivity are adaptive and which are maladaptive is an empirical question requiring further investigation (Adam & Kumari, 2009). Research suggests, however, that it is dysregulation of the HPA axis that is associated with negative health outcomes (Blascovich & Mendes, 2010).

The Biopsychosocial Model of Challenge & Threat

The biopsychosocial model (BPSM) of challenge and threat (Blascovich, 2008; Blascovich, Mendes, Hunter, & Lickel, 2000; Blascovich & Tomaka, 1996) provides an alternative and fruitful framework within which to assess the activity of the HPA axis. The BPS model of challenge and threat (Blascovich, 2008; Blascovich & Tomaka, 1996) posits that when faced with a self-relevant situation that requires an active response (a motivated performance situation), individuals make both automatic and conscious appraisals as to the demands of the situation and the resources they have available to meet those demands. When resources are appraised as outweighing demands a motivational state of *challenge* results. When situational demands are appraised as greater than resources, a state of *threat* emerges.

According to the BPSM, challenge and threat motivational states can be indexed via patterns of neurophysiological reactivity. Challenge is associated with increased activation of the sympathetic-adrenal-medullary (SAM) axis, whereas threat is marked by activation of both the SAM and pituitary-adrenal-cortical (PAC; aka hypothalamic-pituitary-adrenal or HPA) axis. As stated above, long-term activation of the HPA axis is associated with allostatic load and other negative health outcomes (Juster, McEwen, & Lupien, 2010). The BPSM utilizes peripheral measures of cardiovascular reactivity to index the relative

activation of the SAM and HPA axes and thus assess motivational state.

Both challenge and threat states are characterized by increased sympathetic nervous system activation, which is reflected in increased heart rate (HR) and ventricular contractility (VC; this is the inverse of pre-ejection period, PEP, and indexes contractile force). Increases in HR and VC are indicative of *task engagement*, a prerequisite for both assessing both challenge and threat. What distinguishes challenge and threat are changes in cardiac efficiency and vascular resistance. Challenge states are characterized by adaptive patterns of cardiovascular reactivity including increased cardiac output (CO) and decreased total peripheral resistance (TPR). This means that the heart is pumping more blood per minute and that the veins and arteries have expanded to accommodate this additional blood flow. Threat, however, is characterized by a decrease or no change in CO and an increase or no change in TPR. This means that while the heart is beating faster and more forcefully, it is not actually pumping more blood. Arteries do not expand and thus vascular resistance increases.

The value of assessing motivational state using these cardiovascular indices has been demonstrated across a variety of behavioral domains. Broadly speaking, challenge and threat studies have examined situational and interpersonal factors that influence the consciously or automatically appraised and/or expected ratio of resources to demands and individual and situational influences on these appraisals (e.g. Tomaka, Blascovich, Kibler, & Ernst, 1997; Seery, Weisbuch, & Blascovich, 2009; Blascovich, Seery, Mugridge, Norris, & Weisbuch, 2004; Seery, Weisbuch, Hetenyi, & Blascovich, 2010).

What makes the BPS particularly useful is its ability to bypass social desirability concerns and defensive processes when assessing motivational state. Physiological measures

can be collected continuously without diverting attention away from the task at hand and do not require any conscious reflection or report (Seery, 2013). This allows for direct, online insight into the experience as reflected in the body. This is critical as appraisal mechanisms are not always represented in conscious awareness or reflected in self-reports.

Present Research

Study 3 revisits and builds on Studies 1 and 2 by examining the impact of recalling, and describing positive and negative coming out experiences on physiological measures of stress in addition to well-being. Study 3 utilizes a within-person design to examine whether autonomy support accounts for differences in well-being and physiology when recalling and describing positive vs. negative coming out experiences. Rather than asking participants to self-report on experiences of autonomy need satisfaction, trained coders rated each narrative for level of autonomy support from the disclosure recipient. Where significant effects of telling these narratives emerge, I test whether autonomy support provided by the disclosure target (as coded from participants' narratives of their experiences) mediates them. In relation to the physiological effects, I expect that autonomy support may act as a resource thus altering the ratio of perceived resources to demands and the concomitant psychophysiological state toward one of adaptive challenge state rather than maladaptive threat in the positive, but not the negative disclosure experiences.

Specifically, I expect that narratives about best experiences will be characterized by autonomy support (as rated by trained coders from transcripts of the narrative), whereas worst experiences will be characterized by the thwarting if autonomy. Further, I hypothesize that retelling negative coming-out experiences will be associated with decreased well-being and patterns of cardiovascular reactivity associated with threat (Blascovich & Mendes,

2000) and that autonomy support will mediate this relation between negativity and poor well-being and physiological threat reactivity.

Method

Participants

Participants were recruited from UCSB's campus and the surrounding community. Recruitment involved a variety of strategies including emails to general and community-specific email listservs and fliers posted around campus and nearby businesses. Individuals interested in participating contacted the researchers via the listed email account created specifically for this study. A research assistant then scheduled all participants for an hour and a half session in the laboratory. At this time the participant was also provided with a link to the consent form and pre-survey (described below). Informed consent was obtained from all participants and all were compensated with a $20 Amazon gift card. Data were collected in two parts, during spring 2015 ($N = 44$) and winter 2017 ($N = 25$).

In total 70 participants came to the lab for the study. One participant had never come out to anyone before, therefore this participant's data was not included in any analyses. Of the remaining 69 participants, 17 were missing some portion of their data for a variety of reasons. Of these, two did not have any negative experiences to talk about, one was in too much emotional distress to tell their "worst" coming out experience, one ran out of time and did not complete their best narrative, and another was not able to complete it due to the fire alarm going off necessitating evacuation of the building. Another 7 were missing some portion of their physio data due to motion artifact or technical error, two had only partial survey data, and for two participants there was technical error in recording one of their narratives. In short, I had partial data from 69 participants and complete data from 52

participants. Partial data is used wherever it is available in preliminary, descriptive, and primary analyses.

Of these 69 participants, 28 identified as male, 30 as female, 9 as genderqueer/non-binary, one selected "other", and one person did not state their gender. In regards to sexual orientation, 21 participants identified as gay, 10 as lesbian, 20 as bisexual, 16 as queer, one as asexual, and one declined to state. All were university students age 18-22. The sample was ethnically diverse with 39.1% Caucasian/White, 27.5% Hispanic/Latin, 18.8% Asian/Pacific Islander, 1.4% Black/African American, and 11.6% multi-ethnic. Again 1 participant (1.4% of the sample) declined to state.

Procedure

Prior to coming into the lab, participants were provided with a link for a pre-survey for this study to complete at home. This survey contained measures of general well-being, internalized stigma, and outness, as well as items assessing demographic information. The laboratory session lasted approximately an hour and a half and began with re-consenting the participant to ensure they understood and agreed to the study procedure. Once consent was obtained, a trained research assistant applied the necessary sensors and leads for cardiovascular measurement (see Physiological Measures section below). The participant then completed a 5-minute "baseline" period during which they were instructed to sit quietly as their heart rate, blood pressure, and impedance were recorded.

The research assistant then instructed the participant to talk about three of their coming out experiences: most positive, the most negative, and the most recent (order counter-balanced) using the following scripted prompt:

Take a couple of minutes to think about your most positive [negative/recent] coming out experience. What happened? How did you feel? What about the event stuck with you most? When you are ready, you will talk for about 5 minutes about this experience. There is no right or wrong way to discuss this. We are simply interested in gaining insight into your experience.

Only the most positive and most negative coming out experiences are examined in the present analyses and are referred to throughout as "best" and "worst" coming out experiences or narratives in order to avoid confusion with other measures of positivity and negativity described below. After relating each of these experiences, participants completed a short survey assessing current affect and other constructs related to the coming out experience just described. Prior to discussing their 2nd and 3rd experiences, participants completed additional 3-minute resting periods to allow time for physiological reactivity to recover before proceeding to the next narrative. When the participant had completed all three narratives and accompanying surveys the research assistant removed all physiological equipment, thanked, debriefed, and dismissed the participant with payment.

Measures & Materials

Pre-Survey Measures.

Outness Inventory (OI). The OI (Mohr & Fassinger, 2000) was used to assess the extent to which individuals disclose their sexual orientation to various individuals or communities including, mother, father, siblings, friends, coworkers, school peers, religious community, strangers and new acquaintances, and "in general" (ten items total). Participants rated the extent to which they are out in each case using a 7-point scale ranging from 1 (*definitely does not know about your sexual orientation status*) to 7 (*definitely knows about*

your sexual orientation status, and it is openly talked about); 0 is marked when no such relationship or community exists in the participant's life.

Internalized Homophobia or Stigma was assessed using 4-items adapted from the Revised Internalized Homophobia Scale (IHP-R; Herek et al., 1998; Meyer, 1995). This scale was adapted to remove overly conservative items likely to produce reactance including, "I would seek professional help in order to change my sexual orientation". I also adapted it to refer broadly to LGBTQ identities (the preferred acronym on UCSB's campus) rather then exclusively to gay men. Participants rated these items (e.g., ''I feel that being LGBTQ is a personal shortcoming for me," "I feel alienated from myself for being LGBTQ") on a 5-point scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). I also added an additional item (for a total of five) assessing identity affirmation, "I believe that being LGBTQ is an important part of me." (from the gay affirmation subscale from IHNI; Mayfield, 2001). This item was rated on the same Likert-type scale as the other four items.

General Well-Being. The Mental Health Continuum- Short Form (MHC-SF; Keyes; 2002; 2007). This 14-item scale includes subscales that assess social, emotional, and psychological well-being. Participants were asked to rate how frequently they felt, "Happy", "Satisfied", "That you belonged to a community (like a social group, or your neighborhood)," and "That you liked most parts of your personality" among other items using a five-point Likert-type scale (1 = *Never,* 5 = *Everyday*). Cronbach's alpha for the scale was high at $\alpha = .91$.

Other "coming out" questions. Participants responded to the question, "How much time has passed since you first came out?" Response options ranged from 1, *less than one*

month to 6, *Five years or more*. Participants also indicated the age (in years) at which they "realized [they] were not 'straight'".

Survey Measures.

Coming Out Questions. After each coming out experience description, participants typed in the initials of the person to whom they had disclosed their identity. These were then piped through to subsequent questions about this experience and relationship in order to minimize any confusion that might arise when answering questions about multiple experiences. In addition to the scales described below, participants answered a few questions addressing specifics of their coming out experience: "Was this your first coming out experience?", "What is your relationship with [initials]?", "How long ago did this specific experience occur?" and "About how many times would you say that you have told this story before?" Participants also rated how positive (0 = *not at all positive;* 100 = *very positive*) and how negative (0 = *not at all negative;* 100 = *very negative*) the experience was.

State well-being. Participants' well-being after telling each coming out story was assessed using 11 items rated on a 7-point Likert-type scale (1= *Not at all*; 7 = *Extremely*). As in Study 2, these items were drawn from the Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977), the Rosenberg Self-Esteem Scale (Rosenberg, 1979), and the General Health Questionnaire (Goldberg, & Hillier, 1979). Items include, "rejected, anxious, angry, mad or irritated, hostile, sad depressed, lonely, lacking in self-confidence, dissatisfied with myself, positive about myself." Internal consistency was good (αs = .80 – .92).

Autonomy need satisfaction. Participants reported on their current experience of autonomy need satisfaction using the same scale as in Study 1, the 3-item autonomy support

subscale of La Guardia, Ryan, Couchman, and Deci's (2000) Basic Psychological Needs Scale. This scale assessed current perceptions of autonomy support in the relationship. Items are rated on a 7-point Likert-type scale (1 = *Strongly Disagree*; 7 = *Strongly Agree*) and include "When I am with [initials] I feel free to be who I am", "I have a say in what happens, and I can voice my opinion", and, "I feel controlled and pressured in certain ways" (reverse scored). Cronbach's αs ranged from .80 to .88.

In addition to the above-mentioned measures, several other measures were included in this study for exploratory purposes. These include measures of ownership of identity (Weinsten, Legate, Ryan, R., Sedikides, & Cozzolino, in press), general relationship quality, and several measures relating to each confidant's as well as the participant's own religious and political affiliation. These measures did not relate to the primary study hypotheses, and so they are therefore not included in the present analyses.

Narrative Measures.

Narratives were transcribed and rated by two trained coders for level of autonomy support provided by the confidant. Coders read each narrative and rated it in on a series of 6 items assessing support for autonomy. These items were adapted from the items Niemeic and colleagues (in prep) used to code narratives from students in 19 different countries about their best, worst, and most recent teachers. ICCs in this study were greater than .90 across countries and ratings of autonomy support predicted motivation in the classroom providing cross-cultural support for the reliability of this approach. Example items include, "The confidant is interested in the participant's perspective (or point of view)." and "The confidant is demanding (or pressuring) toward the participant" (reverse coded; See Appendix for full list of coding items). Items were rated on a scale from 1, *strongly disagree*

to 5, *strongly agree*. Cronbach's alpha for the resultant scale was high for both coders (αs = .90 and .83). The intraclass correlation coefficient indicated that agreement between the two coders was good, *ICC* = .80. An average of the two coder's autonomy ratings was utilized in all subsequent analyses. Ratings ranged from 1.08 to 4.67 (*M* = 3.01, *SD* = 0.74).

Physiological Measures.

Hardware. Physiological data were collected using Biopac MP150 hardware with ECG-100C and NICO-100C amplifiers for ECG and ICG respectively (Biopac, Goleta, CA). The ICG amplifier employed a 50 kHz sinusoidal excitation current with magnitude of 4 mA rms. Blood pressure was assessed using a CNAP Monitor 500 (CNSystems Medizintechnik AG, Gratz, Austria), an automated blood pressure device that collects readings via a cuff placed around the participants' upper arm to calibrate the device and a cuff placed around the index and middle finger to obtain continuous measurements. The CNAP was paired with Biopac's NIBP amplifier. All signals were recorded continuously with a 1 kHz sampling rate and collected on a laptop computer running AcqKnowledge 4.3 (Biopac).

ECG and ICG Sensor Placement. ECG was collected using a modified lead II electrode configuration with sensors placed along Einthoven's triangle (Einthoven, Fahr, & De Waart, 1913), below the right clavicle and just below the bottom left rib. ICG data was collected using one of two comparable electrode systems, tetrapolar aluminum-mylar tape or aluminum spot electrodes (Sherwood, et al., 1990). In the case of the tetrapolar aluminum-mylar tape, two pieces were placed in parallel around the neck and two around ribcage below the sternum. The spot electrodes are placed in the same lateral locations, but on either side of the neck and torso for a total of eight electrodes. The upper neck and lower torso electrodes are current injecting, sending a 4 mA alternating current into the thoracic cavity at

50 kHz. The inner sets of electrodes are voltage sensing and assess impedance (Z) and change in impedance (dZ/dt) as blood is pumped throughout the torso. When using spot electrodes, the areas where the voltage electrodes were to be placed were prepared with Nu-Prep, a conductive gel, to increase signal integrity (Biopac, Goleta, CA).

Results

Data Analytic Strategy

First, I cleaned, processed, and aggregated all cardiovascular data in preparation for hypothesis testing as described below. I then conducted preliminary analyses beginning with a series of independent samples t-tests to determine whether timing of data collection significantly impacted major study variables. I also computed descriptive statistics and bivariate correlations for all key variables and ran a series of paired samples t-tests to examine within-person differences in variables assessed after discussing best and worst coming out experiences. In order to test my primary meditational hypotheses I used MEMORE (Montoya & Hayes, 2017) a newly available macro for SPSS similar to PROCESS (Hayes, 2013) that allows researchers to test meditational models with repeated measures. This program takes a path analytic approach to estimating the indirect effect of X on Y via the mediator (M). More details on MEMORE and the specification of models for hypothesis testing are described below. Lastly, I conducted several exploratory analyses in an effort to unpack some of the unexpected effects (or lack thereof) found in the current study.

Physiological Data Preparation

Signal Processing & Ensemble Averaging.

To remove high frequency noise in the ICG data, I used a low pass IIR filter set at 15 Hz to filter the data as necessary. This removes high frequency components of the waveform that fall outside of the range of the physiological systems being assessed and obfuscate components of interest. Filtering was done in AcqKnowledge 4.3, the software used to collect the data.

The ECG, ICG, and BP data were then processed and scored using MEAP (Moving Ensemble Analysis Pipeline; Cieslak, Ryan, et al., under review), a new, open-source interactive software program designed to perform multi-subject pre-processing and analysis of cardiovascular data. MEAP allows for the efficient visualization and edition of physiological data. The program identifies the relevant inflection points on each waveform using a combination of automated algorithms and classifiers that the user trains based on each participant's own data. MEAP can then calculate both stationary (traditional) and moving ensemble-averaged values for physiological indices of interest: heart rate (HR), pre-ejection period (PEP), and cardiac output (CO), total peripheral resistance (TPR), among others. For the present analyses I employed traditional, fixed ensemble averages with epoch length set to 30-second intervals. Values for each index were computed for the last four epochs (2 minutes) of the baseline period and first four epochs (2 minutes) of the "best" and "worst" narratives. One participant's blood pressure-related data (i.e. TPR) was removed due to extremely low values indicating equipment malfunction.

Establishing Baseline.

I conducted a series of one-way repeated measures ANOVAs to test for significant differences within persons in HR, PEP, SV, and MAP during the last two minutes of baseline (Four 30 second epochs). These four indices were chosen as they comprise all other indices of interest (i.e. CO, TPR). No significant differences across the four epochs emerged for any of the four indices ($p > .05$) indicating that participants were in a relatively constant physiological state for this two-minute time period. This is important given that physiological values collected during this time will serve as the baseline values used to calculate physiological reactivity for subsequent analysis. It is therefore critical to avoid including any anticipatory physiological effects that may occur at the end of the baseline period. Since no differences between these epochs emerged, I took the mean of the four values for each physiological index and used these as the baseline values in all subsequent analyses.

Calculating Cardiovascular Reactivity.

Traditionally, cardiovascular reactivity is assessed by examining changes in indices of interest relative to baseline. For this, reactivity scores are calculated by subtracting each ensemble-averaged "chunk" of data from the task(s) from baseline values for a comparable period of time. These baseline values are then additionally included as covariates in any analyses in which reactivity scores serve as the dependent variable. Using the difference score along side the baseline covariate mitigates the impact one's baseline CV values have on the amount of change or reactivity that occurs during the task(s). For the present analyses, I modified this approach slightly. I calculated *percent change scores* for each index in each 30 second epoch of each narrative by subtracting the ensemble averaged

baseline values from each of the four narrative epochs, dividing the result by the baseline value, and multiplying by 100. In addition to calculating percent change scores for each 30-second ensemble average period, I also calculated each participant's average percent change for each narrative aggregated across ensemble epochs to provide measures of overall reactivity on each index for each narrative. Percent change scores were highly correlated with reactivity scores as traditionally calculated (rs > .96, ps <.001). The primary benefit of this method is the ease of interpretation when examining relative changes.

At this stage I conducted an outlier analysis on all percent change scores. Only one participant evidenced reactivity that fell more than 3.5 standard deviations above or below the mean of that index. Therefore, I Windsorized this participant's diastolic blood pressure (DBP) values by replacing existing values with the next closest value plus 1%. I did this for each of the outlying 30-second ensembles as well as for the aggregate measure of DBP and then recalculated all indices that include DBP (i.e. MAP, TPR).

I then calculated the residuals for each of these percent change scores. In other words, I regressed percent change scores for each index onto baseline values for that index and saved resulting residuals as new variables. Entering the residuals rather than simple reactivity or percent change scores functions similarly to entering baseline as a covariate. These residuals were utilized wherever baseline values would traditionally be entered as a control variable (i.e. in all between-persons analyses). Where analyses are strictly within-person, residuals are not necessary as removing the variance due to baseline has no impact on estimated parameters.

Testing for Task Engagement.

A prerequisite for both challenge and threat states is task engagement, which is indicated by decreased PEP and increased HR relative to baseline (Blascovich & Tomaka, 1996). To do so, I conducted a series of four one-sample t-tests to test whether the percent change values for PEP and HR during the best and worst narratives was significantly different from the test value of zero.

Results indicated significant to marginal task engagement during the two narratives for both PEP and HR. Heart rate increased significantly during the best [*M* percent change = 9.95, *SD*=8.39), *t*(59)= 9.18, *p* <. 001] and worst narratives [*M* percent change = 10.71, *SD*=9.10), *t*(56)= 8.89, *p* <. 001]. PEP decreased significantly during the worst narrative (*M* percent change = -3.73, *SD*=8.84), *t*(56)= -3.18, *p* <. 01, and marginally during the best narrative (*M* percent change = -2.15, *SD*=8.70), *t*(59)= -1.91, *p* =. 06. Taken together these results indicate that participants were engaged with the narrative task and that the conditions required for assessing challenge and threat were met.

Preliminary Data Analysis & Descriptive Statistics

Because data were collected in two parts, before proceeding to the primary analyses, I tested for differences in main study variables based on when the data was collected (Spring 2015 vs. Winter 2017) using a series of independent sample t-tests. In regards to self-report data, the only significant difference that emerged based on the timing of data collection was in internalized stigma, *t*(66) = 2.48, *p* = .02. On average participants who completed the study in Spring 2015 reported higher levels of internalized stigma (*M* = 2.08, *SD* = 0.66) than did those who completed these measures in Winter 2017 (*M* = 1.70, *SD* = 0.52). No significant differences emerged for any other self-report variables or for average ratings of

autonomy support by coders. Independent samples t-tests on the residuals of physiological change scores (residuals implemented to control for baseline as is standard practice in psychophysiology analysis) indicate no significant difference by data set for HR, PEP, or CO. However, dataset differences in TPR during the best narrative just reached statistical significance, $t(57)=2.04$, $p=.05$. Whereas the mean for the first data set indicated a slight increase in TPR relative to baseline while talking about the best coming out experience, the mean for the second dataset indicated a decrease in TPR relative to baseline while talking about this experience. No differences in TPR were found when talking about worst coming out experiences. No other significant differences by dataset emerged for any other primary physiological indices. Critically, because physiological analyses are conducted within-persons, this difference in TPR should not impact results. Therefore I collapsed data across quarters in all subsequent analyses.

I also examined correlations between key study variables. Table 8 depicts correlations, means, and standard deviations for key variables related to the best coming out experience as well as individual difference measures. Table 9 depicts these same statistics for worst coming out experiences. As depicted in Tables 8 and 9, internalized stigma in this sample revealed low mean levels (i.e., approximately 85% of the sample was below the scale midpoint) and very little variability (i.e., SD = .64). Due to the combination of low variability and the differences based by timing of data collection, internalized stigma was examined for exploratory purposes only and is not included in any primary analyses.

Examining the zero-order correlations among other variables reveals some interesting differences in the relations among key variables related to the best and worst narratives. For example, state well-being after talking about worst experience was

moderately correlated with ratings of positivity as well as negativity of that experience (*r*s = .33, -.41, *p*s < .01). State well-being after talking about positive experiences, however, was related to self-reported positivity (*r* =.26, *p* < .05), but not negativity, of that experience (*r* =.00, *p* > .05). Additionally, ratings of positivity and negativity are more highly correlated with one another in the worst (*r* = -.39, *p* < .01) compared to the best narratives (*r* = -.83, *p* < .001) suggesting that there may be greater ambivalence about the best stories. Also interesting is that general well-being measured in the pre-survey is significantly correlated with state well-being after talking about one's best experience (*r* = .65, *p* <.001), but not after talking about one's worst experience (*r* = .20, *p* > .05). This indicates that general levels of well-being are more closely related to how one feels after talking about positive experiences coming out than when talking about negative experiences suggesting that retelling negative experiences may have a greater impact on state well-being.

Before specifying any meditational models, I conducted a series of paired-samples t-tests to determine whether differences by narrative type (best vs. worst) emerged for the proposed mediator (coded autonomy support), dependent variables (current well-being, CO, TPR), and other variables of potential interest. Table 10 presents the means, standard deviations, and the results of significance testing. As expected, coded autonomy support was significantly greater in the best (*M* = 3.61, *SD* = 0.34) compared to the worst condition (*M*=2.42, *SD* = 0.51), *t*(61)=15.25, *p* < .001. Current well-being also differed by narrative type, *t*(62)=6.30, *p* < .001, with greater well-being after the best (*M* = 4.62, *SD* = 0.38) compared to the worst narrative (*M* = 4.16, *SD* = 0.67). In regards to changes in physiological indices (percent change scores aggregated across the first 2 minutes of the narrative), however, no significant differences by narrative type emerged. Due to the lack of

significant differences in physiological reactivity by narrative type I did not test any meditational models as there was no variance for which to account. Therefore in the primary analyses that follow I test my hypotheses in relation to well-being only. I then conducted several follow-up analyses to further probe the physiological data.

Primary Analyses

In order to test the hypothesis that autonomy support coded from each narrative mediates the relation between condition and subsequent well-being, I used MEMORE (Montoya & Hayes, 2017) a newly available macro for PROCESS (Hayes, 2013). MEMORE allows the researcher to test meditational models with repeated measures designs. Previously the dominant approach was to conduct a series of tests about specific components of the mediation model without formally estimating the indirect effect (Judd, Kenny, & McClelland, 2001). MEMORE takes a path analytic approach to testing mediation and utilizes bootstrapping to estimate the indirect effect(s) of one or more mediators in a repeated-measures design. Essentially what MEMORE does is test the direct and total effects of condition on the relative difference in a repeated-measures dependent variable ($Y_{Diff} = Y_1 - Y_2$) as well as the indirect effect via the relative difference in the repeated-measures mediator ($M_{Diff} = M_1 - M_2$). The independent variable, or condition, (X) is not explicitly specified as this is implied in the repeated measures model. Critically, MEMORE doesn't permit the specification of covariates as it is assumed that these are between-persons and thus would be negated when applied in the within-person, repeated measures context.

In order to test whether autonomy support (coded from the narratives) mediates the differences in well-being after discussing best and worst experiences, I specified a model in which M_{Diff} =Autonomy Support in Best Experience - Autonomy Support in Worst

Experience and Y_{Diff} = Well-Being after talking about best experience – Well-Being after talking about worst experience. Bias-corrected confidence intervals set at 95% were calculated based on 5,000 bootstrapping samples. Results indicated that condition (best vs. worst) had a significant total effect on well-being after talking about this experience, *b*= 0.45, *t*(58) = 5.88, *p* <.001, *SE* = 0.08, 95% CI: [0.30, 0.60]. Condition was also significantly related to coded autonomy support in each narrative, *b*= 1.20, *t*(58) = 14.81, *p* <.001, *SE* = 0.08, 95% CI: [1.04, 1.36]. Both of these findings are consistent with the results of the paired-samples t-tests described previously. The relation between autonomy support coded in each narrative and well-being after talking about this experience, however, did not reach statistical significance, *b*= 0.18, *t*(56) = 1.34, *p* =.19, *SE* = 0.13, 95% CI: [-0.09, 0.44]. Although this path was not significant, adding autonomy support to the model led the effect of condition on well-being to drop to non-significance, *b = 0*.24, *t*(56) = 1.34, *p* = .19, *SE* = 0.18, 95% CI: [-0.12, 0.59]. Despite a significant total effect and a non-significant direct effect, the estimated indirect effect of condition on well-being through autonomy support did not reach significance, *b* = 0.21, *SE* = -.16, *p* = .17, 95% CI: [-0.08, 0.53].

Follow-Up Analyses

Cardiovascular Reactivity Over Time.

Given that no condition differences were found for cardiovascular reactivity aggregated across each narrative, I examined reactivity within each 30-second ensemble narrative in order to explore whether changes in CV reactivity over time perhaps obscured meaningful condition differences. I was also interested in examining the pattern of effects within each condition for evidence of psychophysiological challenge or threat. I conducted

two 4 (ensemble intervals) x 2 (narrative type) repeated-measures ANOVAs with percent change in CO, and TPR during each task as dependent variables.

In the case of CO, results indicated a significant effect for ensemble interval [$F(3,165) = 6.65$, $p < .001$] with the fourth interval emerging as significantly different than the other three. There was no significant effect of narrative type [$F(1,55)=0.10$, $p = .76$] replicating results of the previous t-tests conducted on CO percent change scores aggregated across the four ensemble intervals. Critically, the interaction between ensemble interval and narrative type was significant [$F(3,165)=5.55$, $p = .001$]. Figure 8 depicts the estimated marginal means for percent change in CO separated by narrative type and plotted across each ensemble interval. Examining the 95% confidence intervals surrounding each of these estimated means indicates a significant increase from zero within the first two ensemble intervals in the best narrative condition and a significant decrease in the last interval of this same narrative relative to baseline. All other confidence intervals included zero. These findings suggest that when telling their best coming out narratives participants were initially in a state of relative challenge, which transitioned to threat by the end of the second minute. When telling their worst narrative, however, means indicate that on average participants were neither challenged nor threatened, at least as determined by changes in CO.

Examining the second indicator of challenge versus threat, changes in TPR, yielded a similar pattern of main and interaction effects. Again, there was a significant effect for ensemble interval [$F(3,162)= 18.78$, $p < .001$] which indicated significant increases in TPR at interval three and four relative to all proceeding intervals. No significant effect of narrative type $F(1,54)=0.05$, $p = .83$ emerged. However, there was again a small, but significant interaction between ensemble interval and narrative type, $F(3,162)=2.71$, $p <. 05$

driven. Figure 9 displays the patterns of estimated marginal means for this interaction. Examining the confidence intervals of sample means indicated that by the fourth interval (90-120s), participants were in a state of threat (95% CIs did not include zero) regardless of interval condition.

Order Effects.

I was also interested in whether the order in which participants told their best and worst experiences impacted physiological reactivity and other key variables. Therefore I conducted a series independent samples t-tests comparing participants who told their best coming out experience first to those who told their worst first. This comparison is not ideal as it doesn't take into account at what point the participant told their most recent coming out story. However, these analyses offer some initial insight into how task order may be impacting results. No differences by narrative order emerged for any of the variables related to best experiences (i.e., coded autonomy support, physiological reactivity, positivity and negativity ratings). However, significant order differences did emerge for variables related to the worst experience. Specifically, when the worst experience was told first, coded autonomy support for the worst experience was significantly greater (M = 2.59, SD = 0.51) than if the best experience was discussed prior to the worst (M = 2.24, SD = 0.45), $t(62)$ = -2.85, $p < .01$. Additionally, when the worst was told first it was rated as marginally more positive (M = 42.78, SD = 29.04), $t(63)$= -1.86, p =.07, and less negative (M = 50.39, SD = 30.01), $t(62)$=1.97, p =.05, than when the best experience was told first (Positivity: M = 30.42, SD = 24.41; Negativity: M = 64.45, SD = 27.13). Examining physiological reactivity (using the residuals of percent change values to control for baseline in this between-person's analysis) reveals a significantly greater increase in HR [t(55)= -2.83, $p <$. 01] and decrease

in PEP [t(55)= 2.33, $p <$. 05] during the worst experience when it was told prior to the best experience (Percent change HR residual: M = 3.78, SD = 8.00; Percent change PEP residual: M = -3.68, SD = 9.92) as compared to when the best experience was told first (Percent change HR residual: M = -2.42, SD = 7.09; Percent change PEP residual: M = 1.60, SD = 7.13), respectively. Similarly, significant order effects emerged for change in CO in the worst condition, $t(55) = -2.74$, $p < .01$. When the worst narrative was told first there was an increase in CO relative to baseline (M = 3.66, SD =7.84), whereas when the best was told first CO during the worst experience decreased relative to baseline (M = -4.08, SD = 12.47). This pattern of effects suggests that participants viewed their coming out experience as being less negative and more positive, were relatively more task engaged (greater increase in HR and decrease in PEP), and more challenged (increase in CO) when they talked about their worst experience before their best compared to when the best experience was told first. Additionally, coders picked up on more autonomy support in the worst narrative when it was told first. It is possible that telling the best story first forced a contrast effect leading the participant to then view their worst experience as more negative, less positive, and less autonomy supportive than they might have had this contrast not been highlighted. This, in turn, could account for the relatively greater threat evidenced during the worst experience when participants told it first as automatic appraisals may have been shifted to reflect fewer resources and/or greater demands.

Discussion

Results of Study 3 offer additional support for the relation between others' reactions to identity disclosure and well-being among SMs. Within-person analyses indicated that participants reported greater well-being after discussing their most positive, as compared to

their most negative, coming out experiences. Study 3 results also indicate that disclosure recipients provided greater autonomy support (as coded from the narratives) in the best compared to worst coming out experiences. Unexpectedly, however, autonomy support during both the best and worst disclosure experiences was not significantly related to well-being following that experience. Still, including autonomy support as a mediator in the model predicting well-being differences from condition (best vs. worst experience) provides partial support for the hypothesis that autonomy support accounts for the variation in well-being following discussing positive and negative experiences. Although the indirect path through autonomy support did not reach statistical significance, the relation between condition and well-being was attenuated, dropping to non-significance. Taken together, these results suggest that autonomy support provided during SM identity disclosure may partially account for the impact of telling positive versus negative coming out experiences on well-being.

The physiological results of Study 3 did not conform to hypotheses, but nonetheless contain some interesting findings. First, cardiovascular indices of challenge and threat (CO and TPR) did not differ significantly when participants were retelling their best and worst experiences. Instead, examining CO and TPR over 30-second intervals suggests a more nuanced pattern of effects. Patterns of CO reactivity over these intervals were particularly unexpected, suggesting that, on average, when telling their best experiences participants moved from a state of relative challenge to threat whereas when telling their worst experience, participants were on average neither significantly challenged nor threatened. Patterns of TPR reactivity suggest that regardless of the experience being told, participants evidenced increasing relative threat over the course of the retelling. Given that TPR is

computed based on CO and measures of arterial pressure (Mean Arterial Pressure, a weighted average of systolic and diastolic blood pressure), the almost linear increase of TPR over this 2-minute portion of the narrative suggest that these effects were driven by increasing blood pressure. This finding is important as increasing blood pressure is strongly associated with psychosocial stress (c.f., meta-analysis by Rainforth, et al., 2007) and chronically elevated blood pressure has been linked to increased risk of cardiovascular disease, hypertension, and other physical problems especially in non-clinical and young adult samples (Franklin, et al. 2001; Kannel, Gordon, & Schwartz, 1971; Raitakari, et al., 1994). In sum, patterns of CV reactivity suggest that discussing coming out experiences, whether positive or negative, elicited a state of psychophysiological threat in many participants, suggesting that discussing disclosure experiences may be inherently stress evocative. The disconnect between physiological and self-reported well-being results, though unexpected, is consistent with research and theory suggesting that physiological states are often outside of conscious awareness and do not necessarily align with self-reported motivations or emotions (Weisbuch, Remington, Mendes, Seery, & Blascovich, 2005).

The finding that retelling both experiences may be stress-inducing may help to explain some of the effects found based on the order in which participants told their best and worst experiences. Discussing both experiences may have been stressful, depleting cognitive resources. Therefore rather than serving as an affirmation or stress buffer, discussing the positive experience first may have left participants with fewer resources available when it came time to discuss the negative experience. It is also possible that discussing the best experience first simply created a contrast effect leading the participant to then view the

worst experience in a more negative light. Taken together, Study 3 results suggest that positive experiences are characterized by relatively more autonomy support provision than negative ones and that participants tend to report greater well-being after discussing positive relative to negative experiences. However, CV results suggest that even when things go well disclosure may be physiologically stressful.

A critical limitation of Study 3, however, is that the well-being and physiological effects exerted by recalling the disclosure event cannot be disentangled from the effect of discussing these highly personal, identity-relevant experiences in front of a stranger in an experimental context. Therefore, results should be interpreted with caution. It cannot be determined from the present study whether effects are due to remembering the bad experience, the current relationship with the confidant, anticipating stigma from the experimenter, or whether threat is due to the depletion of cognitive resources as participants process these important and potentially difficult experiences and identities and construct narratives to describe them. The present results are likely due to a combination of these factors, which may differ across participants. Unfortunately, the retrospective nature of the Study 3's design precludes differentiation between these factors.

An important consideration for future physiological studies and another limitation of Study 3 is the use of baselines in calculating cardiovascular reactivity. Prior to coming to the lab participants were aware that they would be discussing their past experiences of coming out. It is possible that many participants were already in elevated states of stress during the baseline as they were anticipating discussing these events aloud or perhaps already reliving them while waiting for the task to commence. It is also possible that elevated stress during baseline is meaningfully related to differences between individuals or in the severity of

negative reactions to disclosure, or individual differences in variables not assessed in the current study such as anticipated stigma. This problem with establishing a true baseline may have led the relations between some important factors to be obscured. This issue, however, is hardly specific to the present study. Indeed, the use of baselines and how "resting values" should be calculated is a topic of debate (Llabr, Spitzer, Saab, Ironson, & Schneiderman, 1991).

Another limitation of Study 3 is that the items used to code for autonomy support in each narrative yielded estimates that were reliable, but ultimately contained relatively little variance. The autonomy support coding items were adapted from those used in a massive cross-cultural study of student's experiences of autonomy support from their teachers (Niemic, et al., in prep). Though adapted for use in the context of coming out, the restricted variance suggests that these items may not have been ideal for this purpose. For example, "providing choices and options" is an item that likely varies much more between teachers than between coming out experiences. Though some narratives did provide clear evidence of choice provision (i.e. "do you want to tell your father or should I?"), most did not contain information relevant to assessing choice. In such circumstances, coders selected the scale midpoint to indicate 'neutral.' The frequent use of the scale mid-point on this and other similar items may have reduced the overall variance in autonomy support. This lack of variance, in turn, may have contributed to the lack of significant mediation effects. Recoding narratives using alternative coding items may yield a different pattern of effects. Before designing new studies on this topic, I plan to explore alternative items for coding autonomy support provision as well as methods for coding additional constructs of theoretical interest such as processing and ambivalence (Fong, 2006; Larsen, McGraw, & Cacioppo, 2001;

Pennebaker, 1993). Coding the overall valance of each experience using linguistic analysis programs such as LIWC (Tausczik & Pennebaker, 2010) may also aid in clarifying the results of Study 3, as at the between-person level participants varied greatly in how positive and negative their best and worst experiences were.

Despite these and other limitations discussed below, Study 3 adds to the literature by highlighting the disconnect between self-reported well-being and physiological stress. Results suggest that discussing positive experiences may be associated with the conscious experience of well-being, yet still evoke physiological stress. This finding in particular has important implications for research and theory on the health outcomes of SM individuals. It suggests that discussing past identity-relevant experiences elicits increased blood pressure. The extent that SM individuals discuss or ruminate about these experiences over time may be associated with chronically elevated blood pressure, an important indicator of cardiovascular and general health (Franklin, et al. 2001; Kannel, et al. 1971; Raitakari, et al., 1994).

General Discussion

Whereas some research indicates disclosure to be beneficial (e.g., Ragins, 2004; Wells & Kline, 1987), other work had failed to find such well-being benefits (e.g., Cole et al., 1997; D'Augelli, 2002; McGregor et al., 2001; Oetjen & Rothblum, 2000). Drawing on self-determination theory (Ryan & Deci, 2000) the present work seeks to address the inconsistency in this relation between coming out and well-being. Specifically, the research presented here examined how relationships and social contexts impact decisions to disclose (Study 2), how reactions to disclosure shape the well-being outcomes that follow (Studies 1 & 3), and how autonomy support from one's social environment interacts with individuals'

own attitudes toward their identity (i.e. internalized stigma) to predict well-being (Study 2). Study 3 also provides an initial foray into understanding the association between recalling and retelling past disclosure experiences and stress-related physiology (Study 3).

Summary of Findings

Together these three studies provide partial support for autonomy support as a critical factor in facilitating identity disclosure and the positive well-being effects that may follow. Results of Study 1 are consistent with previous research (e.g., D'Augelli, 2002; Juster et al., 2013) and indicated that receiving negative reactions to identity disclosure had a significantly lasting impact on well-being. Study 1 also demonstrated the role of autonomy support in partially accounting for the association between negative coming out experiences with important others and increased depression and decreased self-esteem. Examining these constructs within-persons, Study 2 results suggest that experiencing autonomy support within a given social environment is associated with greater openness about one's identity and improved well-being in that environment. Consistent with previous literature (Herek et al., 1998; Newcomb & Mustanski, 2010; Semlyen et al., 2016) results of Study 2 also indicate that SM individuals with higher levels of internalized stigma were less out across social contexts and felt lower well-being than those with lower levels of internalized stigma. Critically, results indicate that autonomy support may be particularly beneficial for these particularly vulnerable individuals; perceiving autonomy support was more strongly associated with outness and experiencing greater well-being in those with high levels of internalized stigma than in those with lower levels. Results of Study 3 suggest that retelling positive as compared to negative coming out stories is associated with significant differences in current well-being, but not cardiovascular stress-reactivity. Athough

particpants reported greater well-being after telling their best experience than after telling their worst, telling both stories appeared to elicit increased blood pressure driving increases in TPR indicative of psychophysiological threat. Coding participant's narratives for provision of autonomy support indicated that best experiences were characterized by greater support than worst ones.

The results of Study 3 are largely consistent with the findings of Study 1, though a few differences deserve mention. Whereas Study 1 examined the relation between recalled disclosure reactions and general well-being, sometimes many years after that experience, Study 3 suggests that recalling these experience impacts well-being in the moment as well. Zero-order correlations suggest that, parallel to Study 1, state well-being was more strongly associated with response valance in the worst, as compared to best condition. Additionally, the mediator in Study 1 was self-reported autonomy need satisfaction from the disclosure recipient in general in the relationship, not specifically during the coming out interaction. Autonomy support perceived in the relationship as a whole likely differs from that afforded in coming out interaction. It is possible that having a generally supportive relationship may mitigate the impact of a lack or even the thwarting of autonomy during disclosure. Alternatively, where appreciable time has passed since the experience occurred, the extent of autonomy support provided within that relationship has shifted. For example, many participants reported that their parent's response was hardly supportive in that moment, but that over time their support and understanding grew. Additional research is required to better understand the relation between general relational autonomy support and support within specific, identity-relevant contexts, as well as the relative impact of each of these factors on subsequent well-being.

Methodological Limitations & Future Directions

The present research contained several limitations related to the methodology employed that should be kept in mind when interpreting the present results. First and most obviously, the sample sizes of all three studies were relatively small. The small sample size limited statistical power making it more difficult to detect effects of smaller magnitude. This is especially critical given that all three studies utilized retrospective designs in which effect sizes are likely smaller than they would be had these constructs been assessed in vivo. This lack of power may, in part, account for why some effects, like the indirect effect of autonomy support in Study 3, did not reach statistical significance.

Though the goal of the present research was to illuminate factors relating to disclosure common across minority and sexual and gender identities, the stereotypes and attitudes toward the specific identity being disclosed are likely important factors in the experience and outcomes that follow. Large, representative data sets afford the opportunity to examine whether and how SM's disclosure experiences differ based on factors related to their specific identity its perceived "normativeness" (i.e. Gay/Lesbian vs. Queer). Large national and international samples are also critical to improving understanding of how SM identities intersect with other identities, such as race and (dis)ability status, to impact mental and physical health.

Another limitation of the present work is its cross-sectional nature and reliance on retrospective reports of coming out experiences, which are vulnerable to reporting biases. The cross-sectional nature of these data means that result cannot speak to a causal role of autonomy support or specific coming out experiences in promoting positive outcomes. It could be that those with higher well-being perceive others to be more positive and autonomy

supportive and view their own identity more positively. Conversely, it may be that those who suffer from depression, anxiety, and low self-esteem perceive their social environments and relationships as thwarting their need for autonomy and view these as well as their own identity in a more negative light. However, regardless of the specific links and directionality of these relations, it is clear that perceived autonomy support is a critical variable in understanding the influence of social relationships and environments on well-being and disclosure among SM individuals.

Longitudinal and experimental methods combined with large, representative samples are critical for future research. Longitudinal studies in particular have the potential to shed light on the dynamic relation between coming out experiences and identity development. Such longitudinal studies, however, are logistically challenging and notably lacking in the literature. Though some studies have tracked coming out experiences over a limited time frame (e.g. Beals, et al., 2009), these have primarily addressed disclosure to new acquaintances rather than within established relationships, the impact of which may differ both quantitatively and qualitatively. One means by which coming out reactions may be studied as they occur is by assessing identity development and disclosure among first-year college students. Given that many SM individuals come out after leaving high school (Evans & D'Augelli, 1996), this may be an opportunity to study disclosure experiences without relying on retrospective reports, allowing for exploration into the causal nature of the links between disclosure, autonomy, and well-being.

It is also likely that other factors, not assessed in the present studies, contribute to current well-being, particularly for those who recalled coming out experiences that occurred a number of years ago. Future research should also assess potential alternative mediators of

the relation between coming out reactions and well-being. Without testing the mediational power of autonomy against other support or relationship-relevant variables, such as simply feeling loved, I cannot claim that experiencing relational autonomy support specifically and not a related construct or correlate accounts for variance in well-being. Recoding the coming out narratives from Study 3 using alternative coding schemes offers an opportunity to explore other factors related to disclosure experiences or the narratives constructed to describe them that may be more strongly predictive of well-being and physiological effects.

A final methodological limitation of the present research was the failure to assess general health symptoms throughout. Relating disclosure experiences and autonomy support to overall health, as self-reported or as indexed by other physiological indices of allostatic load, is a clear and critical direction for this research to take given the strong evidence of physical health disparities (Lick, Durso, & Johnson, 2013). The trajectory of the present research parallels increasing interest in clinical, health, and social psychological research in elucidating the mechanisms by which stigma, particularly SMs and others with concealable stigmas, gets under the skin to impact health (Hatzenbuehler, et al., 2009; Major, et al., 2013; Ryan, Hunger, & Major, in press).

Conceptual & Theoretical Limitations and Future Directions

In addition to addressing the statistical and methodological concerns discussed above, future research and theory development on identity disclosure and internalized stigma would benefit from increased effort to disentangle the various components of the coming out process. Individuals with concealable stigmas face multiple considerations surrounding the decision, act, and aftermath of disclosing their stigmatized status to others. As with much of the work on coming out and disclosure processes, the current research did

not clearly distinguish between aspects of the coming out process including anticipated responses and rumination ahead of coming out, the coming out experience itself, the relational consequences following the disclosure, memory-based experiences of the coming out process. Assessing the components of disclosure with greater conceptual clarity and rigor is essential to determining the sources that account for the greatest variation in well-being and thus the most promising points of intervention. Conceptual rigor is also necessary to determine where and how within the disclosure process perceived autonomy (or lack thereof) exerts its well-being buffering or deteriorating effects.

Similar conceptual clarity is especially needed in relation to internalized stigma, particularly within much of the literature on internalized SM stigma. Internalized stigma is often confounded with other forms of self-stigma or stigma-related constructs including anticipated stigma (Earnshaw & Chaudoir, 2009) and sensitivity to identity-based rejection (Pachankis, et al., 2008), or even with its correlates, outness and connection to SM community (e.g., Nungesser, 1983; Ross & Rosser, 1996; Szymanski & Chung, 2001). Critical to the present research, one can be aware of the negative stereotypes and devaluation associated with one's identity and anticipate and fear rejection based on these, while not endorsing, implicitly or explicitly, these stereotypes about one's own group. The realistic and understandable fear that others hold negative attitudes toward one's group and may act accordingly is distinct from internalizing negative attitudes and applying them to oneself. Indeed, this distinction parallels the discourse surrounding the underlying meaning of the Implicit Association Tests (Greenwald & Farnham, 2000). Just as cultural knowledge of stereotypes and their endorsement are difficult to disentangle, the fear of stigma and its internalization are often related in practice. Internalized stigma is informed by past

experiences witnessing or experiencing negative treatment of SM individuals (enacted stigma) (Earnshaw & Chaudoir, 2009) and itself impacts the expectation of experiencing it in the future (anticipated stigma) (e.g., Pachankis, Goldfried, & Ramrattan, 2008). Still, isolating sources of variance in health and well-being of stigmatized individuals is critical to both theory building and the development of interventions. Longitudinal designs, in particular, are well-suited to increasing to understanding of the relations between experiences, anticipation, and internalization of stigma and the development of these constructs over time over time.

Relatedly, future longitudinal research should also examine whether perceiving autonomy support from important others over time can reduce internalized stigma and improve overall well-being. Given that those high in internalized stigma have experienced and anticipate social rejection of their sexual identity (Pachankis et al., 2008), experiencing environments that convey acceptance may help reduce anticipated rejection and internalized stigma. Whether perceived autonomy support within specific contexts and relationships can spill over and impact well-being more generally also remains an empirical question, as the correlational results of Study 1 suggest that it might.

Implications

The present research has important social and theoretical implications. Most broadly, this work highlights the importance of reactions to identity disclosure as well as general autonomy support in promoting SM well-being. Long-term effects on well-being appear to be exerted by negative reactions and the thwarting of autonomy (Study 1). In the short-term, retelling both positive and negative coming out experiences, appear to impact state well-being (Study 3). These findings are consistent with the notion that negative events exert a

larger and more lasting effect on well being, especially when the events are social in nature (e.g., Williams, Forgas, & von Hippel, 2005). While at first pass these findings may seem depressing, they could also be interpreted as suggesting that so long as LGB individuals are not explicitly rejected for this identity, their well-being will not suffer long-term. This result has important implications for how one might educate others about how to respond if someone comes out to them. A better understanding of the role that such reactions have on the well-being of SM individuals is an important agenda for educating families and schools dealing with youth as they become aware of their sexual orientation, and prepare to disclose to important others.

Study 2 results suggest that positive support may not be fruitless. SMs who perceived their social environments to be supportive reported higher well-being within that specific environment, even when they also reported high levels of internalized stigma. Perhaps positive experiences and the autonomy support they contain are better able explain well-being variance among those who are not already high on this construct. Again, this may have important implications for how clinicians and close others interact with SM individuals. While a perfectly-crafted response may not be needed for some individuals, among those who are rejecting of themselves, experiencing contextual and interpersonal autonomy support is needed for well-being to flourish. The finding that autonomy support may mitigate the association between internalized stigma and poor well-being as least within the context in which it is provided is of particular importance given that internalized stigma does not appear to be decreasing despite greater societal acceptance (Newcomb & Mustanski, 2010).

Although stronger among individuals with high levels of internalized stigma, the relation between perceived autonomy support and outness and well-being was significant and positive for SMs high as well as low in internalized stigma. This suggests that interventions aimed at increasing autonomy support may be broadly effective in improving SM well-being. Given that it is often difficult to identify those most at risk broadly targeted interventions may be additionally effective. These could include instituting policies, strategies, and trainings to boost autonomy support in workplaces and schools. Interventions to increase autonomy support need not be identity-specific. Rather, trainings to improve the autonomy support among teachers, doctors, clinicians, and other care providers can and have been implemented (e.g. Edmunds, Ntoumanis, & Duda, 2008; Ryan, Patrick, Deci, & Williams, 2008). Trainings that focus on teaching strategies to provide choice and support for others rather than on reducing sexual prejudice explicitly may be more effective as they may inspire less reactance among participants (Legault, Gutsell, & Inzlicht, 2011). In this particularly heated political climate where identity politics are a source of controversy designing interventions that are not perceived (or actually) targeted toward the benefit of a specific group may be particularly important.

Coming out certainly carries risks, especially to those without need-supportive social environments or close others. Because SM individuals may be able to conceal their sexual identity from strangers, coworkers, and even close others like family members and friends, they constantly have to make decisions around disclosure, potentially opening themselves up to rejection, exclusion, and discrimination (D'Augelli, 2002). Even where these interactions go well, the anticipation that they may not and the emotional processing and rumination that may follow may act as additional sources of stress. The finding in Study 3 that LGBTQ

individuals evidenced increased pressure in the peripheral vasculature is consistent with other research and theorizing that both concealment and disclosure are cognitively depleting and stress evoking processes (e.g., Pachankis, 2007). Employing cardiovascular measures in assessing disclosure-related and other forms of minority stress represents a promising avenue for future work. Such measures can complement and potentially clarify existing cortisol research that suggests diverging patterns of stress-reactivity associated with concealment depending on context (Huebner & Davis 2005; Juster, et al., 2013).

Conclusion

Whereas some research indicates disclosure to be beneficial (e.g., Ragins, 2004; Wells & Kline, 1987), other work had failed to find such well-being benefits (e.g., Cole et al., 1997; D'Augelli, 2002; McGregor et al., 2001; Oetjen & Rothblum, 2000). Drawing on self-determination theory (Ryan & Deci, 2000) the present work addressed the inconsistency in this relation between coming out and well-being. Results suggest that SM well-being may be largely impacted by experiences of autonomy support and reactions to disclosure. Study 1 results indicated that negative reactions to disclosure exert a lasting impact on well-being outcomes and that this influence was exerted via the thwarting of autonomy. Additionally, perceiving autonomy support from one's social contexts was associated with greater disclosure and well-being, especially among those with high levels of internalized stigma (Study 2). Study 3 indicates that recalling disclosure reactions impacts well-being in the short-term as well. The cardiovascular results of Study 3 suggest that the relating both positive and negative coming out experiences is associated with increased blood pressure. Given the link between elevated blood pressure and cardiac risk, the present results, though preliminary, may speak to how rejecting disclosure experiences may "get under the skin" to

influence cardiovascular reactivity and thereby ultimately impact physical health outcomes.

The history of oppression suffered by SM individuals still endures today, and the consequent high rates of stress and psychological disorders found in this population (Sandfort, de Graaf, Bijl, & Schnabel, 2001), research on processes that can facilitate both their social and self-acceptance is a critical agenda. Such research has implications for both clinical interventions and policy formation regarding people who identify as LGBT, as well as interventions targeting the majority population to reduce antigay prejudice and hostility (for example, in schools with children and adolescents who bully). Specifically, better understanding the role of autonomy in ameliorating the effects of stigma is critical for designing interventions to increase the quality of social support given to LGBT individuals. Identifying ways that important relationships can best support LGBT youth and adults, as well as buffer against the development of antigay prejudice in the majority population, represents essential steps in promoting SM health and wellness.

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Table 1

Means and standard deviations for depression, self-esteem, and autonomy need satisfaction by sexual orientation and gender.

	Depres-sion	Self-Esteem	ANS First Person	ANS Father	ANS Mother	ANS Best Friend
1. Lesbian Women	1.71 (0.62)	3.95 (0.66)	5.95 (1.44)	5.14 (2.04)	5.47 (1.50)	6.16 (1.11)
2. Gay Men	1.92 (0.57)	3.71 (0.84)	5.32 (1.21)	4.18 (1.45)	4.78 (1.47)	5.29 (1.36)
3. Bisexual Women	2.07 (0.66)	3.74 (1.12)	6.21 (1.25)	5.78 (1.35)	4.73 (1.83)	6.31 (1.25)
4. Bisexual Men	2.22 (0.86)	3.52 (0.92)	5.12 (1.33)	4.40 (1.36)	4.17 (0.43)	5.26 (1.34)

Note. ANS stands for Autonomy Need Satisfaction

Table 2

Correlations for mother and father variables

	1	2	3	4	5	6	7
1. Age Realized	--	.15	.11	-.01	-.16	.10	-.08
2. Age Told	.49**	--	-.18	.20	-.24	-.16	.14
3. Self Esteem	.11	.15	--	-.58**	.55*	.19	-.50**
4. Depression	-.01	-.01	-.58**	--	-.41*	-.14	.39*
5. Autonomy Coded	.13	.02	.22	-.23†	--	.51**	-.67**
6. Positive Reaction	.26†	-.03	.27*	-.12	.58**	--	-.52**
7. Negative Reaction	-.07	.05	-.26†	.34*	-.69**	-.52**	--

Note: Correlations for Mother variables are displayed below the diagonal, correlations for Father variables displayed above the diagonal. † p<.1, * *p<.05, **p<.01.*

Table 3

Correlations for first person and best friend variables

	1	2	3	4	5	6	7
1. Age Realized	--	.39**	.11	-.01	-.01	-.03	.08
2. Age Told	.43**	--	.06	.11	.03	.04	-.13
3. Self Esteem	.11	.06	--	-.58**	.39**	.19†	-.33**
4. Depression	-.01	.00	.58**	--	-.40**	-.08	.36**
5. Autonomy Need Sat	.01	.09	.24*	.26**	--	.44**	-.61**
6. Positive Reaction	.00	.14	.23*	.09	.58**	--	-.42**
7. Negative Reaction	.10	-.07	.21*	.28**	-.67**	-.37**	--

Note: Correlations for First Person variables are displayed below the diagonal, correlations for Best Friend variables displayed above the diagonal.

† p<.1, * *p<.05, **p<.01.*

Table 4

*Regression Results- Impact of positive and negative reactions from each disclosure partner on **depression** controlling for sexual orientation, gender, and their interaction*

	First Person (n=98)	Mother (n=50)	Father (n=31)	Best Friend (n=82)
Step 1 (R^2)	0.10	0.21	.24.	0.08
Sexual Orientation	-0.27**	-.44**	-.34*	-.24*
Gender	-0.19†	-.30*	-.32†	.22*
Step 2 (R^2)	0.09	0.21	0.31	0.10
Gender x Orientation Int.	-0.13	-0.07	0.62	-0.23
Step 3 (R^2)	0.17	0.28	0.36	0.19
Positive Reaction	0.03	0.01	-0.03	0.08
Negative Reaction	.28**	0.27†	.39*	.34**

Note. Table displays standardized regression coefficients. Gender coded as female=1, male=0, Sexual Orientation coded as 1=gay/lesbian, 0=bisexual.

† p<.1, * *p<.05, **p<.01.*

Table 5

*Regression Results- Impact of positive and negative reaction from each disclosure partner on **self-esteem** controlling for sexual orientation, gender, and their interaction*

	First Person (n=98)	Mother (n=50)	Father (n=31)	Best Friend (n=82)
Step 1 (R^2)	0.04	0.03	0.05	0.02
Sexual Orientation	0.15	0.02	-0.07	0.08
Gender	0.16	0.19	0.22	0.14
Step 2 (R^2)	0.04	0.03	0.05	0.05
Gender x Orientation Int.	0.07	0.02	-0.15	0.29
Step 3 (R^2)	0.10	0.11	0.33	0.15
Positive Reaction	0.16	0.14	-0.1	0.10
Negative Reaction	-0.14	-0.17	-.58**	-.29*

Note. Table displays standardized regression coefficients. Gender coded as female=1, male=0, Sexual Orientation coded as 1=gay/lesbian, 0=bisexual.

† $p < .1$, * $p < .05$, ** $p < .01$.

Table 6

Means and Standard Deviations of Study Variables Overall, Across Social Context, and Split by Sexual Orientation.

	Overall sample		Sexual orientation type		
	Mean	*SD*	Gay Men	Lesbians	Bisexuals
Internalized stigma	1.63	0.80	1.61	1.69	1.63
Autonomy support	5.52	1.33	5.42	5.42	5.13
Family	5.45[b]	1.38	5.51	5.54	5.20
Friends	6.19[a]	0.93	6.28	6.24	5.89
Coworkers/peers	4.92[c]	1.32	5.04	4.85	4.72
Outness	5.59	1.17	5.86	5.60	4.88
Family	5.09[b]	1.89	5.34	5.03	4.48
Friends	6.62[a]	0.86	6.82	6.62	6.12
Coworkers/peers	5.07[b]	1.80	5.42	5.18	4.03
Depression	2.36	1.27	2.29	2.25	2.63
Family	2.60[b]	1.62	2.50	2.54	2.91
Friends	2.05[a]	1.19	2.00	1.89	2.33
Coworkers/peers	2.42[b]	1.46	2.37	2.32	2.66
Anxiety	2.52	1.17	2.48	2.44	2.71
Family	2.80[b]	1.58	2.73	2.68	3.12
Friends	2.07[a]	1.09	2.01	2.44	2.26
Coworkers/peers	2.69[b]	1.41	2.70	2.60	2.76
Self-Esteem	4.84	1.29	4.85	5.03	4.62
Family	4.76[ab]	1.60	4.81	4.86	4.51
Friends	5.12[a]	1.43	5.14	5.32	4.89
Coworkers/peers	4.64[b]	1.34	4.60	4.89	4.48

Note: $N = 156$, however two individuals had missing data on all measures except for internalized stigma; two more did not provide data on their outness with coworkers/peers; all alphabetic superscripts refer to significant differences ($p < .05$) as identified by pairwise comparisons using paired samples t-tests with Bonferroni correction to adjust for multiple comparisons. Means with a common letter in their superscript were not significantly different from one another.

Table 7

Main and Interaction Effects of Outness and Psychological Well-Being in Multilevel Models

	Outness		Depression		Anxiety		Self-Esteem	
	b	95% CI	*b*	95% CI	*b*	95% CI	*b*	95% CI
Level-1								
Outness	---	---	-.07†	-.14, .002	-.08*	-.14, -.01	.03	-.04, .11
Autonomy Support	.67***	.53, .82	-.21***	-.32, -.09	-.33***	-.45, -.22	.31***	.20, .42
Level-2								
IHP	-.41***	-.64, -.18	.56***	.32, .80	.55***	.33, .76	-.48***	-.72, -.23
Gay	.76***	.33, 1.18	-.20	-.66, .24	-.15	-.53. .24	.21	-.31, .72
Lesbian	.92**	.46, 1.38	-.29	-.82, .23	-.20	-.65, .25	.41	-.18, 1.00
Autonomy support X IHP	.15†	-.02, .32	-.16*	-.30, -.02	-.12*	-.22, -.03	-.09†	-.19, .01

Note: All coefficients are unstandardized HLM coefficients. IHP refers to internalized homophobia or stigma; Gay and Lesbian refer to the dummy coded sexual orientation variables with bisexuals as the reference group; Autonomy support X IHP refers to the interaction of internalized homophobia (at Level-2) on autonomy support (at Level-1). $^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$, $^{\dagger}p < .10$

Table 8

Zero-Order Correlations and Descriptive Statistics for Key Study 3 Variables (for Best Coming Out Experience)

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	*M*	*SD*
1. General Well-Being	.36**	.09	-.13	.65***	.31*	.13	.18	.27*	.14	.05	.18	3.78	0.334
2. Outness	-	.001	-.23†	.22†	.07	.13	-.18	.16	.04	.20	-.11	4.51	1.20
3. Internalized Stigma	-	-	.02	-.04	.13	-.11	.10	.10	.08	-.24†	.31*	1.94	0.64
4. Aut Supp (Coded)	-	-	-	.06	.23†	.19	-.15	-.03	.10	-.23†	.30*	3.61	0.33
5. State Well-Being	-	-	-	-	.46***	.26*	.004	.14	.12	.05	.16	4.63	0.38
6. Aut Supp (Self-Report)	-	-	-	-	-	.19	-.05	.14	-.18	-.01	.16	6.27	0.97
7. Pos. of Experience	-	-	-	-	-	-	-.39**	.11	-.21	-.08	.05	93.02	10.45
8. Neg. of Experience	-	-	-	-	-	-	-	-.09	.26†	.10	.05	7.72	17.93
9. HR % Change	-	-	-	-	-	-	-	-	-.28*	.33*	-.11	9.95	8.39
10. PEP % Change	-	-	-	-	-	-	-	-	-	-.32*	.23†	-2.15	8.70
11. CO % Change	-	-	-	-	-	-	-	-	-	-	-.69**	1.37	10.58
12. TPR % Change	-	-	-	-	-	-	-	-	-	-	-	3.80	15.70

Note. General Well-Being, Internalized Stigma, and Aut Supp (Coded) were scored on a 1-5 scale; Outness, State Well-Being, and Aut Supp (Self-Report) were scored on a 1-7 scale; and Positivity and Negativity of Experience were reported as percentages ranging from 0-100. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 9

Zero-Order Correlations and Descriptive Statistics for Key Study 3 Variables (for Worst Coming Out Experience)

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	*M*	*SD*
1. General Well-Being	.36**	.09	-.08	.20	.20	.08	-.10	.14	.16	-.06	-.04	3.78	0.334
2. Outness	-	.001	-.12	.06	.21†	.09	-.09	-.02	.18	-.03	-.06	4.51	1.20
3. Internalized Stigma	-	-	.06	-.13	-.08	.01	.03	.24†	.06	-.24†	.18	1.94	0.64
4. Aut Supp (Coded)	-	-	-	.15	.46***	.57***	-.62***	.25†	.04	.16	-.17	2.41	0.51
5. State Well-Being	-	-	-	-	.30*	.33**	-.41**	-.13	.27*	-.13	.02	4.15	0.66
6. Aut Supp (Self-Rep)	-	-	-	-	-	.55***	-.51***	-.01	.09	-.08	-.04	4.13	1.60
7. Pos. of Experience	-	-	-	-	-	-	-.83***	.01	.26†	-.05	-.12	36.51	27.30
8. Neg. of Experience	-	-	-	-	-	-	-	-.12	-.11	-.002	.06	57.64	29.21
9. HR % Change	-	-	-	-	-	-	-	-	-.37**	.12	.01	10.71	9.10
10. PEP % Change	-	-	-	-	-	-	-	-	-	-.39**	.03	-3.72	8.84
11. CO % Change	-	-	-	-	-	-	-	-	-	-	-.79***	0.43	11.96
12. TPR % Change	-	-	-	-	-	-	-	-	-	-	-	4.71	21.00

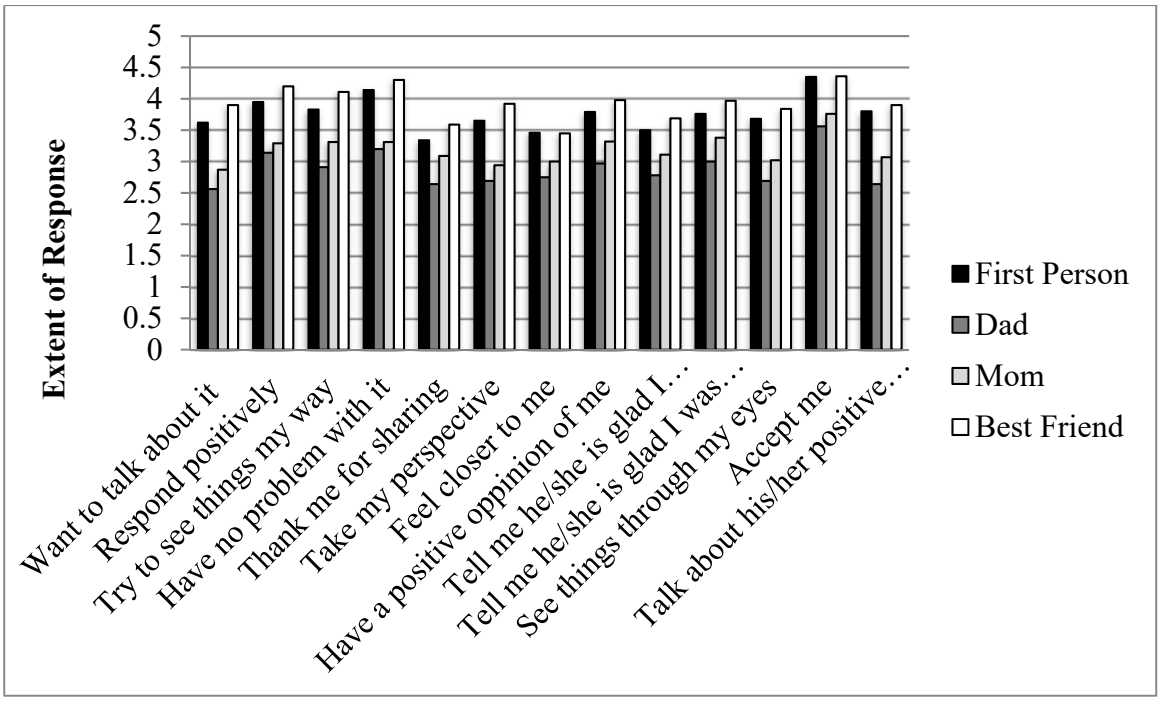
Note. General Well-Being, Internalized Stigma, and Aut Supp (Coded) were scored on a 1-5 scale; Outness, State Well-Being, and Aut Supp (Self-Report) were scored on a 1-7 scale; and Positivity and Negativity of Experience were reported as percentages ranging from 0-100. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 10

Paired samples t-tests and correlations for primary within-person variables.

	Best		Worst					
Index	M	SD	M	SD	*t*	*df*	*95% CIs*	*r*
Aut Sup	3.61	0.34	2.42	0.51	15.25	61	1.03, 1.35	.001
Current WB	4.62	0.38	4.16	0.67	6.30	62	0.31, 0.60	.49***
Positivity	93.39	9.05	35.40	27.12	16.11	61	50.78, 65.18	.03
Negativity	5.10	11.09	57.51	29.70	-12.67	50	-60.72, -44.10	.20
Times Told	2.81	1.44	3.17	1.34	-1.94	63	-0.73, 0.01	.43***
Time Since	6.20	1.79	5.97	1.94	0.99	63	-0.24, 0.71	.49***
% **Δ** HR	9.55	8.36	10.61	9.15	-1.12	55	-2.96, 0.84	.68***
% **Δ** PEP	-2.12	8.85	-3.71	8.92	1.48	55	-0.57, 3.75	.59***
% **Δ** CO	1.05	10.83	0.56	12.03	0.31	55	-2.63, 3.61	.49***
% **Δ** TPR	4.08	16.11	4.63	21.19	-.18	54	-6.61, 5.52	.30*

Note: Aut Sup refers to autonomy support, Current WB to well-being after talking about each experience, Positivity and Negativity to participant's ratings of how positive and how negative each coming out experience was, Times Told to how many times they reported having told this story before and Time Since to participant's reports of how much time had elapsed since this experience originally occurred (latter two both ordinal). The % **Δ** in each of the physiological indices indicates that values were calculated as percent change scores for each experience relative to baseline. HR, PEP, CO, and TPR stand for Heart Rate, Pre-Ejection Period, Cardiac Output, and Total Peripheral Resistance, respectively.



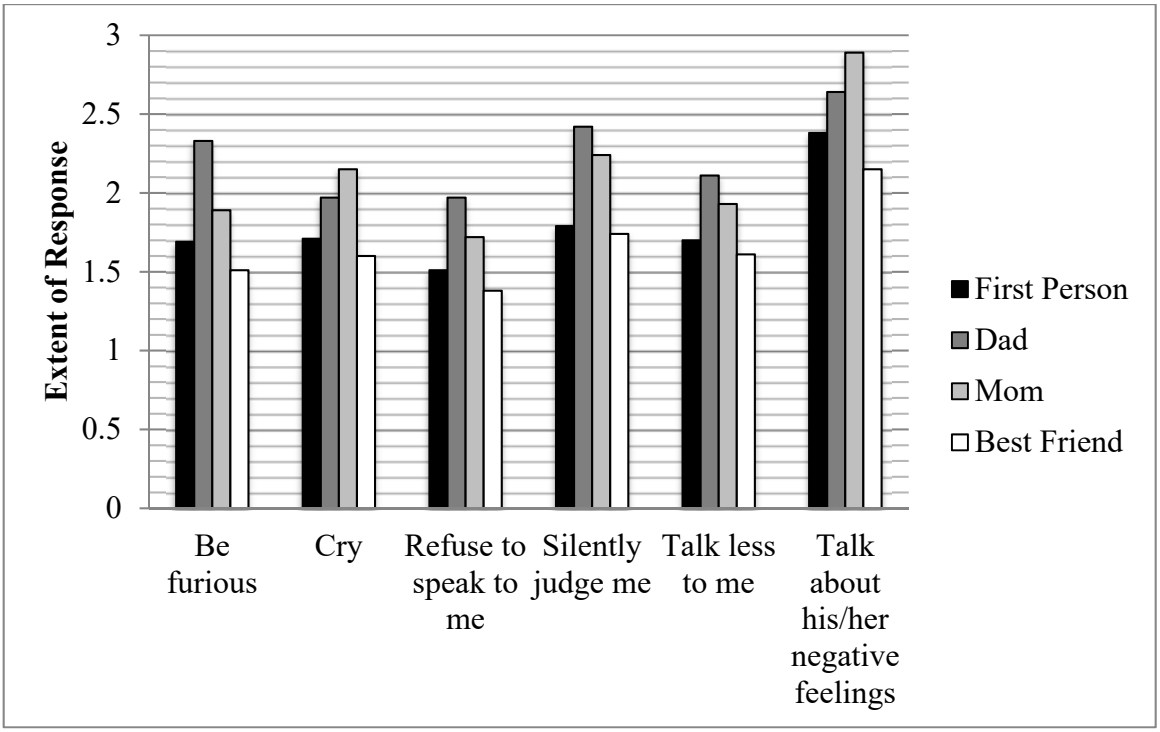


Figure 1(a) and 1(b). Mean values for each type of positive and negative reaction assessed for each disclosure target.

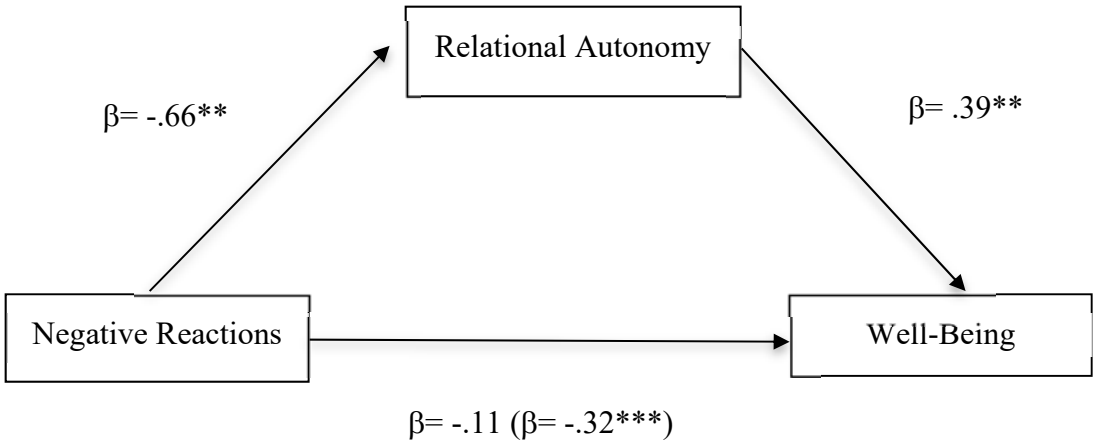


Figure 2. Mediation model of the effect of negative reactions from confidants on wellbeing as mediated by feelings of autonomy with confidants. Standardized path coefficients are shown. On the path from condition to negative affect, parenthetical values represent the effect when controlling for the mediator, and values outside parentheses represent the direct effect when the mediator is not included in the model. Asterisks indicate significant coefficients (*p , .05, **p , .001). The mediation model for the effect of the first confidant's negative reactions follows a similar pattern of results.

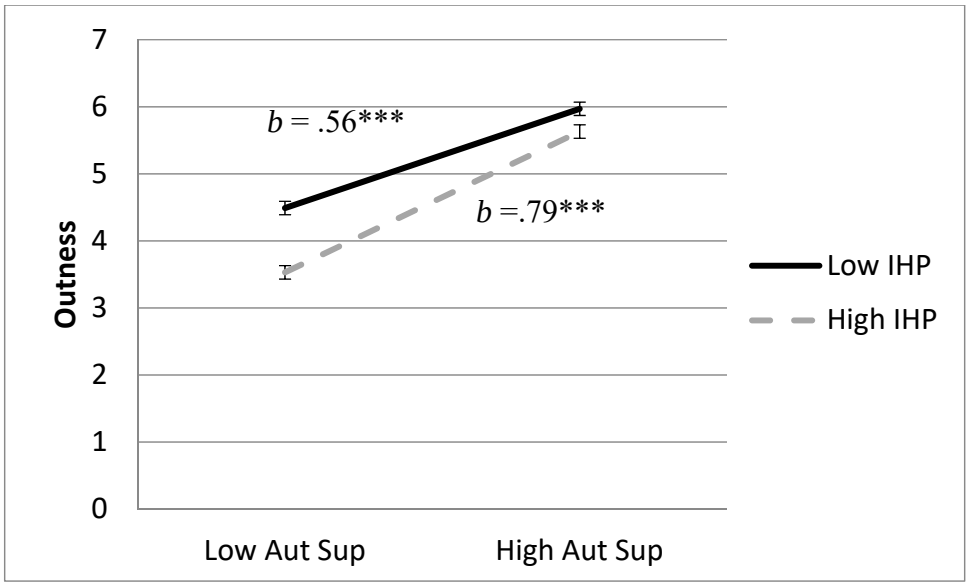


Figure 3. Interaction of internalized homophobia and autonomy support on outness. Slopes for the interaction were calculated at 1 standard deviation above and below the grand mean-centered variables. Bars represent standard errors of the slope estimates. IHP stands for internalized homophobia. Aut sup is short for autonomy support. *Note*: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

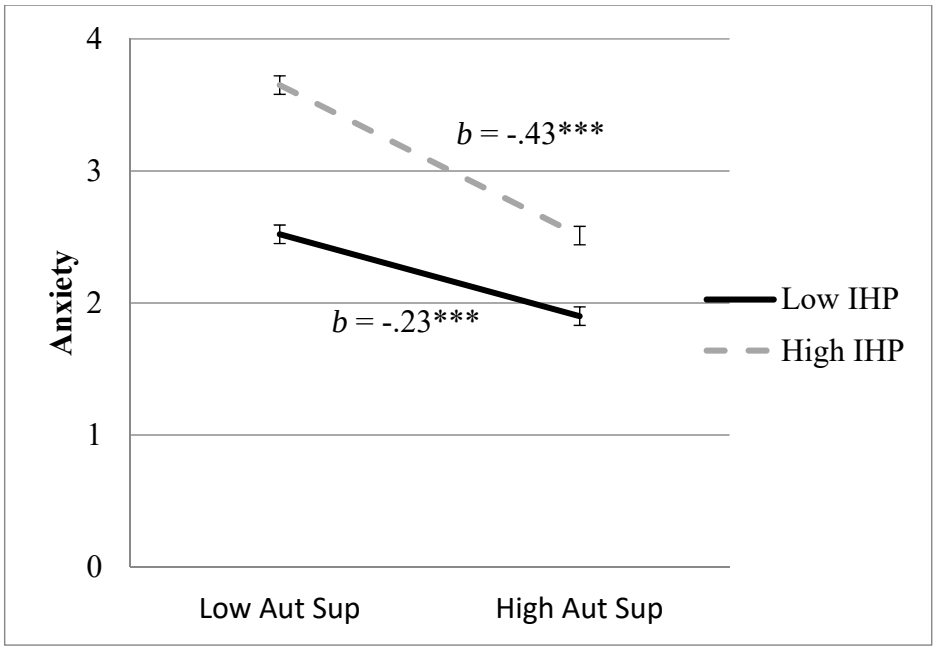


Figure 4. Interaction of internalized homophobia and autonomy support on anxiety. Slopes for the interaction were calculated at 1 standard deviation above and below the grand mean-centered predictor and moderator variables. Bars represent standard errors of the slope estimates. This same pattern of interaction occurs when self-esteem is the outcome. IHP stands for internalized homophobia. Aut sup is short for autonomy support. *Note*: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

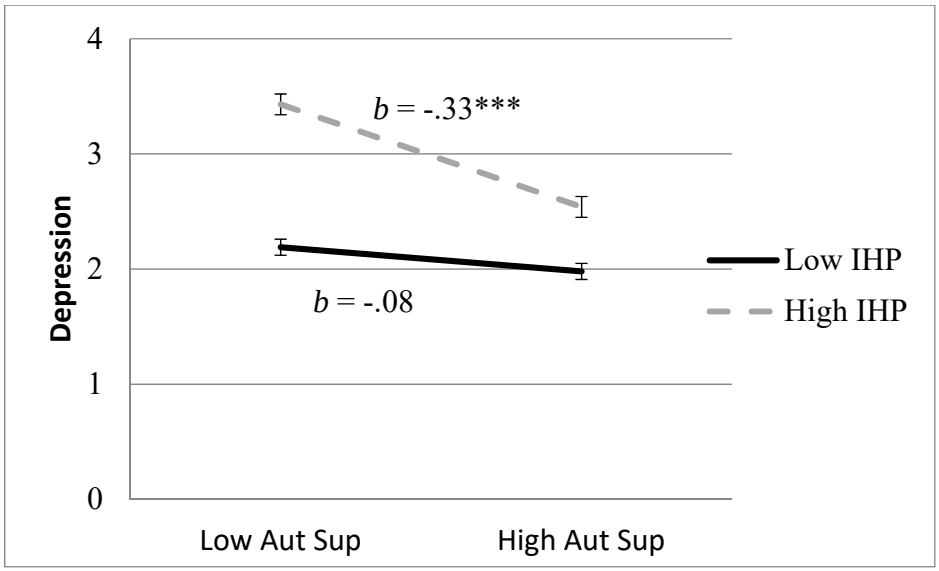


Figure 5. Interaction of internalized homophobia and autonomy support on depression. Slopes for the interaction were calculated at 1 standard deviation above and below the grand mean-centered predictor and moderator variables. Bars represent standard errors of the slope estimates. IHP stands for internalized homophobia. Aut sup is short for autonomy support. Note: *p <.05, **p <.01, ***p <.001.

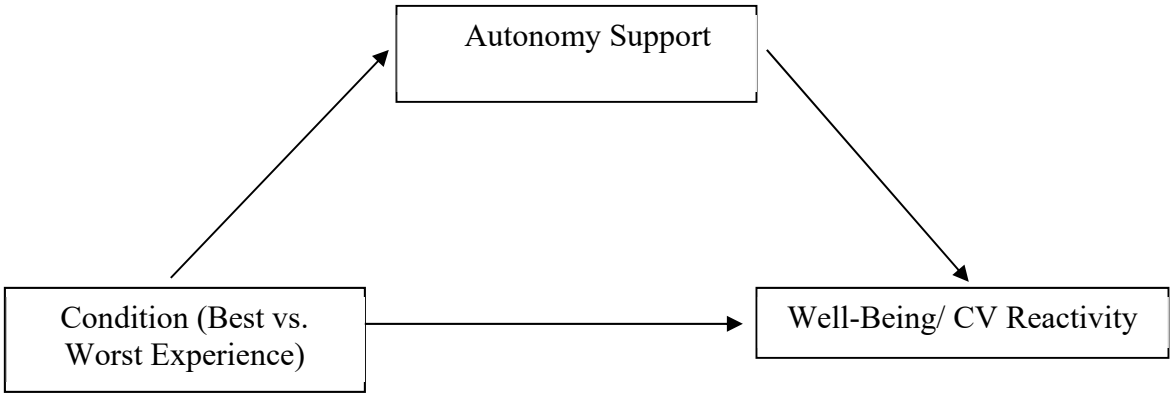


Figure 6. Study 3 Conceptual Model. Testing for mediation by coded autonomy support in the relation between condition (telling worst vs. best coming out experiences) and well-being or cardiovascular reactivity from within person condition.

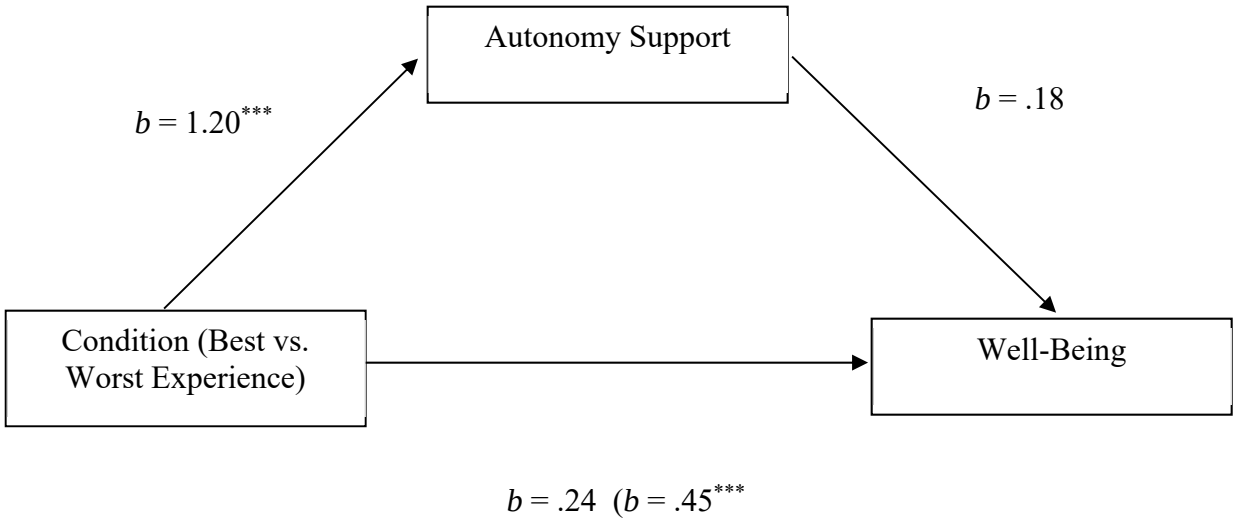


Figure 7. Results of within-person meditational model predicting well-being after discussing each experience from experience type and mediated by autonomy support in each experience (as coded).

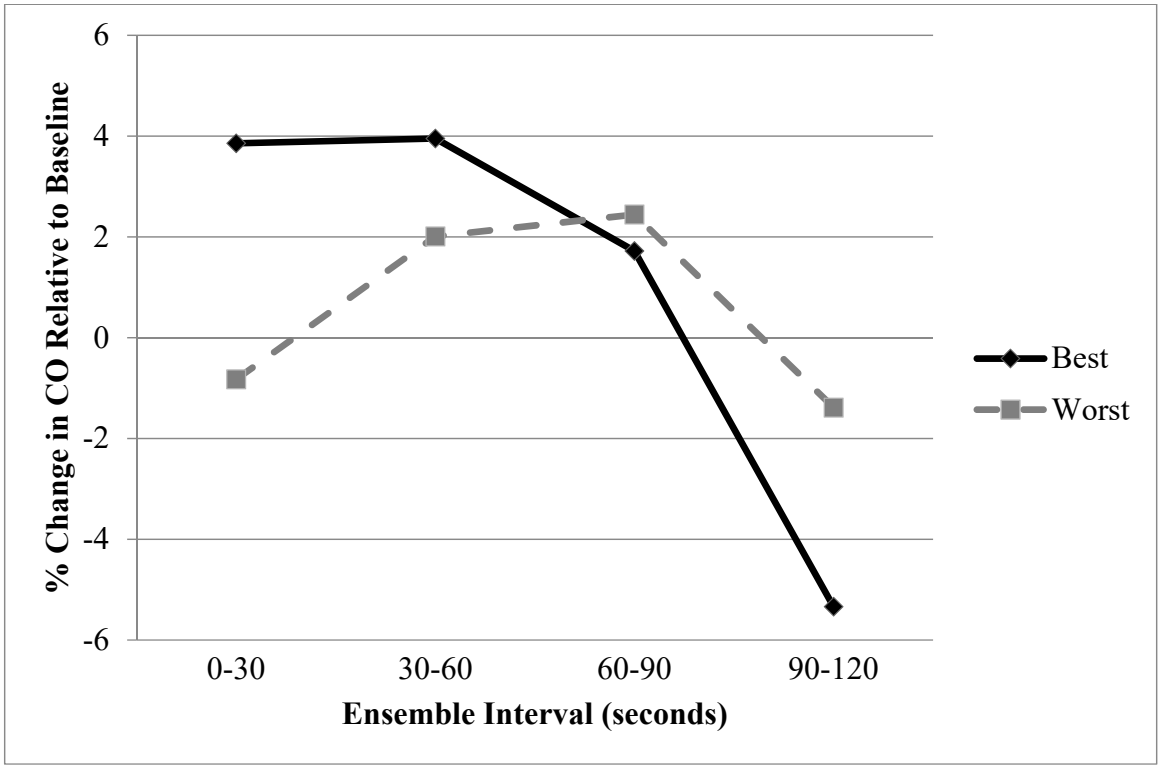


Figure 8. Percent change in Cardiac Output (CO) relative to baseline while telling best and worst coming out experiences. Estimated marginal means from repeated-measures ANOVA plotted for each of the four ensemble intervals.

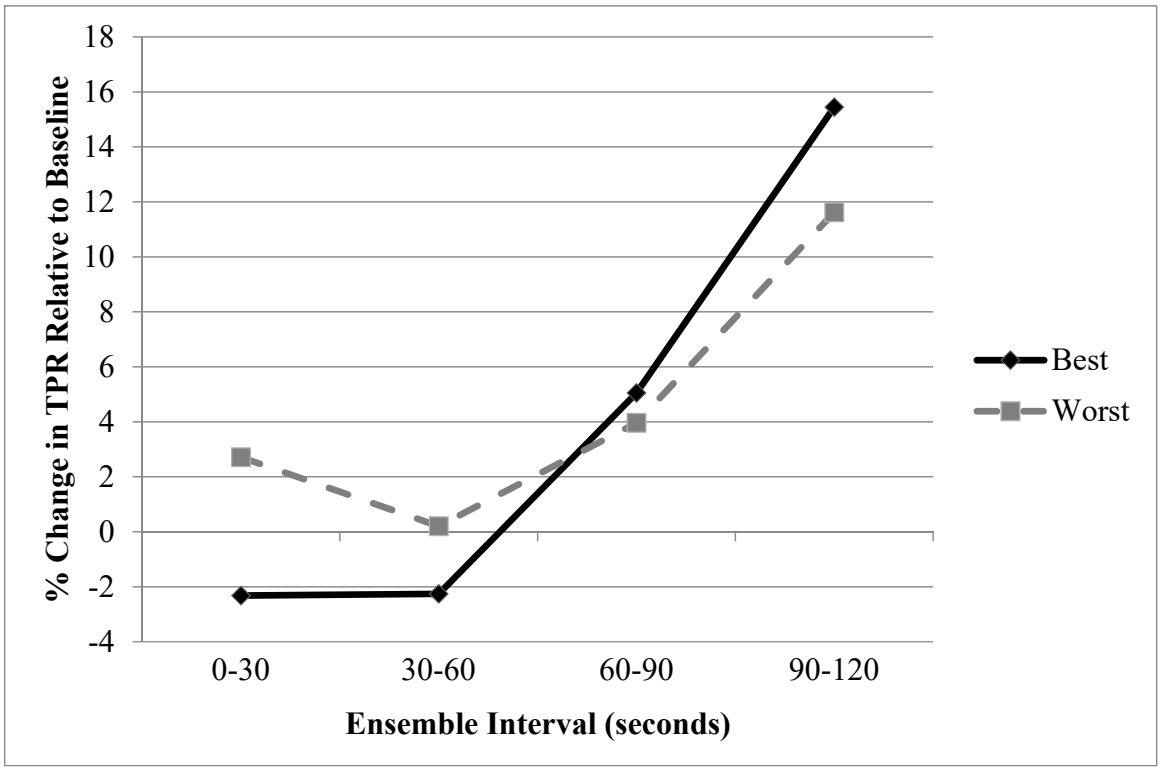


Figure 9. Percent change in Total Peripheral Resistance (TPR) relative to baseline while telling best and worst coming out experiences. Estimated marginal means from repeated-measures ANOVA plotted for each of the four ensemble intervals.

Appendix

Coming Out Coding Sheet

Subject ID Number _____

Coder Initials _____

Confidant's Relationship to Participant (Circle one):

Mom, dad, sibling, other relative, close friend, casual friend, teacher, other _____

Read each essay **twice** to get a "feel" for what the participant is saying.

Use the response scale below for Items #1 – 12.

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree

Rate each item *with reference to how the confidant relates to the participant in general,* and note specific instances in the spaces below.

1. The **confidant** is interested in the participant's perspective (or point of view). ____
2. The **confidant** provides the participant with choices. _____
3. The **confidant** helps the participant explore his/her/their (the participant's) thoughts and feelings. _____
4. The **confidant** is demanding (or pressuring) toward the participant. _____ *
5. The **confidant** is empathic toward (or understanding of) the participant. _____
6. The **confidant** is judgmental toward the participant. _____ *

Note: * indicates items to be reverse coded