Mental Health Disparities between Sexual Minority and Heterosexual Youth: The Role of Emotion Regulation and the Parent-Child Relationship

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Abstract

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A significant body of literature has shown that sexual minority youth (SMY) are at increased risk for mental health problems, including internalizing symptoms, compared to their heterosexual peers. A recent theory suggests that difficulties with emotion regulation may be underlying these disparities, and preliminary evidence supports emotion regulation as a mechanism of risk. However, research to date has only examined a few aspects of emotion regulation among SMY. Furthermore, despite evidence from the broader developmental literature that having a positive parent-child relationship supports youth's emotion regulation, no studies have examined how the parent-child relationship may buffer SMY from difficulties with emotion regulation and subsequent mental health symptoms.

The current study examined the relationship between sexual minority status, emotion regulation strategies, and internalizing symptoms, as well as the role of positive quality of the parent-child relationship. A sample of 278 adolescents, including 38 SMY, completed questionnaires. Sexual minority status was measured by asking respondents to indicate their sexual orientation identity in a multiple-choice format. Nine emotion regulation strategies were measured using the Children's Emotion Regulation Questionnaire (CERQ). Youth's internalizing symptoms were measured using the Children's Depression Inventory (CDI) and the Multidimensional Anxiety Scale for Children (MASC). Quality of the parent-child relationship was assessed using the Inventory of Parent and Peer Attachment – Revised (IPPA-R). Direct effects of sexual minority status on internalizing symptoms were tested using regression. Indirect effects and conditional indirect effects were tested using an SEM framework to generate parameter estimates and bootstrapping procedures were used to estimate the effects and confidence intervals.

Results suggested that sexual minority status was directly associated with more symptoms of depression, but not anxiety. Contrary to hypotheses, no indirect effects of sexual minority status on internalizing symptoms were found through any of the nine emotion regulation strategies. Furthermore, no conditional indirect effects based on quality of the parent-child relationship were found.

Despite the paucity of indirect effects and conditional indirect effects, the current study provides further evidence of disparities in symptoms of depression between SMY and their heterosexual peers. The results of the current study add to what is known about the associations between sexual minority status, emotion regulation, and internalizing symptoms, and contribute to a new direction for research in this area by examining the impact of the parent-child

relationship on youth's outcomes. Implications and recommendations for future research on emotion regulation and mental health among SMY are highlighted.

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CHAPTER 1 | Introduction

Background

Sexual minority youth, including lesbian, gay, bisexual, and other queer/questioning individuals, are at higher risk than their heterosexual peers for a variety of negative mental health outcomes (Saewyc, 2011), including depression (Marshal et al., 2011) and anxiety (D'Augelli, 2002). Recently, deficits in emotion regulation (ER) have been proposed as a possible mechanism explaining the disparities between sexual minority and heterosexual youth in mental health outcomes (Hatzenbuehler, 2009). According to minority stress theory (Meyer, 2003), sexual minority youth experience unique stress arising from being a member of a stigmatized group. Since chronic stress has been associated with difficulties with ER in children (Cicchetti & Toth, 2005; Repetti, Taylor, & Seeman, 2002), sexual minority youth exposed to minority stress may be at increased risk for problems with ER compared to heterosexual peers. Preliminary evidence supports the idea that ER mediates the relationship between sexual orientation and internalizing symptoms (Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008), accounting for part of the disparity between sexual minority and heterosexual youth. Identification of ER as a potential mechanism explaining disparities in mental health outcomes has provided the field with a more proximal risk factor that may be a fruitful target of prevention and intervention programs for LGBQ youth. From a transdiagnostic perspective, bolstering ER would help decrease risk for several mental health outcomes, including internalizing symptoms, making interventions focused on ER applicable across a range of LGB youth (Aldao, Nolen-Hoeksema, & Schweizer, 2010). However, it is unclear what factors may influence and, in particular, buffer sexual minority youth from these ER deficits, and to what extent these factors may be global or specific to sexual minority youth.

Given that youth are developing within the context of a family, one potential avenue of research is to examine family characteristics that have been shown to contribute to adolescents' adjustment and thus may also have an impact on emotion regulation. The broader developmental literature has highlighted the importance of the family context in the development of youth ER. Many aspects of the family context and parent-child relationship may contribute to youth ER, including modeling, direct emotion-related discussion with youth, and the general emotional climate of the family (Morris, Silk, Steinberg, Myers, & Robinson, 2007). Despite evidence that sexual minority youth (SMY) are at risk for ER difficulties and literature demonstrating the associations between parenting and youth ER, most research on parenting and sexual minority youth has focused instead on parents' reactions to their children's disclosure of sexual orientation, particularly supportive or rejecting reactions (Bouris et al., 2010). There is a need for further research examining how broader characteristics of the parent-child relationship are related to youth's ER abilities and subsequent mental health adjustment, including implications for reducing disparities in mental health outcomes between sexual minority and heterosexual youth.

The proposed study aims to address limitations in the literature by testing ER as a mediating mechanism explaining disparities in internalizing symptoms between sexual minority and heterosexual youth, as well as examining how parenting may alter the impact of sexual orientation on youth's ER abilities.

Defining Sexual Minority Youth

Sexual minority is a difficult term to define precisely. Most researchers in the field of sexual orientation agree that it is a multi-dimensional part of a person's identity (Korchmaros, Powell, & Stevens, 2013). Recent evidence shows wide diversity of adolescent sexual orientation

across dimensions of identity labels, sexual attraction, sexual behavior, among others (Russell, Clarke, & Clary, 2009). Due to this variety, researchers in the field have attempted to measure sexual orientation in many ways, commonly by utilizing individual's reports of either sexual/romantic attraction, sexual behavior, or a sexual identity label (e.g., "gay," "lesbian;" Savin-Williams, 2009). For instance, research based on the National Longitudinal Study of Adolescent to Adult Health (Add Health) sample has often defined SMY in terms of same-sex attraction (e.g., Hatzenbuehler, McLaughlin, & Xuan, 2012; Russell & Joyner, 2001). By this measure, adolescents endorsing same-sex attraction, including youth who also report other-sex attraction, would be classified as sexual minority, whereas adolescents endorsing only other-sex attraction would be classified as heterosexual. Advantages of this approach include ease of reporting. However, there are also disadvantages. For example, recent work examining the Add Health dataset has shown that over 70% of youth endorsing same- or both-sex attractions at Wave 1 identified as exclusively heterosexual by Wave 4 (Savin-Williams & Joyner, 2014). There is some evidence that these adolescents may have simply misunderstood the question, or that they deliberately provided false data. These inconsistent "jokester" youth tended to be more dishonest on other questionnaires and have higher rates of delinquent behaviors, which the authors argue may have skewed outcome data for sexual minority adolescents (however, see Li, Katz-Wise, & Calzo, 2014, for a different perspective). In addition, there are advantages of other approaches to measuring sexual orientation. For example, when examining constructs such as internalized homophobia or homonegativity, other aspects of identity may be more salient, such as importance of group membership to one's identity, or evaluations of the group with which one identifies compared to other groups (Mohr & Kendra, 2011).

Unfortunately, the diversity in measurement of sexual orientation can make it difficult to generalize and compare across studies. They may be capturing overlapping but different groups of youths. For example, youth who would endorse same-sex attraction or behavior in one study may identify as heterosexual in another. Similarly, youth who identify as LGBQ may not have experienced or report same-sex behavior. Furthermore, when identity labels are used to group SMY in research studies, they are often limited to "gay," "lesbian," and "bisexual," despite evidence that a substantial minority of adolescents may identify using newer terms (e.g., "questioning," "queer;" Russell et al., 2009). In addition, although sexual orientation and gender identity are separate constructs, some research includes transgender youth under the broad umbrella of "LGBT" or "LGBTQ," making it difficult to distinguish between experiences specific to sexual or gender minority status. It should also be noted that previous research has often assumed that LGB individuals are cisgender and thus has not captured the degree to which SMY may also identify as a minority gender identity (Galupo, Mitchell, & Davis, 2015). In reviewing the relevant literature, I generally use the term "sexual minority," but also use the terms "LGB" or "same-sex attracted" when discussing specific studies or theoretical frameworks that have relied on these categorizations.

Mental Health Disparities

LGB adults have been shown to be at higher risk for a variety of mental health problems than their heterosexual counterparts (Meyer, 2003). More recent evidence suggests that this higher risk is also evident among sexual minority youth (Mustanski, Garofalo, & Emerson, 2010; Saewyc, 2011), suggesting that trajectories of outcomes are evident at young ages and thus youth may be a particularly important point of intervention with LGB individuals. These mental health problems in sexual minority youth encompass a wide range of internalizing and externalizing psychosocial outcomes. For example, sexual minority youth are at higher risk than their

heterosexual peers for substance use and abuse (Marshal et al., 2008), including for smoking cigarettes (Corliss et al., 2013), initiating alcohol use at a younger age and engaging in heavy drinking (Corliss et al., 2008), and using illicit drugs and misusing prescription drugs in the past year (Corliss et al., 2010). Research has also demonstrated that LGB adolescents may be at increased risk for body dissatisfaction and eating disordered behavior. Body dissatisfaction is particularly likely among gay and bisexual boys (French, Story, Remafedi, Resnick, & Blum, 1996). However, both male and female LGB youth are still at risk for higher rates of eating disordered behavior, including dieting, binging, and purging, than their heterosexual peers (French et al., 1996; Austin et al., 2004; Austin et al., 2009).

Disparities in internalizing disorders, including depression and anxiety, may be of interest given that adolescence is a period of increased vulnerability for internalizing disorders to manifest (McLaughlin & King, 2015). Studies have shown high rates of U.S. adolescents meet diagnostic criteria for mood disorders (10%) and anxiety disorders (25%) within the past year (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). Furthermore, adolescents experiencing anxiety and depressive disorders appear to have a strong risk for recurrent internalizing disorders or other psychiatric problems in adulthood (Pine, Cohen, Gurley, Brook, & Ma, 1998). Adolescent mood disorders in particular are associated with suicide (Shaffer, Gould, Fisher, Trautman, Moreau, Kleinman, et al., 1996). Understanding disparities between sexual minority and heterosexual youth in internalizing symptoms, including identification of mechanisms explaining those disparities, may lead to more effective intervention with SMY that can prevent these negative sequalae.

Lesbian, gay, and bisexual adolescents have been shown to be at higher risk for depression than heterosexual youth (Saewyc, 2011). A recent study using diagnostic interviews

found that about 18% of lesbian and gay, and about 7% of bisexual youth met criteria for major depression, although there was no heterosexual group for comparison (Mustanski, Garofalo, & Emerson, 2010). Another study of New Zealand-born young adults found that 71.4% of LGB individuals met criteria for major depression at some between 14 and 21 years old, and they were 4 times more likely to have major depression than their heterosexual peers (Fergusson, Horwood, & Beautrais, 1999). Findings from a meta-analysis of 12 studies examining disparities in depression found a small to moderate, but significant, effect of sexual orientation, such that LGB youth had a higher risk of depression (Marshal et al., 2011). This effect was especially pronounced when depression was measured using a single item rather an inventory. There is some evidence that these disparities are evident early in adolescence, particularly for LB girls and bisexual youth (la Roi, Kretschmer, Dijkestra, Veenstra, & Oldehinkel, 2016). Higher rates of depression may also be associated with higher risk for other mental health difficulties. One study which found that sexual minority youth scored higher on measures of both depression and hopelessness than their heterosexual peers (Safren & Heimberg, 1999), also noted that these differences accounted for the disparities in suicidality between the two groups.

Suicidality is a related mental health outcome of interest. Research in this area, including small- and large-scale studies, have consistently found that self-harm, suicidal ideation, suicide plans, and suicide attempts are more prevalent among sexual minority youth than their heterosexual peers (Russell & Joyner, 2001; Saewyc, 2011; Safren & Heimberg, 1999; Stone, Luo, Ouyang, Lippy, Hertz, & Crosby, 2014). A recent meta-analysis of 20 studies of suicidality (ideation, plans, and attempts) found that, on average, about one-third of LGB youth reported a history of suicidality compared with about 12% of heterosexual adolescents, with consistently large to very large effect sizes (Marshal et al., 2011).

Sexual minority youth have been shown to be at higher risk for symptoms of anxiety disorders as well. For instance, in a sample of young adult undergraduate students (mean age = 18.8 years), participants identifying as LGBQ were more likely than heterosexual participants to reach a clinical level of self-reported symptoms for generalized anxiety disorder (GAD) and social phobia (Cohen, Blasey, Taylor, Weiss, & Newman, 2016). They also reported higher severity of GAD, social phobia, PTSD, and panic symptoms. Another sample of young adults in New Zealand also found higher rates of generalized anxiety disorder among LGB participants compared to heterosexuals (Fergusson et al., 1999). In a population-based sample, LGB adolescents were consistently more likely to screen positively for post-traumatic stress disorder (PTSD) than a heterosexual referent group, although these differences only reached statistical significance among specific subgroups (mostly heterosexual boys and girls, and bisexual and lesbian girls), most likely due to small sample sizes of bisexual and gay men (Roberts, Rosario, Corliss, Koenen, & Austin, 2012). These results are consistent with findings from a large epidemiological study of sexual minority adults (Roberts, Austin, Corliss, Vandermorris, & Koenen, 2012).

Although the links between sexual minority status and negative mental health outcomes have been well established in both adults and youth, it is important to note some recent concerns raised over some of this research. Much of the large-scale work that has been done in this area has utilized data from the National Longitudinal Study of Adolescent Health (Add Health; e.g., Russell & Joyner, 2001). As noted above, recent work has shown that over 70% of youth endorsing same- or both-sex attractions at Wave 1 identified as exclusively heterosexual by Wave 4 (Savin-Williams & Joyner, 2014). There is some evidence that these adolescents may have simply misunderstood the question, or that they deliberately provided false data. These

inconsistent "jokester" youth tended to be more dishonest on other questionnaires and have higher rates of delinquent behaviors, which the authors argue may have skewed data to show that sexual minority adolescents are experiencing poorer outcomes than they actually are. Although this is worth taking into consideration in evaluating past research and designing future studies using the Add Health data, it is also important to note that evidence of poor mental health in LGB youth has been supported by research from other large and small datasets, as well as by meta-analyses that aggregate multiple findings.

Given general acceptance in the field that LGB youth experience higher rates of mental health problems than their heterosexual peers, researchers have begun to identify specific theories explaining *how* sexual minority status leads to increased rates of suicidality, depression, and other problems (Meyer, 2003; Ueno, 2010). Although prior to 1973, homosexuality was considered a mental illness in and of itself, research has since moved away from pathologizing sexual orientation to examining the environmental circumstances associated with sexual minority status that contribute to mental health disparities (Mays & Cochran, 2001). Seminal work on minority stress theory (Meyer, 2003) proposes that LGB adolescents and adults are at higher risk for mental health problems than heterosexual individuals due to the stigma and discrimination they face in a heterosexist environment. This model distinguishes between two types of minority stress processes: distal and proximal. *Distal* processes are described as "external, objective stressful events and conditions (chronic and acute)" (Meyer, 2003, p. 676). This includes laws and policies of institutions such as schools, as well as overt discrimination and victimization at higher rates than heterosexual peers (Berlan, Corliss, Field, Goodman, & Austin, 2010). In addition to these distal processes, SMY face *proximal* minority stress processes; that is, subjective stressors related to internalization of negative sexual attitudes and concealment of

identity (Cox, Dewaele, van Houtte, & Vincke, 2011; Meyer, 2003). Examples of proximal stress processes include concealment and disclosure of identity (Meidlinger & Hope, 2014), disclosure decisions (Pachankis, 2007), and hypervigilance of threats to having their identity discovered (Hatzenbuehler, Dovidio, Nolen-Hoeksema, & Phills, 2009). Concealment of sexual minority status may also impede access to social support from others in the LGB community. Research has found that various facets of minority stress are linked to symptoms of psychopathology in LGBQ adolescents, including school policies (Hatzenbuehler, Birkett, Van Wegenen, & Meyer, 2014), victimization due to sexual orientation (Goldbach, Tanner-Smith, Bagwell, & Dunlap, 2013), and perceived discrimination (Almeida, Johnson, Corliss, Molnar, & Azrael, 2009).

Minority stress theory has provided a crucial framework in which to examine health outcomes among LGB individuals. It is important to note there have been few studies directly examining the impact of minority stress on adjustment and mental health among SMY (e.g., Almeida et al., 2009; Goldbach et al., 2013). However, minority stress processes suggest several ways that sexual minority status is associated with unique stressors in addition to typical stress experienced by adolescents. More recently, researchers have begun to identify more proximal mechanisms of risk that describe how sexual minority status and associated stigma-related stress affect mental health. One influential framework proposed by Hatzenbuehler (2009) points to three areas of risk in sexual minority individuals: cognitive processes that exacerbate or maintain symptoms, such as hopelessness and negative self-schemas; social/interpersonal problems, such as isolation or risky social group norms; and emotion regulation/coping, including strategies such as rumination.

Emotion Regulation as a Mechanism of Risk

Definition of ER

Many definitions of emotion regulation (ER) have been used within the field. Thompson and Meyer (2007) conceptualize ER as "the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals." Given that emotions are multisystemic, involving physiological, cognitive, and behavioral aspects, ER necessarily captures a wide range of processes (Koole, 2009). Theoretical models have often guided the research on ER, such as Gross's (1998) process model, which divides ER strategies that target antecedents to emotions versus emotional responses. In Hatzenbuehler's (2009) model linking sexual minority stress to mental health outcomes, he provides two examples of mediating ER processes: rumination, which is described as a "maladaptive emotion regulation strategy" (p. 716) and coping motives, which may involve the "strategic use of alcohol to escape, avoid, or otherwise regulate negative emotions" (Coopers, Frone, Russell & Mudar, 1995, p. 991). Although coping is referenced in the model and treated as synonymous with ER, both examples suggest a specific focus on regulating affect. Koole (2009) has highlighted the significant theoretical overlap between ER and related concepts like coping, and argues that a broad conceptualization of ER that includes regulation of all emotionally-charged states, including stress and mood, may be most useful for guiding research efforts.

ER as a mechanism of risk

When considering Hatzenbuehler's (2009) mediating mechanisms of risk within an adolescent population, there is reason to believe that difficulties with ER may be particularly salient. Adolescents have a heightened need for effective regulatory skills because they experience stronger negative affect than do younger children or adults, and these negative emotions are associated with poorer mental health outcomes (Larson & Ham, 1993; Larson,

Moneta, Richards, & Wilson, 2002). ER skills may be particularly useful for sexual minority youth as they have been shown to experience a broad range of negative emotions regarding their stigmatized identity and experiences of discrimination, including shame, fear, sadness, guilt, and loneliness (McDavitt et al., 2008).

In the broader clinical literature, ER difficulties have been implicated as a major factor underlying multiple forms of psychopathology (Aldao, Nolen-Hoeksema, & Schweizer, 2010). As described above, SMY are at higher risk for a range of mental health disorders, suggesting that an underlying transdiagnostic factor like ER may be playing a role. In addition, self-identified SMY have also been found to report more features of borderline personality disorder, a disorder theorized to be characterized by emotional dysregulation (Linehan, 1993), compared to heterosexual peers (Reuter, Sharp, Kalpakci, Choi, & Temple, 2016). Given recent therapeutic advances designed to address ER skills (e.g., Linehan, 1993), identifying whether deficits in ER are a major risk factor for psychopathology in LGB youth may help guide clinical interventions with these adolescents. Indeed, a recent randomized controlled trial of an LGB-affirmative cognitive-behavioral therapy intervention targeting emotion regulation led to reduced depression and anxiety symptoms among young gay and bisexual men who participated compared to waitlist controls (Pachankis, Hatzenbuehler, Rendina, Safren, & Parsons, 2015). The present study will focus on ER because it has been identified both as a mediating process between sexual minority status and mental health outcomes, as well as a transdiagnostic point of intervention.

ER and Internalizing Symptoms

To date, there is limited, yet promising, evidence supporting ER as a mechanism explaining disparities in internalizing symptoms between heterosexual and sexual minority youth. Among studies examining ER as a mediating process, one study was conducted among a

large community sample of 11- to 14-year-old middle school students (Hatzenbuehler et al., 2008). Results showed that same-sex attraction predicted higher self-reported symptoms of depression and anxiety seven months later. Higher levels of self-reported rumination, as well as lower emotion awareness, significantly mediated the relationships between same-sex attraction and internalizing symptoms. A smaller study including 31 self-identified LGB young adults (mean age = 21) demonstrated that participants' self-reported use of rumination and suppression strategies mediated the relationship between their negative implicit attitudes toward sexual minority individuals and their daily diary reports of negative affect (e.g., distress, upset, nervous, afraid, shame; Hatzenbuehler et al., 2009). Another study examined the related construct of coping as a mediator between same-sex attraction and psychological distress among a large community sample of Dutch 12- to 15-year-olds (Bos, van Beukseom, & Sandfort, 2014). The authors found that youth's reports of using passive coping strategies, such as worrying about the past, partially mediated the relationship between same-sex attraction and self-reported distress, while problem-solving and avoidant strategies were not significant mediators. It is notable that the description of passive coping in this study is very similar to the ER strategy of rumination. Research in this area, although limited, so far suggests that rumination is a consistent mechanism of risk for negative mental outcomes among SMY.

Despite the dearth of evidence for ER as a mechanism of risk among sexual minority individuals specifically, evidence that general stress and adversity contribute to difficulties with ER supports this hypothesized link. Research has indicated that when members of other stigmatized groups, such as racial/ethnic minorities, cope with stigma and discrimination, their general self-regulation abilities are compromised (Inzlicht, McKay, & Aronson, 2006). There is also evidence that chronic stress during childhood, such as living in a maltreating or otherwise

risky family environment, is associated with a host of difficulties in regulating emotion, including changes in physiological systems related to regulatory abilities and deficits in emotional understanding (Cicchetti & Toth, 2005; McLaughlin, Rith-Najarian, Dirks, & Sheridan, 2015; Repetti, Taylor, & Seeman, 2002). Because LGB adolescents are at increased risk relative to their heterosexual peers for experiencing early life adversity including child abuse (McLaughlin, Hatzenbuehler, Xuan, & Conron, 2012), they may also be especially likely to develop ER problems. SMY are also at risk for other forms of victimization, including that perpetrated by peers (Friedman, Koeske, Silvestre, Korr, & Sites, 2006). Two large-scale studies of young adolescents have found that emotion dysregulation, including dysregulated expressiveness and rumination, mediates the relationship between peer victimization and internalizing symptoms (McLaughlin, Hatzenbuehler, & Hilt, 2009) and aggressive behavior (Herts, McLaughlin, & Hatzenbuehler, 2012). Taken together, this research suggests that SMY, who are at increased risk for family rejection, victimization, and other forms of adversity because of their sexual orientation, are at risk for experiencing a range of ER difficulties, including maladaptive physiological responses to stress and poorer management of negative emotions.

Although there is literature supporting a link between stress and ER, it is important to note that research specific to these processes in LGB adolescents is still limited. Few studies have examined this mechanism, and only one has utilized a large sample to compare heterosexual and SMY (Hatzenbuehler et al., 2008). This was also the only study to look specifically at symptoms of internalizing disorders rather than the more ambiguous construct of psychological distress. More research is needed to test whether ER is a mechanism of risk that can account for part of the disparities in internalizing problems between SMY and their heterosexual peers.

Furthermore, a limited number of ER strategies have been examined in research thus far, with a focus on rumination and suppression. This emphasis is understandable given the links that have been shown between these specific strategies and internalizing symptoms (Aldao et al., 2010). For example, a meta-analysis of over 200 studies among adult samples found moderate correlations between rumination and symptoms of both depression and anxiety (Olatunji, Naragon-Gainey, & Wolitzky-Taylor, 2013). However, it may be useful to examine other ER strategies and their relative contribution to mental health outcomes, which could point to new potential targets of intervention. It will be important to examine how well other aspects of ER fit this model, particularly those which may be amenable as targets of intervention, such as reappraisal, problem solving, and acceptance (Aldao et al., 2010).

It is also possible that some ER strategies are associated with higher rates of some symptoms but not others. Research among adults suggests that maladaptive strategies, like rumination, suppression, and disengagement, may be more predictive of symptoms of depression and anxiety than adaptive strategies, such as positive reframing, acceptance, and problem-solving (Aldao & Nolen-Hoeksema, 2010; Aldao & Nolen-Hoeksema, 2011). Among adolescents, Garnefski & Kraaij (2006) found that the strategies of self-blaming, catastrophizing, and rumination are significantly associated with symptoms of depression, while positive refocusing and positive reappraisal are inversely significantly associated with those symptoms. In contrast, there are fewer studies that have examined specific strategies associated with anxiety, but there is some evidence that the strategies of catastrophizing and other-blaming may be particularly salient (Garnefski & Kraaij, 2016). Examining the relative association of maladaptive and adaptive ER strategies to internalizing symptoms would provide a more nuanced understanding of how ER may operate as a mechanism of risk. Based on previous research, it is reasonable to

predict that positive refocusing, positive reappraisal, self-blaming, catastrophizing, and rumination may account in part for disparities in depression symptoms between SMY and heterosexual youth, while catastrophizing and other-blame may account for disparities in anxiety symptoms.

In sum, ER seems to play a role in placing SMY at risk for mental health problems in the face of minority stress. In considering how best to target prevention and intervention with LGB adolescents, focusing on their ER abilities may be useful for several reasons. First, ER deficits are a more proximal influence on mental health than sexual orientation and minority stress. Second, ER is an individual characteristic that would be amenable to targeting with individual or family interventions. Third, from a transdiagnostic perspective, bolstering ER would help decrease risk for internalizing disorders as well as other mental health outcomes, making interventions focused on ER applicable across all SMY. To develop these types of interventions, it will be helpful to identify factors that may impact the relationship between sexual minority status and ER strategies. Given that many LGB youth are developing within the context of a family, one potential avenue of research would be examining family characteristics that have been shown to contribute to adolescents' adjustment and emotion regulation.

Role of the Parent-Child Relationship

Parenting SMY

Within the literature on sexual minority youth and mental health outcomes, there has been a great deal of attention paid to family factors influencing child adjustment. In general, adolescents from a variety of cultural, racial, and ethnic backgrounds experience the best outcomes when they receive parenting that is warm, firm, and allows for psychological autonomy (Steinberg, 2001). However, due to the unique experiences and stressors faced by

SMY, it has been important to examine other aspects of parenting that may contribute to disparities in adjustment and mental health between heterosexual and sexual minority youth. Research conducted in this area has tended to examine parental reactions to their child's disclosure of their sexual minority status and qualities of the parent-child relationship as important predictors of youth outcomes (Bouris et al., 2010).

Many SMY fear parental rejection following disclosure of their sexual identity (D'Augelli, 2006). Often, parents do experience a negative reaction, at least initially, but researchers have documented a wide range of reactions from parents to their child's disclosure of sexual minority status, from sadness, denial, and anger to tolerance, acceptance and happiness (Willoughby, Doty, & Malik, 2008). Interviews with over 500 LGB youth indicated that, among parents who knew about their child's sexual orientation, youth reported about half reacted negatively and half positively (D'Augelli, Grossman, & Starks, 2008). Negative reaction from parents or family members was a commonly noted stressor among LGB and transgender youth of color (Kuper, Coleman, & Mustanski, 2014). Parental rejection of sexual orientation is often a source of major distress for SMY, whether it takes the form of explicit and hurtful rejection, or more subtle and unspoken disapproval (Diamond et al., 2011). At the extreme end, psychological maltreatment from parents is a significant predictor of depression and anxiety symptoms among LGB youth (Puckett et al., 2016).

In contrast to rejection, parental acceptance is generally characterized by close, warm parent-child relationships and support for youth's sexual identity (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010). A large-scale study examining the impact of parental acceptance included over 1,900 LGB adolescents aged 12 to 17 years old who completed an online survey responding to questions about sexual orientation, life stress, family support, and illegal drug use (Padilla,

Crisp, & Rew, 2010). Results showed a protective impact of positive maternal reactions to disclosure of sexual minority status on adolescents' illegal drug use. Similarly, LGB and transgender young adults (21 to 25 years old) who recalled higher levels of acceptance of and support for their sexual identity from parents during adolescence reported higher current levels of self-esteem and general health, and lower levels of depression, suicidality, and substance abuse. This effect was robust, persisting even after controlling for other family characteristics, such as ethnicity, immigration status, and childhood religious affiliation. Other research conducted in this sample compared the impact of acceptance and support from family, friends, and community on youth's well-being (Snapp, Watson, Russell, Diaz, & Ryan, 2015). The authors found that parental acceptance/support during adolescence was the strongest predictor of self-reported self-esteem and positive adjustment in young adulthood, compared to support from friends or the LGB community

While parental acceptance and support specific to sexual minority status is associated with positive outcomes for SMY, there is also evidence that general supportiveness, warmth, and positivity in the parent-child relationship may play a role. Close and supportive parent-child relationships are associated with fewer depressive symptoms and less suicidality among SMY (Bouris et al., 2010). Needham and Austin (2010) used data from Wave 3 of the Add Health study, when youth were 18 to 26 years old, and found that higher levels of general emotion support from parents were associated with decreased odds of depressive symptoms and suicidal thoughts as measured by self-report. Among a sample of 91 Asian American SMY, lower perceived levels of family caring were associated with lower self-esteem and greater emotional distress (Homma & Saewyc, 2007). In another study using data from Wave 2 of the Add Health study, youth who reported feeling cared for by parents reported fewer depressive symptoms and

less suicidality (Teasdale & Bradley-Engan, 2010). However, same-sex attracted youth reported feeling less cared for by their parents than heterosexual youth, accounting for a portion of the relationship between sexual orientation and mental health outcomes. Notably, youth's perception of feeling cared for by parents was measured by a single item in this study. Similarly, another study of over 80,000 6th, 9th, and 12th grade students found that youth who endorsed a same-gender sexual behavior in the past year reported less parental connectedness than youth who did not report such behavior (Eisenberg & Resnick, 2006). In turn, parental connectedness significantly decreased the relationship between same-gender sexual behavior and youth's report of past suicidal ideation and attempts. Other research has noted similar disparities in perceptions of caring and support from parents between SMY and heterosexual youth. For example, Ueno (2005) found that SMY in Wave 1 and Wave 2 of Add Health study were more likely to report arguments with their parents over the past month and were less likely to report feeling close to parents, cared for by parents, and satisfied with their relationships with their parents than heterosexual youth. Among young adults in Wave 3 of Add Health study, young lesbian and bisexual women and gay men reported lower levels of parents' general emotional support than heterosexual men and women and bisexual men (Needham & Austin, 2010).

However, there is also evidence that general parent supportiveness is not effective as a buffer for SMY in the context of victimization. In a study of over 17,000 7th through 12th grade students, although general parental support and involvement buffered heterosexual teens from the effects of homophobic victimization on suicidal ideation, there was no effect on any outcome for LGBTQ youth (Poteat, Mereish, DiGiovanni, & Koenig, 2011). Homophobic victimization was measured using a single item asking youth to rate how often they had experienced teasing or bullying due to being perceived as gay, lesbian, or bisexual over the past 12 months. Another

study used a more comprehensive measure of victimization to assess the protective effect of family support in a sample of 425 LGB youth ages 16 to 24 (Mustanski, Newcomb, & Garofalo, 2011). Consistent with previous results, the researchers did not find that youth's report of family support, connectedness, and cohesion mitigated the effects of victimization on psychological distress. It may be that general parental support is not enough to counteract such overt minority stressors; indeed, previous researchers have suggested that parental support specific to sexual minority identity may be necessary (Poteat et al., 2011).

The evidence highlighting parent and family support as important buffers against negative outcomes is consistent with research in other marginalized groups. For instance, supportive parenting is shown to moderate the impact of racial/ethnic discrimination on adjustment among African American (Gibbons et al., 2010) and Latino/a adolescents (Behnke, Plunkett, Sands, & Bamaca-Colbert, 2011). However, it is interesting to note that whereas parents of racial minority children are typically of racial minorities themselves, this is rarely the case for parents of LGB youth. Heterosexual parents who have not experienced the same discrimination as their children may have a more challenging time offering understanding and support. Therefore, there may be more need to identify and describe specific contributions parents can make to support the mental health of their LGB adolescents than in other populations that experience discrimination.

Despite evidence highlighting the association between parental acceptance and supportiveness and the mental health and adjustment of SMY, there is little empirical information about *how* the parent-child relationship is impacting psychosocial outcomes. The focus on ER as a mechanism of risk points to an avenue for further examination in this area; namely, how might qualities of the parent-child relationship protect SMY from ER difficulties?

The Parent-Child Relationship and ER

There is broad support for the idea that parents play a key role in the socialization of youth's understanding, expression, and regulation of emotion in general populations (Eisenberg, Cumberland, & Spinrad, 1998). Parents are the main socialization agent for their children in young childhood, but even during adolescence, a period characterized by increasing independence from parents and increasing influence of peers, parents continue to have an impact on youth's emotional development (Katz & Hunter, 2007; Klimes-Dougan et al., 2007; Yap, Allen, & Sheeber, 2007). In their review of associations between the family context and children's ER development, Morris and colleagues (2007) identified three ways by which the family influences children's ER. First, children can "catch" emotions from family members (Saarni, Mumme, & Campos, 1998) and may observe and model how parents and other family members express and manage emotion (Bariola, Hughes, & Gullone, 2012). Second, parents' direct emotion-related parenting practices contribute to youth's ER development. Parents may impart information about emotions to their children by reacting to emotional displays with encouragement or punishment, by labeling the youth's emotion, and by engaging the youth in discussion about the experience of the emotion and how to change it (Eisenberg et al., 1998; Gottman, Katz & Hooven, 1996). Finally, general emotional climate of the family can also impact children's ER. Within this category, Morris et al. (2007) identified factors as varied as interparental conflict (Siffert & Schwarz, 2011), parent-child attachment (Brumariu, 2015), and negative, harsh, or psychologically controlling parenting styles (e.g., Cui, Morris, Criss, Houltberg, & Silk, 2014). Although specific parenting practices certainly play a large part in shaping children's ER, some researchers have argued that these practices, including those

described above, are best understood as being embedded in the broader emotional context of the parent-child relationship (Laible, Thompson, & Froimson, 2007).

There is limited research describing the association between characteristics of the parent-child relationship and adolescents' ER. A few cross-sectional studies have looked at attachment security as an indicator of a positive parent-child relationship in predicting adolescents' ER. Attachment security has been associated with better emotion regulation in youth (Hershenberg et al., 2011; Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1993), although attachment insecurity has not been correlated with any measure of emotion regulation (Zimmer-Gembeck et al., 2015). A review of the literature found that attachment has small to moderate associations with ER and coping among young and school-age children (Zimmer-Gembeck et al., 2015). Looking at more specific aspects of the attachment relationship, research using the Inventory for Parent and Peer Attachment (Armsden & Greenburg, 1987), a measure of adolescents' perceptions of cognitive and affective dimensions of their relationship with their parents, has shown that parent-child relationships characterized by higher levels of trust and communication and lower levels of alienation are associated with more adaptive ER (Biesecker, 2001). For example, one cross-sectional study of children and adolescents aged 10 to 18 years old found that higher quality parent-child relationships, as measured by youths' self-report on the IPPA-Revised (Gullone & Robinson, 2005), was associated with higher self-reported use of reappraisal as an ER strategy (Gresham & Gullone, 2012). Conversely, this study also found that parent-child relationships characterized by higher levels of alienation and lower trust and communication were associated with higher reported use of suppression as an ER strategy, consistent with other research linking poorer parent-child relationship quality with use of maladaptive ER strategies (Biesecker, 2001). Another study of children and adolescents aged 10

to 17 years old used latent profile analysis to generate groups of youth based on their patterns of emotional response using self-report, observational, and physiological data (Turpyn, Chaplin, Cook, & Martelli, 2015). The researchers determined that parent-child interactions characterized by critical or harsh parenting behaviors were associated with youth belonging to profiles suggesting less emotion regulation.

These findings are generally consistent with literature examining the link between quality of the parent-child relationship and self-regulation, which can encompass ER as well as other aspects of regulating oneself. A cross-sectional study of early adolescents found that adaptive parenting behavior, including high levels of parental acceptance, was associated with better self-reported self-control and fewer emotional difficulties like depression and low self-esteem (Finkenauer, Engels, & Baumeister, 2005). Another study incorporating youth-report, parent-report, and observational measures found that family closeness and cohesion longitudinally predicted adolescents' regulation and subsequent outcomes including subjective well-being and emotional distress (Fosco, Caruthers, & Dishion, 2012). Among a sample of school-age boys, their ratings of the quality and closeness of their relationship with their mothers predicted higher levels of children's self-regulation, as measured by caregiver report (Moilanen, Shaw, & Fitzpatrick, 2010). Furthermore, quality of the parent-child relationship had an additive effect in predicting regulation above and beyond specific adaptive parenting practices observed during a family conflict interaction.

Consideration of the relationship between parent-child relationship quality and ER may add to the current literature on parenting and SMY in several ways. It would extend current findings in the literature that positive, supportive parent-child relationships contribute to adjustment in SMY by identifying the impact of these relationships on youth's ER as an

underlying process. Although there is no reason to suspect that positive parent-child relationships would act differently on ER between SMY and heterosexual youth, there is evidence that LGB adolescents are less likely to perceive their relationships with their parents as close and supportive than heterosexual youth (Needham & Austin, 2010; Ueno, 2005). Thus, SMY may be less likely to have this protective factor that could lessen the association between sexual minority status and maladaptive ER. Finally, examination of the interaction between positive parent-child relationships and ER in predicting mental health disparities may have implications for intervention by pointing to not only individual, but also family characteristics that can be targeted to support SMY's mental health. This may provide an important contribution to the field because, to date, there is a lack of empirically supported interventions for sexual minority adolescents and their families (Woodward & Willoughby, 2013).

The Current Study

In summary, SMY are at increased risk for a variety of mental health outcomes, including higher depression and anxiety, than their heterosexual peers. Emotion regulation is one transdiagnostic mechanism of risk that may explain these disparities (Hatzenbuehler, 2009). There is some evidence to support the mediating role of ER in the relationship between sexual orientation and internalizing symptoms (Haztenbuehler et al., 2008); however, more research is needed to confirm. In addition, previous research has examined a limited number of ER strategies. The current study addresses these gaps in the literature by examining a wider range of specific ER strategies as mediators, including many strategies that are often targeted in established interventions (e.g., reappraisal, acceptance). Furthermore, research with SMY has identified aspects of parenting, such as acceptance of sexual orientation and general supportiveness, that appear to mitigate the effect of sexual minority status on internalizing

symptoms (Bouris et al., 2010). However, no studies to date have examined how positive parent-child relationships, such as those characterized by closeness, trust, and communication, may buffer SMY from ER difficulties and subsequent mental health outcomes. Incorporating findings from the broader developmental literature on parenting and ER, the current study will also examine how quality of the parent-child relationship may alter the impact of sexual orientation on youth's ER abilities.

Specific Aims and Hypotheses

Aim 1. The first aim of the proposed study is to test the relationship between adolescents' sexual orientation and their mental health.

Hypothesis 1a. Adolescents' report of sexual orientation (heterosexual vs. sexual minority) will be associated with their mental health symptoms. Specifically, sexual minority status will be associated with more symptoms of anxiety and depression.

Aim 2. The second aim of the proposed study is to examine emotion regulation strategies as mediators of the relation between sexual orientation and mental health outcomes.

Hypothesis 2a. The structure of the Cognitive Emotion Regulation Questionnaire will be confirmed. Specifically, a model specifying that the 36 items will load onto nine latent factors representing each ER strategy (Acceptance, Positive Refocusing, Refocus on Planning, Positive Reappraisal, Putting into Perspective, Self-Blame, Rumination, Catastrophizing, and Blaming Others) will have adequate fit.

Hypothesis 2b. Use of ER strategies will mediate the relationship between sexual orientation and adolescents' depression symptoms. To explore the mediating relationship, all ER strategies will be tested as mediators. As described above, based on previous research (e.g., Garnefski & Kraaij, 2006), I predict that Positive Refocusing, Positive Reappraisal, Self-Blame,

Rumination, and Catastrophizing will be significant mediators. Specifically, sexual minority status will be associated with less use of adaptive ER strategies (Positive Refocusing, Positive Reappraisal) and more use of maladaptive strategies (Self-Blame, Rumination, Catastophizing), which will in turn be associated with more symptoms of depression.

Hypothesis 2c. Use of ER strategies will mediate the relationship between sexual orientation and adolescents' anxiety symptoms. To explore the mediating relationship, all ER strategies will be tested as mediators. Based on previous research (Garnefski & Kraaij, 2016), I predict that Catastrophizing and Blaming Others will be significant mediators. Specifically, sexual minority status will be associated with less use of adaptive ER strategies and more use of maladaptive strategies (Catastophizing, Blaming Others), which will in turn be associated with more symptoms of anxiety.

Aim 3. The third aim of this study is to test whether the positive quality of the parent-child relationship moderates the relationship between sexual orientation and emotion regulation for adolescents.

Hypothesis 3a. Quality of the parent-child relationship will moderate the relationship between sexual orientation and emotion regulation (see Figure 1). Specifically, when adolescents report a more positive parent-child relationship, the relationship between sexual orientation and youth's ER will be weakened. This also implies that the overall indirect effect of sexual orientation on mental health through ER is weaker when the parent-child relationship is rated more positively.

CHAPTER 2 | Methods

Participants

Participants in the present study were recruited from the community in Seattle, WA, Pittsburgh, PA, and Boston, MA. Youth were recruited through community presentations, online advertisements, and fliers in community neighborhoods targeted to maximize regional, socioeconomic, and racial/ethnic diversity. A total of 283 youth participated. Five youth were excluded because they provided no response about their sexual orientation. The final sample included 278 youth (55.4% female) aged 16 to 17 years old (M = 16.52, SD = .50). Youth were asked to indicate their race/ethnicity; 41.7% identified as White, 20.9% as Black/African American, 16.2% as Asian/Oriental/Pacific Islander, 10.8% as biracial, 6.5% as Hispanic/Latino, 0.7% as Middle Eastern, and 2.2% as some other race or ethnicity. Most youth (59.2%) reported that either their mother or their father had a 4-year college degree or higher education (24.9% with a BA or BS, 6.5% some graduate/professional school, 27.8% graduate or professional degree). The largest plurality of youth identified as atheist/agnostic or not affiliated with a religion (40.1%), with the remainder reporting some other religious preference (29.2%), as Catholic (19.8%), as protestant Christian (7.4%), or as Jewish (3.5%). The majority of youth (N = 240, 86.3%) identified as heterosexual/straight; 23 youth (8.3%) identified as bisexual, eight (2.9%) as homosexual/gay/lesbian, and seven (2.5%) as questioning.

Measures

Demographics. Adolescents were asked to provide information related to demographics, including age, gender, race/ethnicity, religious preference, and parental education.

Youth sexual orientation. As part of the demographic information collected, adolescents were asked to respond to the question, “What would you say is your sexual orientation?”

Response options were: heterosexual/straight, bisexual, homosexual/gay/lesbian, or questioning. A binary variable was created such that youth were classified as *heterosexual* if they endorsed the "heterosexual/straight" option, and as *sexual minority* if they endorsed any of the "bisexual," "homosexual/gay/lesbian," or "questioning" options.

Childhood abuse. Childhood abuse was measured using the brief version of the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994). This questionnaire included 28 items, 15 of which measured participants' experiences of physical, emotional, and sexual abuse (5 items each). For each item, participants were asked to rate to what extent the item was something they had experienced as a child or adolescent on a scale from "1" = "never true" to "5" = "always true." Responses were summed to create a Total Abuse scale, with higher scores indicating more childhood abuse.

Youth emotion regulation. Emotion regulation was measured using the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij, & Spinhoven, 2001). The CERQ is a self-report questionnaire intended for use with participants aged 12 years and older (Garnefski et al., 2001). It contains 36 items, with nine subscales measured by four items each. Responses are indicated on 5-point scales ("1" = "(almost) never" to "5" = "(almost) always"). Subscales include Self-Blame (e.g. "I feel that I am the one to blame for it"), Acceptance (e.g. "I think that I must learn to live with it"), Rumination (e.g. "I dwell upon feelings the situation has evoked in me"), Positive Refocusing (e.g. "I think about pleasant experiences"), Refocus on Planning (e.g. "I think of what I can do best"), Positive Reappraisal (e.g. "I look for positive sides to the matter"), Putting into Perspective (e.g. "I think that it all could have been much worse"), Catastrophizing (e.g. "I keep thinking about how terrible it is what I have experienced"), and Blaming Others (e.g. "I feel that others are to blame for it"). The CERQ has

demonstrated good internal consistency among an adolescent sample (Cronbach's αs ranging from .68 to .83 for individual subscales, and from .87 to .93 for total scales; Garnefski et al., 2001). In this sample, Cronbach's αs showed a similar range from .65 (Rumination) to .81 (Putting Into Perspective) for individual subscales, and Cronbach's α for the total scale was .86.

Youth depression. Depression was measured using the Children's Depression Inventory (CDI; Saylor, Finch, Spirito, & Bennett, 1984), a scale used to measure symptoms of depression in youth aged 7 to 17. Participants were asked to respond to 26 items, choosing one of three possible responses that best described how they felt over the past two weeks. Items are summed to create a total score such that a higher score indicates more symptoms of depression. The CDI has been extensively used in research with children and adolescents, and has demonstrated good test-retest reliability and concurrent validity. In this sample, Cronbach's α for the Total Score was .86 (.85 among heterosexual youth and .86 among SMY).

Youth anxiety. Anxiety was measured using the Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, & Stallings, 1997). The MASC includes 39 items measuring youth's anxiety and internalizing symptoms. For each item, participants were asked to rate the frequency of symptoms on a scale from "1" = "Never True/None of the Time" to "4" = "Very True/A Lot of the Time." For the proposed study, a mean score representing the Total MASC score will be used. The MASC has demonstrated good internal consistency, as well as good convergence with other measures of youth anxiety. In this sample, Cronbach's α for the Total Score was .89 (.89 for heterosexual youth, .88 for SMY).

Parent-child relationship. Positive quality of the parent-child relationship was measured using the Inventory of Parent and Peer Attachment – Revised (IPPA-R; Gullone & Robinson, 2005). The IPPA-R includes 28 items assessing parent attachment, in which participants evaluate

cognitive and affective dimensions of their relationship with both parents as a unit. The measure includes three subscales: *Alienation* (10 items) includes items such as "My parents don't understand my problems;" *Communication* (8 items) includes items such as "My parents can tell when I'm upset about something;" and *Trust* (10 items) includes items such as "My parents accept me as I am." For each item, response options range from "1" = "Almost Never or Never True" to "5" = "Almost Always or Always True." The sum of items from the Alienation subscale was subtracted from the sum of items from the Communication and Trust subscales to create a Total Scale score, reflecting the overall positive and supportive nature of the parent-child relationship.

CHAPTER 3 | Results

Overview of Data Analytic Plan

Preliminary analyses were conducted first to examine descriptive statistics for main study variables, and procedures were conducted to correct skewed and kurtotic variables. Specifically, six participants were identified as having extreme scores on one or more variables of interest and were removed from further analyses, leaving a total sample size of 272 youth (237 heterosexual youth and 35 sexual minority youth). Bivariate correlations or chi-square tests were then calculated for key study variables and demographic variables to determine appropriate covariates to include in later analyses. Single imputation using the Estimation-Maximization algorithm was conducted to correct for missing data (described in more detail below).

Upon creating the final pooled dataset, Aim 1 was tested in SPSS v24.0 using linear regression models that tested whether sexual minority status predicted depression and anxiety symptoms. For Aim 2, a confirmatory factor analysis model was first tested confirming the structure of the CERQ in which the nine subscales of the CERQ, representing different emotion regulation strategies, were indicated by the 36 items from the CERQ. Next, a structural equation modeling was utilized to test a mediational model in which sexual minority status predicted ER strategies represented by latent factors, which in turn predicted youth's depression and anxiety symptoms. Aim 3 was tested by first centering sexual minority status and positive quality of the parent-child relationship variables and creating an interaction term. All three variable were then entered into a structural equation model as predictors of ER strategies to test the indirect effect conditional on parent-child relationship quality. Analyses for Aims 2 and 3 were conducted using Amos v24.0.

Preliminary Analyses

Descriptive analyses were run for the predictor, outcome, mediator, moderator, and potential covariate variables of interest. Results are presented in Table 1. All variables were found to be approximately normally distributed except for childhood trauma and quality of the parent-child relationship, which were leptokurtic. Sexual minority status was mildly skewed and leptokurtic as would be expected given the discrepancy in sample size between the heterosexual and sexual minority groups. Examination of histograms of the childhood trauma and quality of the parent-child relationship variables revealed outliers appeared to be affecting the distribution. Upon examination of boxplot graphs, it was found that three extreme scores (representing +/- 3.0 X IQR) contributed to the kurtosis of the childhood trauma variable and four extreme scores contributed to the kurtosis of the quality of parent-child relationship variable. On the IPPA-R, these extreme scores were due to cases where participants had not responded to many items on the scale, leading their total score to be misrepresented as extremely low. When extreme scores were removed from the childhood trauma and quality of parent-child relationship variables, the kurtosis was reduced to acceptable levels.

Relationships between key predictor, outcomes, and moderator variables (sexual minority status, total depression, total anxiety, total positive quality of parent-child relationship) and demographics were then examined to determine potential covariate for analyses. Independent samples *t*-tests were conducted exploring the relationship between youth gender and key variables. Results showed that girls reported significantly higher symptoms of depression (t = -2.183, p = .030) and anxiety (t = -2.821, p = .005) than boys. Chi-squared tests of independence also revealed that girls were more likely to identify as a SMY than boys (X^2 = 4.495, p = .034). A series of one-way ANOVAs were conducted to examine the relationship between youth race,

youth religion, and parents' education with key variables did not reveal any significant relationships. Bivariate correlations between youth age and key variables also did not reveal any significant relationships. Bivariate correlations indicated that childhood trauma was significantly associated with symptoms of depression ($r = .518$, $p < .001$) and anxiety ($r = .163$, $p = .007$). Therefore, it was decided to include youth gender and childhood trauma as covariates in subsequent analyses. Table 2 shows descriptive statistics for key study variables by sexual minority status.

Aim 1: To test the relationship between adolescents' sexual orientation and their mental health.

Two sets of linear regression analyses were conducted to examine the relationship between sexual minority status and mental health, one examining the outcome of depression symptoms and one examining the outcome of anxiety symptoms. Given preliminary results suggesting relationships between youth gender and Total CTQ score and mental health outcome variables, these covariates were including the linear regression models.

To examine the relationship between adolescents' sexual orientation and symptoms of depression, hierarchical linear regression was conducted with Total CDI score as the dependent variable. Given preliminary results suggesting relationships between youth's gender and childhood trauma with mental health outcome variables, these variables were entered as predictors in Step 1. Sexual minority status was then entered as a predictor in Step 2. The regression statistics are reported in Table 3. Results showed that youth's gender and Total CTQ score contributed significantly to the regression model in Step 1, $R^2 = .285$, $F = 54.304$, $p < .001$. Adding sexual minority status in Step 2 explained a significant additional portion of variance,

ΔR^2 = .018, ΔF = 7.100, p = .008. Sexual minority status was associated with higher symptoms of depression.

A second hierarchical linear regression analysis was conducted with Total MASC score as the dependent variable. Youth's gender and childhood trauma were again entered as predictors in Step 1. Sexual minority status was then entered as a predictor in Step 2. The regression statistics are reported in Table 4. Results showed that youth's gender and Total CTQ score contributed significantly to the regression model in Step 1, R^2 = .266, F = 10.488, p <.001. Adding sexual minority status in Step 2 did not significantly account for additional variance in the model, ΔR^2 = .001, ΔF = 0.125, p = .724. Although youth's gender and childhood trauma remained significantly associated with anxiety symptoms, sexual minority status was not associated with anxiety.

Missing Data

Prior to subsequent analyses, the potential impact of missing data was considered. An analysis of variables to be included in later confirmatory factor analyses and structural equation models revealed that 1.034% of total values were missing across 8.633% (24 participants) of the sample. Most these missing values were item-level from the CERQ scale. Generally, best practice for handling missing data is to use direct or full information maximum likelihood (FIML) estimators when running these models with statistical software packages (Brown, 2006). This approach has several advantages, particularly exhibiting the least bias in estimates compared with other approaches to handling missing data (Byrne, 2016). However, a major disadvantage of using FIML within Amos v24.0 is that modification indices, residual moments, and some fit indices cannot be generated, making it difficult to determine model fit, locate areas of strain, and revise the model appropriately (Amos Development Corporation, 2015).

Furthermore, bootstrapping procedures cannot be performed when using the FIML estimator. Another recommended method for handling missing data is using multiple imputation (Scheffer, 2002). Using this procedure, multiple datasets with estimates of missing values are generated based on observed values as well as random variability, and then results from analyses across these datasets are pooled (Brown, 2009). Multiple imputation can be conducted within software packages such as SPSS or NORM (Schafer, 1999). However, this method would require running CFA/SEM analyses on each imputed dataset and pooling fit indices and parameter estimates. There does not appear to be guidance in the literature on recommended or appropriate methods for pooling these estimates. Therefore, alternative approaches to handling missing data were considered.

Imputation using the estimation-maximization (EM) algorithm allows for a single dataset to be generated for use in subsequent analyses, but employs a method that is more sophisticated than single imputation strategies such as mean imputation or regression (Scheffer, 2002). The EM algorithm involves a two-step iterative process (Enders, 2001). In the estimation step, missing values are replaced based on observed data and an initial set of parameter estimates. Next, in the maximization step, maximum likelihood estimates of the covariance matrix are obtained and used to derive new estimates of the missing values. These steps are repeated until the discrepancy between covariance matrices generated in the two steps falls below a specified convergence criterion. Use of the EM algorithm to impute missing data may provide unbiased parameter estimates and improve statistical power of analyses for data meeting assumptions for missing completely at random (MCAR) or missing at random (MAR), especially when the portion of missing data is small (i.e., less than 5-10%).

The current dataset was analyzed to determine if missingness met assumptions necessary to be considered MCAR or MAR. To meet assumptions of MCAR, the probability of data missing on a variable must be unrelated to that variable or any other variable in the dataset (Brown, 2009; Graham, 2009). To meet assumptions of MAR, the probably of data missing on a variable may depend on another variable, but must not be related to the variable on which data are missing. Patterns of missingness were analyzed using diagnostic software within SPSS v24.0 and by visual analysis. Results of Little's MCAR test were significant, $X^2(669) = 896.446$, $p < .001$, suggesting that missingness in the dataset did not meet the assumptions of MCAR (Little, 1988). Although there is no definitive test to determine whether data meet the assumptions of MAR, analysis of the patterns of missingness supported these assumptions for a variety of reasons. First, visual inspection revealed no consistent patterns in the missing data. Second, because of this study's cross-sectional design, attrition, which is often associated with nonignorable data missing not at random (MNAR), was not an issue. Finally, Graham (2009) argues that the best possible method for handling data MAR should still be used even when data may not fully meet these assumptions, because it will perform at least as well or better than older procedures (e.g., pairwise or listwise deletions, mean imputation). Therefore, imputation of missing values using the EM algorithm in SPSS v24.0 was used to generate a complete dataset for subsequent analyses. All items from the CERQ and the total scores of the CDI, MASC, IPPA-R, and CTQ were entered. Number of iterations was set to 100 and the convergence criterion value for a solution was 0.0001.

Aim 2: To examine emotion regulation strategies as mediators of the relation between sexual orientation and mental health outcomes.

As the first step to examine whether emotion regulation strategies mediate the relationship between youth's sexual orientation and mental health outcomes, a confirmatory factor analysis was conducted to examine and confirm the factor structure of the CERQ. Table 5 presents bivariate correlations between CERQ items. Analyses were conducted in Amos v24.0. An assessment of univariate normality revealed no substantially kurtotic values (greater than or equal to 7; Byrne, 2016). However, multivariate normality yielded a multivariate kurtosis value of 155.667, with a critical ratio of 24.810. Bentler (2005) has suggested that critical ratio estimates >5.00 are indicative of data are nonnormally distributed. When the assumption of multivariate normality is violated, estimates based on the usual maximum likelihood estimator may be problematic (Byrne, 2016). Next, the possible influence of multivariate outliers was examined. Mahalanobis *d*-squared values indicated several cases for which the observed scores significantly differed ($p < .05$) from the centroid of scores for all participants. The decision was made to drop the top five cases with Mahalanobis *d*-squared values > 70.0 and *p*-values < .001, as recommended by Byrne (2016). Doing so improved multivariate normality, kurtosis = 116.820, critical ratio = 18.451, but still showed significant difficulties with nonnormality. Thus, alternative methods of estimation were considered. Kline (2011) suggests the use of bootstrapping, a statistical resampling procedure in which multiple samples are randomly drawn from the sample with replacement, a model is estimated each time, and the results are averaged over datasets. Bootstrapped estimates with bias-corrected confidence intervals can then be examined. Because bootstrapping requires no assumption of a specific distribution (e.g., normal) of the data, except that the distribution of the sample is the same as the distribution of the population, it is a useful strategy for addressing multivariate nonnormality (Brown, 2009). Thus, for all subsequent CFA and SEM analyses, a bootstrapping procedure was used in which 1000

samples were drawn and 90% confidence intervals around the parameter estimates were calculated.

The first CFA model was created in which the nine subscales identified by Garnefski, Kraaij, and Spinhoven (2001) in their seminal paper describing the CERQ were examined as latent factors, each with four items set as indicators. Each latent factor was scaled by setting the factor loading of an indicator to 1.0. Given that each of the nine latent factors theoretically represents a cognitive emotion regulation strategy and previous evidence has found significant, small-to-moderate correlations between CERQ subscales (Garnefski et al., 2001), the first model examined allowed these factors to be correlated with each other and the parameters of these covariances to be estimated. Indices of the degree to which the model fits the data were then examined. X^2 value indicated that the model was not a good fit, $X^2(558) = 1228.739$, $p < .001$. However, given the limitations of the X^2 index, including its tendency to be inflated due to large sample sizes and its testing of the stringent hypothesis that the sample covariance matrix is exactly equal to the population matrix, examination of alternative fit indices is recommended (Byrne, 2016; Kenny, 2010). Brown (2009) recommends consideration of at least one fit index from each of three categories: those measuring absolute fit (e.g., standardized root mean square residual [SRMR], those correcting for parsimony of the model (e.g., root mean square error of approximation [RMSEA]), and those measuring relative fit compared to a baseline model (e.g., comparative fit index [CFI]). Conventional guidelines for analyzing goodness of fit suggest that SRMR values should be close to .08 or below; RMSEA values should be close to .06 or below; and CFI values should be greater than or equal to .95, although values in the range of .90-.95 may be indicative of acceptable model fit (Brown, 2009). Two of these indices suggested that the first model is approaching an adequate solution, SRMR = .082, RMSEA = .067 (90% CI: .061,

.071). However, examination of comparative model fit suggested a poor solution, CFI = .822. Thus, standardized residuals, modification indices, and nonsignificant parameter estimates were examined to locate areas of model strain and possible parameters to free or fix that may improve model fit.

Modification indices suggested that Item 20 ("I think that I cannot change anything about it"), which was estimated to load onto the Acceptance factor, should also be set as an indicator for the Blaming Others, Catastrophizing, Rumination, Self-Blame, Positive Reappraisal, and Refocus on Planning factors. Similarly, modification indices suggested that Item 30 ("I dwell upon the feeling the situation has evoked in me"), an indicator for the Rumination factor, should also be estimated as an indicator for the Putting into Perspective, Positive Reappraisal, Refocus on Planning, and Positive Refocusing factors. Examination of these scale items suggested no theoretical justification for loading these items onto the subscales suggested by the modification indices. In fact, the suggestion that a model in which these items loaded on to multiple subscales spanning theoretically adaptive and maladaptive ER strategies suggests that these two items may not accurately discriminate among ER strategies within this sample. Furthermore, examination of standardized residuals indicated that the model significantly overestimated or underestimated the zero-order relationships between Items 20, 30, and several other items in the scale. Thus, the decision was made to estimate a second model without these two items.

The second model appeared to fit the data better. Comparison between non-nested models can be achieved by comparing Akaike's Information Criterion (AIC), with lower values suggesting a better fit. The AIC for the second model was 1205.027, compared to AIC = 1444.739 for the first model. Goodness-of-fit indices suggested adequate fit of the data to the model, SRMR = .068, RMSEA = .062 (90% CI: .056, .067), although CFI still fell below the

acceptable range, CFI = .858. Steps were taken to determine possible ways to improve model fit. Examination of standardized residuals revealed few mildly significant areas of localized strain.

Next, modification indices suggested that estimating a correlation between Item 24 and Item 25 would cause the highest increase in model fit. However, estimating a correlation between these items did not appear theoretically justified by the content or phrasing of the items (Item 24: “I think that the situation also has its positive sides” [Positive Reappraisal], Item 25: “I think that it hasn’t been too bad compared to other things” [Putting into Perspective]). Brown (2009) and Byrne (2016) caution against freeing parameters to be estimated when there is no substantial theoretical justification, suggesting that doing so causes the model to be more specific to the sample rather than the population and can bias other parameter estimates and standard errors in the model. One change suggested by modification indices that did appear theoretically justifiable was cross-loading Item 19 (“I think about the mistakes I have made in this matter”) onto the Rumination factor in addition to the Self-Blame factor. The content of the item seems relevant to rumination, an ER strategy of dwelling on or thinking repeatedly about the problem. A third model was tested that appeared to improve model fit, SRMR = .065, RMSEA = .060 (90% CI: .054, .065), CFI = .866, AIC = 1179.336. A summary of this model and parameter estimates is presented in Tables 6 and 7.

Finally, nonsignificant parameter estimates were considered as potentially indicating unnecessary parameters that, if eliminated, could improve model fit (Brown, 2009). All factor loadings were found to be significant and statistically interpretable. Of the covariances between the nine latent factors, 16 of the 36 parameters estimated were not significant. Examination of patterns of covariances suggested that Catastrophizing was not significantly related to any of the five Adaptive ER subscales, and Self-Blame and Blaming Others were not related to four of the

Adaptive ER subscales. Thus, of the Maladaptive ER subscales, only Rumination seemed to be associated with most of the Adaptive ER strategies. Although this is contrary to some previous findings in the literature suggesting relationships between all subscales (e.g., Garnefski et al., 2001), other research has suggested some of the Maladaptive ER strategies are less likely to be related to Adaptive ER strategies (Garnefski, Kraaij, & van Etten, 2005). Therefore, a fourth model was tested fixing covariances among the Self-Blame, Catastrophizing, and Blaming Others factors and the five Adaptive ER factors to zero. Goodness-of-fit indices suggested fit was similar to or worse than Model 3, SRMR = .067, RMSEA = .060 (90% CI: .055, .065), CFI = .863, AIC = 1172.016, although Model 4 has the advantage of being more parsimonious.

Other alternative models were also tested. A fifth model only allowed covariances between factors representing Adaptive ER strategies (Acceptance, Positive Refocusing, Refocus on Planning, Positive Reappraisal, Putting into Perspective) and factors representing Maladaptive ER strategies (Self-Blame, Rumination, Catastrophizing, Blaming Others) to be freely estimated, in an effort to be more parsimonious. Goodness-of-fit indices did not support this model over Model 2, SRMR = .0856, RMSEA = .062 (90% CI: .057, .067), AIC = 1226.322.

Finally, a sixth set of models estimating only adaptive or maladaptive ER strategies were tested. Goodness-of-fit indices suggested a model estimating items from the CERQ loading onto latent factors representing the five adaptive ER subscales was generally not a good fit, $X^2(160) = 429.171$, $p < .001$ SRMR = .103, RMSEA = .078 (90% CI: .069, .087), CFI = .878. Fit indices for the model with the four maladaptive ER subscales were better, but generally a mediocre fit, $X^2(98) = 219.304$, $p < .001$, SRMR = .089, RMSEA = .067 (90% CI: .055, .079), CFI = .901. Interestingly, CFI was better and approached acceptable fit in these two models compared to the second model described above, but SRMR and RMSEA indices suggested a poorer fit than the

second model. One explanation for this may be that CFI is influenced by the strength of the correlations between the variables included in the model; in this case, the CERQ items. As mentioned above, CFI is a comparative fit index that compares the fit of the target model to a baseline model in which covariances among all indicators are fixed to zero (Brown, 2009). Thus, if variables within the model are highly correlated, the difference between the target model and the baseline model is likely to be quite large and yield a high CFI value. Conversely, if correlations between variables in the model are low, the discrepancy between the target and baseline model will be small and yield a low CFI value. As seen in Table 5, many zero-order correlations between CERQ items are not significant, and those that are correlated are generally small-to-moderate in strength. Comparative fit indices like CFI may not provide good estimates of model fit in this case.

Considering this, reviewing the models described above, the third CFA model appears to provide the best fit to the data. Therefore, this model was chosen to build upon to test the second part of Aim 2 of the study: examining ER strategies as mediators of the relationship between sexual minority status and mental health outcomes. To test this part of the aim, structural equation models were estimated, with sexual minority status predicting latent factors representing the nine ER strategies, and those strategies predicting symptoms of depression or anxiety. SEM has been used to test a similar question within a similar sample of adolescents containing a small proportion of youth endorsing same-sex attraction (Hatzenbuehler, McLaughlin, and Nolen-Hoeksema, 2008). As in the linear regression models testing Aim 1 described above, youth's gender and childhood trauma were also included in the model as predictors of mental health outcomes.

First, a model was estimated with youth's depression symptoms as the outcome. Fit indices suggested good fit of the model to the data, SRMR = .069, RMSEA = .058 (90% CI: .053, .063), although CFI still fell below the suggested threshold for adequate fit, CFI = .854. Given the discussion of CFI above, the model was believed to adequately fit the data. Furthermore, review of standardized residuals, modification indices, and nonsignificant parameters suggested no theoretically justifiable respecifications of the model. A summary of the parameter estimates of direct effects in this model can be found in Table 8. In this model, sexual minority status was no longer directly associated with symptoms of depression, β = .113 (90% CI: -.212, .287), p = .352. Youth's gender was associated with depression symptoms, β = .113 (90% CI: .033, .196), p = .028, as was childhood trauma, β = .428 (90% CI: .329, .527), p = .002. Sexual minority status was associated with more use of the Self-Blame strategy, β = .163 (90% CI: .024, .291), p = .049. No ER strategies were found to be related to symptoms of depression.

Although the model indicated no relationship between sexual minority status and depression symptoms, the absence of significant direct effects does not preclude testing of hypothesized indirect effects (Hayes, 2013). To examine indirect effects, an Amos user-defined estimand (Gaskin, 2016) was used to estimate the indirect effect of sexual minority status on depression through each latent factor representing an ER strategy. This process generates an unstandardized estimate of the *A x B* pathway of the indirect effect and uses a bootstrapped standard error of the estimate to construct a 90% confidence interval around the estimate. The indirect effect is considered significant if the confidence interval does not contain zero. This method was chosen over Sobel's *z*-test (Sobel, 1982), which has low power to detect effects because it assumes a symmetric sampling distribution of the *A x B* pathway. Unstandardized estimates of the indirect effects, along with the bootstrapped standard errors, 90% confidence

intervals, and *p*-values, are reported in Table 9. No significant indirect effects of sexual minority status on youth's symptoms of depression were found.

A second model was estimated predicting youth's anxiety symptoms. Once again, fit indices suggested good fit of the model to the data, SRMR = .069, RMSEA = .058 (90% CI: .053, .063), although CFI still fell below the suggested threshold for adequate fit, CFI = .847. Examination of standardized residuals and nonsignificant parameter estimates suggested that childhood trauma was not a significant predictor of anxiety symptoms (β = 0.071, p = .309) and the model appeared to be misestimating the covariances between CTQ score and several of the CERQ items. When childhood trauma was removed from the model, model fit improved slightly, SRMR = .064, RMSEA = .057 (90% CI: .052, .063), CFI = .858. A summary of the parameter estimates of the direct effects in this model can be found in Table 10. Consistent with earlier analyses, sexual minority status was not directly associated with anxiety symptoms, β = -.137 (90% CI: -1.228, 0.058), p = .231. Youth's gender was significantly associated with anxiety symptoms, β = .185 (90% CI: 0.099, 0.275), p = .002. Sexual minority status was not associated with any ER strategies, nor were any of the ER strategies significantly related to symptoms of anxiety. Unstandardized estimates of the indirect effects, along with the bootstrapped standard errors, 90% confidence intervals, and *p*-values, are reported in Table 11. No significant indirect effects of sexual minority status on youth's symptoms of anxiety were found.

Aim 3: To test whether the parent-child relationship moderates the relationship between sexual orientation and emotion regulation for adolescents.

First, quality of the parent-child relationship was examined as a moderator in a model with depression symptoms as an outcome. Sexual minority status and total positive quality of the parent-child relationship were centered to reduce multicollinearity and multiplied together to

form an interaction term. These three variables (two centered predictors and the interaction term) were then added to the SEM model from Aim 2 as predictors of the latent factors representing ER strategies. The model fit appeared adequate, SRMR = .070, RMSEA = .060 (90% CI: .055, .064), CFI = .835. Modification indices suggested that estimating the covariance between the quality of the parent-child relationship and childhood trauma would significantly improve model fit. This relationship was both theoretically and empirically justified, given that bivariate correlation between these two variables was -.535 ($p < .001$). Therefore, a second model was tested allowing this parameter to be freely estimated, which improved model fit, SRMR = .064, RMSEA = .055 (90% CI: .050, .060), CFI = .859. A summary of the parameter estimates for the direct effects in this model can be found in Table 12. Sexual minority status was not directly associated with symptoms of depression, $\beta = .152$ (90% CI: .005, .459), $p = .091$. Youth's gender was still associated with depression symptoms, $\beta = .113$ (90% CI: .035, .192), $p = .024$, as was childhood trauma, $\beta = .411$ (90% CI: .305, .529), $p = .001$.

The SMS X IPPA-R interaction term was significantly associated with Refocus on Planning, $\beta = -.149$ (90% CI: -.266, -.022), $p = .050$, such that sexual minority status was associated with higher use of Refocus on Planning when parent-child relationship quality was poorer, but heterosexual youth reported higher use of Refocus on Planning than SMY when parent-child relationship quality was more positive. The interaction was not related to any other ER strategies. Next, to test the hypothesized conditional indirect effect, the significance of the product of the path weights from the interaction term and Refocus on Planning and from Refocus on Planning to depression symptoms was examined (Preacher, Rucker, & Hayes, 2007). This pathway was not significant, $B = 0.014$ (90% CI: -0.393, 0.341), $p = .908$, suggesting that the

hypothesis that quality of the parent-child relationship moderates the indirect effect of sexual minority status on symptoms of depression through Refocus on Planning was not supported.

Next, quality of the parent-child relationship was examined as a moderator in a model with anxiety symptoms as an outcome. Sexual minority status, total positive quality of the parent-child relationship, and the SMS X IPPA-R interaction term were entered as predictors of ER strategies. Building from the model described in Aim 2 above, childhood trauma was not included as a covariate. The model fit appeared adequately, SRMR = .062, RMSEA = .055 (90% CI: .050, .060), CFI = .856. A summary of the parameter estimates of the direct effects in this model can be found in Table 13. Sexual minority status was not directly associated with symptoms of anxiety, β = .031 (90% CI: -.200, .359), p = .801. Youth's gender was associated with anxiety symptoms, β = .191 (90% CI: .108, .293), p = .001.

Again, the SMS X IPPA-R interaction term was significantly associated with Refocus on Planning, β = -.149 (90% CI: -.268, -.028), p = .042, with sexual minority status associated with higher use of Refocus on Planning when parent-child relationship quality was more negative and with lower use of that strategy when parent-child relationship quality was more positive.. The interaction term was not related to any other ER strategies. The conditional indirect effect was not significant, B = -0.009 (90% CI: -0.057, 0.005), p = .273, suggesting that the hypothesis that quality of the parent-child relationship moderates the indirect effect of sexual minority status on symptoms of anxiety through Refocus on Planning was not supported.

Post-hoc Power Analyses

First, a post-hoc power analysis to estimate power to reject hypotheses of model fit was performed using the method developed by MacCallum, Browne, and Sugawara (1996) relying on RMSEA. This algorithm estimated that statistical power was approximately 1.0 for the SEM

models testing Aim 3, the most complex models analyzed, given the available sample size of 273 participants. Next, additional power-hoc power analyses were conducted to estimate the power to detect estimated indirect effects using Monte Carlo and bootstrapping procedures outlined by Zhang (2014). Estimates were obtained by generating 1000 Monte Carlo simulations based on the parameter estimates obtained in the models described above and using 1000 bootstrapped samples to construct bias-corrected confidence intervals of the indirect effects. Given the computational demands of this procedure, two analyses were run to estimate power to detect the largest indirect effects in models predicting depression symptoms (through Self-Blame) and anxiety symptoms (through Rumination). Results indicated Results indicated that the maximum power to detect indirect effects in the current study was 0.11 when predicting depression and 0.20 when predicting anxiety, suggesting that, for all indirect effects, power was generally quite low.

CHAPTER 4 | Discussion

Sexual minority youth, including lesbian, gay, bisexual, and other queer/questioning individuals, are at higher risk than their heterosexual peers for a variety of negative mental health outcomes (Saewyc, 2011). Deficits in emotion regulation (ER) have been proposed as a possible mechanism explaining the disparities between sexual minority and heterosexual youth in mental health outcomes (Hatzenbuehler, 2009). Preliminary evidence supports the notion that ER mediates the relationship between sexual orientation and symptoms of psychopathology (e.g., Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008). However, this research is limited, and to date has focused solely on a few ER strategies, specifically rumination and suppression, as measures of emotion regulation abilities (e.g., Haztenbuehler et al., 2008), despite research suggesting that other strategies may be significantly associated with internalizing difficulties. For example, Garnefski & Kraaij (2016) have found that the strategies of self-blaming, catastrophizing, and rumination, and (inversely) positive refocusing and positive reappraisal are significantly associated with symptoms of depression in adolescents.

Furthermore, although identification of ER as a potential mechanism explaining disparities in mental health outcomes has provided the field with a more proximal risk factor that may be a fruitful target of interventions for LGBQ youth, it is unclear what factors may influence and, in particular, buffer sexual minority youth from these ER deficits. The broader developmental literature has highlighted parents' key role in the socialization of youth's understanding, expression, and regulation of emotion in general populations (Eisenberg et al., 1998). Despite evidence that SMY are at risk for ER difficulties and literature demonstrating the contributions of parenting and the parent-child relationship to youth's ER, most research on parenting and sexual minority youth has focused on parents' reactions to their children's

disclosure of sexual orientation, particularly supportive or rejecting reactions (Bouris et al., 2010). There is a need for further research examining how broader characteristics of the parent-child relationship are related to youth's ER abilities and subsequent mental health adjustment, including implications for reducing disparities in mental health outcomes between sexual minority and heterosexual youth. The proposed study aimed to address these limitations in the literature by testing ER as a mediating mechanism explaining disparities in mental health outcomes between sexual minority and heterosexual youth, as well as examining how parenting may act as a protective factor in the relationship between sexual minority status and ER strategies.

The Relationship between Adolescents' Sexual Orientation and Internalizing Symptoms

The first aim of the study was to examine direct relationships between youth's sexual orientation and internalizing symptoms. Given previous research showing that SMY are at higher risk for experiencing symptoms of depression and anxiety (Cohen et al., 2016; Mustanski, Garofalo, & Emerson, 2010), I hypothesized that sexual minority status would be associated with more internalizing symptoms. Results from linear regression models showed partial support for this hypothesis, with sexual minority status being significantly related to symptoms of depression but not anxiety. Youth who identified as sexual minority reported higher symptoms of depression compared to heterosexual youth. This finding is consistent with previous research, including a recent meta-analysis of 11 studies examining disparities in depression between SMY and heterosexual youth which found that sexual minority status predicts higher levels of depressive symptoms with small to medium effects (Marshal et al., 2011). It is notable that this association remained after controlling for the effects of gender and childhood trauma, given previous findings showing strong links between child maltreatment and adolescent depression (Brown,

Cohen, Johnson, & Smailes, 1999). This shows that sexual minority status may be a robust predictor of depression above and beyond other significant risk factors, like childhood trauma.

However, when the relationship between sexual orientation and internalizing symptoms was examined in a structural equation model, the association between sexual minority status and depression symptoms was no longer significant. This discrepancy in results may be due to different methodology. Linear regression models attempt to minimize the distance between observed values of the outcome and those predicted by a linear regression equation. In contrast, structural equation models aim to reduce the discrepancy between an observed covariance matrix among the variables in the model and a model-implied covariance matrix (Brown, 2009). In the case of the SEM models conducted in this study, the covariance matrix was dominated by relationships between CERQ items. Thus, different information is utilized to generate results, which may explain the discrepancy. Of note, the size and direction of the regression weight between sexual minority status and Total CDI score were quite similar between the linear regression model (β = .14) and the structural equation model (β = .113), suggesting that the estimated association was somewhat consistent, although not significant in the latter model.

Contradictory to my hypothesis, sexual minority status was not associated with anxiety symptoms in linear regression or structural equation models. Although this is not consistent with previous research (e.g., Hatzenbuehler et al., 2008), it is worth noting that the literature examining disparities in anxiety symptoms between SMY and heterosexual youth is still quite limited. Furthermore, there are methodological differences that may help account for the discrepancy between these results and previous findings. For example, Cohen and colleagues (2016) found that SMY reported higher severity of symptoms of GAD, social phobia, posttraumatic stress, and panic, and were also more likely than heterosexual peers to fall into

clinical ranges of anxiety problems. The current study used a global measure of anxiety symptoms, the total MASC score, which does not specifically capture generalized anxiety or posttraumatic stress symptoms. There is reason to believe, based on minority stress theory (Meyer, 2003), that SMY are prone to be at higher risk for certain types of anxiety but not others. For example, experiences of victimization and harassment may be more likely to be associated with symptoms of posttraumatic stress, while fears regarding concealment of sexual minority status and reactions to disclosure of sexual orientation may be predictive of symptoms of social or generalized anxiety (Pachankis, 2007). Indeed, some evidence has supported a link between concealment fears and social anxiety symptoms among SMY (Cohen et al., 2016). Future studies in this area should consider using more fine-grained measures of anxiety symptoms. However, not all SMY may experience victimization, harassment, concealment fears or disclosure decisions, so it will also be necessary for future research to specifically examine these and other minority stress experiences and their association with subtypes of anxiety symptoms.

The current findings showing no disparities between SMY and heterosexual youth on symptoms of anxiety, and on symptoms of depression when tested within a structural equation model, are consistent with a subset of the literature which has documented no significant differences in outcomes between SMY and heterosexual peers (Savin-Williams, 2005; Savin-Williams & Joyner, 2015), or no differences when other psychosocial factors are taken into consideration. For example, Safren and Heimberg (1999) found that group differences in symptoms of depression between LGB and heterosexual adolescents recruited from the community were no longer significant when controlling for recent positive and negative life events. Similarly, Martin-Storey and Cronsoe (2012) only found significant indirect associations, but no direct path, between same-sex romantic attraction and depression symptoms in a

community sample of adolescents. The current results may also be consistent with arguments made by some researchers that disparities in mental health outcomes that have been documented in the literature may be exaggerated due to methodological issues (Savin-Williams & Joyner, 2014) and that many SMY are faring quite well (Savin-Williams, 2005). Specifically, these researchers note that studies which have utilized data from the National Longitudinal Study of Adolescent Health (Add Health) to examine differences between youth endorsing same- or both-sex romantic attraction (SMY) and those who did not endorse such attraction. They argue that some portion of youth who reported same- or both-sex attraction may be categorized as mischievous responders or "jokester" youth, whose data inflated rates of troubling outcomes, including mental health symptoms. However, other researchers have criticized Savin-Williams & Joyner's (2014) arguments and conclusions (Li, Katz-Wise, & Calzo, 2014). It is also important to note that disparities in internalizing symptoms and other mental health problems have not only been shown in studies using Add Health data. Further research is needed to clarify the presence and strength of disparities in internalizing symptoms between SMY and heterosexual youth, and the degree to which these disparities are accounted for by different operationalization and measurement of sexual minority status.

Emotion Regulation Strategies as Mediators of the Relationship between Sexual Orientation and Internalizing Symptoms

The second aim of this study was to examine ER strategies as mediating processes linking sexual orientation and internalizing symptoms. I hypothesized that sexual minority status would predict less use of adaptive ER strategies and greater use of maladaptive ER strategies, in turn leading to higher levels of depression and anxiety. Results were not consistent with these hypotheses. Sexual minority status was associated with greater use of the Self-Blame strategy,

but Self-Blame did not predict depression symptoms. This contrasts with previous research which has found that Self-Blame is associated with depression and internalizing problems among adolescents (Garnefski & Kraaij, 2006; Garnefski, Kraaij, & van Etten, 2005). Furthermore, the indirect pathways from sexual minority status to depression through Self-Blame or any other ER strategy were not significant. In models predicting anxiety symptoms, sexual minority status was not associated with any ER strategies, nor were there significant indirect relationships with anxiety.

These results most sharply contrast with a previous study which found that emotion regulation was a significant mediator between same-sex attraction and symptoms of depression and anxiety (Hatzenbuehler et al., 2008). This study was conducted in a similar sample of heterosexual and sexual minority adolescents using the same measures of depression and anxiety (CDI and MASC, respectively) as the current study. One notable difference is that SMY in Hatzenbuehler et al.'s study was operationalized as endorsing same- or both-sex attraction, whereas in the current study, SMY self-identified as gay, lesbian, bisexual, or questioning. Samples based on these definitions of SMY may capture different, yet overlapping, sets of youth. Although adolescents who identify as LGBQ are likely to endorse some level of same-sex attraction, youth who endorse feeling attracted to members of same sex may or may not self-identify as LGBQ. Indeed, most stage-sequential models of sexual orientation milestones suggest that awareness of same-sex attraction typically emerges before self-identification as LGBQ, with a period of confusion, sexual experimentation, and experiences with same-sex partners in between (Calzo, Antonucci, Mays, & Cochran, 2011). It is possible that youth who self-identify as LGBQ by mid-adolescence differ from youth endorsing same-sex attraction in several ways that could be related to their ER abilities and mental health outcomes. For example, they may be

from families or communities that they perceive as more accepting of sexual minority individuals. If that is the case, they may also be less likely to experience or fear victimization or discrimination, which are strongly associated with internalizing symptoms as well as emotion dysregulation (Burton, Marshal, Chisholm, Sucato, & Friedman, 2013; McLaughlin et al., 2009). By self-identifying as a part of the LGBQ community, SMY may also be more likely to seek out and receive support from that community. There is some evidence that feeling a sense of belonging and connection with LGBQ-specific communities is associated with less depression (McCallum & McLaren, 2010). If self-identified LGBQ youth are more likely to be associated with LGBQ community groups, they may be less likely to be depressed than samples of youth reporting same- or both-sex attraction but who may or may not identify as LGBQ. These possible explanations for differences in outcomes between same-sex attracted and LGBQ youth would have important theoretical and clinical implications. Thus, as noted earlier, future work should directly measure aspects of minority stress, like victimization, sense of belongingness, and internalized homophobia, to better understand what aspects of SMY's experience may contribute to difficulties with ER and mental health. Future research should consider measuring several aspects of sexual minority identity to allow comparison to other samples in the literature that have utilized different methods of assessing participants' sexual orientation/identity.

It is surprising that, in both models, no cognitive ER strategies were found to be associated with symptoms of depression or anxiety. This contrasts with previous research in community adolescent samples which has found support for relationships between many of these strategies and internalizing symptoms. Most consistent support has been shown for links between positive reappraisal, self-blame, rumination, and catastrophizing with symptoms of anxiety and depression among samples of children and adolescents (Garnefski & Kraaij, 2006; Garnefski,

Boon, & Kraaij, 2003; Garnefski, Kraaij, & van Etten, 2005; Legerstee, Garnefski, Jellesma, Verhulst, & Utens, 2010), but also between positive refocusing and depression (Garnefski & Kraaij, 2006) and anxiety (Legerstee, Garnefski, Jellesma, Verhulst, & Utens, 2010), between putting into perspective and depressive symptoms (Garnefski et al. , 2003), and between acceptance and presence of an anxiety disorder (Legerstee et al., 2010). One study found these relationships even after controlling for the effect of gender on depression (Garnefski & Kraaij, 2006). It may be that, in this sample, other aspects of ER could be more salient as mechanisms of risk for internalizing symptoms. For example, another notable difference between the current study and Hatzenbuehler et al.'s (2008) is the operationalization of ER, which in their study was represented as a latent factor comprising the cognitive strategy of rumination as well as emotional awareness, which they argued is a necessary requirement for effective management of emotions. This is consistent with Gross's (2015) extended process model of emotions, in which he suggests that the first stage of emotion regulation is identification, including perceiving an emotional experience, evaluating the need or desire to change that experience, and initiating regulation.

Other recent theoretical advances regarding ER have also suggested that self-report of use of ER strategies may not capture the full picture of emotion regulation and how it is related to mental health symptoms. For example, Alado (2013) argued that research on ER should move toward taking context into consideration, citing Gratz and Roemer's (2004) statement that "knowledge of the specific emotion regulation strategies used by an individual, in the absence of information on the context in which they are used, may provide little information about the individual's ability to regulate her or his emotions effectively." Similar arguments suggest that use of any one ER strategy may not be as important to the development of psychopathology as

individuals' ability to flexibly access, select, apply, and evaluate use of ER strategies (Bonanno & Burton, 2013; Cisler, Olatunji, Feldner, & Forsyth, 2010). Finally, the ability to regulate emotions suggests both the selection of more effective ER strategies, as well as better deployment of those strategies to modulate youth's experience and expression of emotion (Kliewer et al., 2004; Yap, Allen, & Sheeber, 2007). The authors of one study argued that self-reported use of an ER strategy, like reappraisal, may be capturing *frequency* of attempts to use that strategy rather than how *effectively* that strategy is employed (Troy, Wilhelm, Shallcross, & Mauss, 2010). Indeed, their findings from a community sample of adult women supported the idea that participant's ability to use cognitive reappraisal, measured by changes in skin conductance level and changes in self-reported emotional experience, was distinct from self-reported "trait" reappraisal use, Furthermore, reappraisal ability predicted symptoms of depression above and beyond self-reported reappraisal use in the context of stressful life events. Future research examining ER as a mechanism of risk for mental health disparities among SMY should consider incorporating these ideas from the broader field of ER research by using multimethod ER measures that are able to capture contextual factors of ER, individual differences in ER flexibility, and ability to effectively use ER strategies.

Moderating Effect of Quality of the Parent-Child Relationship

The third aim of this study was to consider the impact of parent-child relationship quality on the relationship between sexual orientation, ER, and internalizing symptoms. Specifically, I predicted that when quality of the parent-child relationship was more positive, the association between sexual minority status and ER would be lessened, thereby causing the indirect effect of sexual minority status on depression and anxiety symptoms through ER to be weaker. In models predicting depression and anxiety as outcomes, there was a significant interaction between

sexual minority status and Total IPPA-R score predicting the adaptive ER strategy, Refocus on Planning. When parent-child relationship quality was poorer (i.e., lower trust and communication), SMY reported higher use of Refocus on Planning than heterosexual youth; conversely, when parent-child relationship quality was more positive, SMY reported less use of Refocus on Planning than heterosexual youth. Refocus on Planning is a strategy characterized by thinking about what steps to take to deal with a problem and/or cope with a difficult emotion. There has been little examination of planning or other theoretically adaptive ER strategies among sexual minority youth or adults in previous literature in this area. There may be reasonable explanations for why youth would report higher use of planning to regulate their emotions associated with a more positive or negative parent-child relationship. However, it is unclear why sexual minority and heterosexual youth would show opposite patterns of use of planning and problem-solving in relationship to parent-child relationship quality. Further research would be needed to replicate this finding and clarify possible explanations.

Despite the significant interaction, the conditional indirect effects were not significant; quality of the parent-child relationship did not have a significant effect on the strength of the indirect pathway from sexual minority status to depression or anxiety symptoms through Refocus on Planning. One explanation for these null findings may be that, in this sample, SMY and heterosexual youth did not differ on average in quality of the parent-child relationship. This contrasts with previous studies which have shown that SMY report lower connection and closeness with and less emotional supportiveness from their parents than their heterosexual peers (Eisenberg & Resnick, 2006; Needham & Austin, 2010; Ueno, 2005). It is unclear why the current sample differs in this regard from previous samples. However, given that results suggested minimal disparities in internalizing symptoms, no significant indirect effects of sexual

minority status through ER strategies including Refocus on Planning, and no disparities in parent-child relationship quality, the absence of a moderating effect is not surprising.

Another explanation for the null findings may be that there are other aspects of the parent-child relationship that are more specific and salient in terms of their association with youth's ER. Eisenberg and colleagues (1998) highlight several ways that parents' socialization and emotion-related behaviors can contribute to children's emotional competence and subsequent adjustment. For example, parental reactions that neglect, punish, or invalidate children's expression of emotions have been linked to higher use of maladaptive ER strategies (Yap, Allen, & Ladouceur, 2008) and more internalizing symptoms (Silk, Shaw, Prout, O'Rourke, Lane, & Kovacs, 2011). Parents can also engage in other direct emotion socialization practices, such as discussion about emotions and teaching ER strategies (Morris et al., 2007).

One aspect of emotion-related parenting, emotion coaching, refers to parents' tendencies to discern low-level emotion in their child, validate and label their child's emotions, and engage their child in discussions about goals and strategies for managing emotions (Gottman, Katz, & Hooven, 1996). Thus, emotion coaching encompasses many of the parental socialization practices described above by describing how a parent may generally react to and talk with their child about their emotional experiences. Within the parental emotion socialization literature, emotion coaching has been shown to positively influence children's ER both within low-risk populations (Gottman et al., 1996; Lunkenheimer, Shields, & Cortina, 2007), as well as within contexts of stress, such as in maltreating families (Shipman et al., 2007), children exposed to intimate partner violence (Katz, Stettler, & Gurtovenko, 2016; Katz & Windecker-Nelson, 2006) and among racial minority families living in high violence neighborhoods (Cunningham, Kliewer, & Garner, 2009). In general populations, the effects of parental emotion coaching on

children are distinct from those of parental warmth and acceptance, and may even provide additional benefits to children's outcomes (Katz, Maliken, & Stettler, 2012). This raises the hypothesis that, among SMY, parents' emotion coaching may contribute to LGBQ adolescents' mental health beyond the established benefit of parental support and acceptance (Ryan et al., 2010; Snapp et al., 2015) and may be more salient to ER and mental health than overall quality of the parent-child relationship. Future work should consider examining how emotion coaching or similar emotion socialization constructs play a role in the relationship between sexual minority status, ER, and internalizing symptoms. This would also have important clinical implications because emotion coaching has been demonstrated to change with intervention (Havighurst, Wilson, Harley, Prior, & Kehoe, 2010), and these changes have been associated with a reduction in preadolescents' internalizing symptoms (Kehoe, Havighurst, & Harley, 2014). Parental emotion coaching may be an important target for intervention with SMY and their families.

Limitations

There are several limitations of this study which should be noted. First, Hatzenbuehler's (2009) theoretical framework describes emotion regulation difficulties as a process by which minority stress impacts mental health outcomes among sexual minority individuals. In the current study, sexual minority status was essentially a proxy for minority stress rather than measuring these processes directly. As suggested above, examination of specific minority stress experiences, such as victimization/harassment, discriminatory policies, fear of discovery, and internalized heterosexist attitudes, and their association with ER and internalizing symptoms would allow for a more nuanced understanding of how these processes operate to place SMY at higher risk for mental health problems compared to their heterosexual peers. Researchers have

already developed scales to measure minority stressors, including the Daily Heterosexist Experiences Questionnaire (DHEQ; Balsam, Beadnell, & Molina, 2013) and the Lesbian, Gay, and Bisexual Identity Scale (LGBIS; Mohr & Kendra, 2011), which could be used or adapted for use among SMY. Some research has already shown aspects of minority stress linked to mental health symptoms in LGBQ adolescents, including school policies (Hatzenbuehler et al., 2014), victimization due to sexual orientation (Goldbach et al., 2014), and perceived discrimination (Almeida et al., 2009). Future work can build on this literature by examining the impact of minority stress experiences on ER. Including specific measures of minority stress in future research would allow more precise identification of who is at most risk, rather than considering SMY as a monolithic group with wholly shared experiences. This would have important implications for applied settings, in that clinicians and community organizers could more effectively target prevention and intervention programs for SMY.

Second, there are limitations on the generalizability of the conclusions being drawn from this study. The current findings are based on a group of SMY from urban settings in the Northeast and Northwest regions of the United States, which may limit generalizability of the results to SMY from rural areas or other regions of the country. This is important to note because sociological research has found that LGB individuals residing in small towns, rural settings, and the Southern region of the United States report more perceived stigma and discrimination than those living in urban, suburban, and non-Southern locations (Swank, Frost, & Fahs, 2012). Furthermore, because of the identity labels available to them, it is possible that some participants who could be considered SMY were not included in the current subsample. A recent study found that a small proportion of SMY may choose to describe themselves using alternative labels that do not fit the options provided in this study (e.g., pansexual, no-label, heteroflexible; Russell et

al., 2009). Similarly, it is likely that participants who might be characterized as "mostly heterosexual" (e.g., may report mild same-sex attraction or behavior but not likely to self-identify as LGBQ) would be lumped into the heterosexual group in this sample. However, there is some evidence suggesting that mostly heterosexual individuals make up a distinct, stable group (Savin-Williams & Vrangalova, 2013) who may experience higher rates of mental health problems than heterosexuals (Vrangalova & Savin-Williams, 2014). Their possible inclusion in the heterosexual group may have diluted disparities in outcomes between the SMY and heterosexual youth.

Finally, there are statistical limitations which should be considered. As noted above, although two fit indices suggested that the CFA and SEM models used to tests Aims 2 and 3 showed adequate fit, the CFI index consistently suggested a poor fit. One potential explanation may be that because many zero-order correlations between items on the CERQ were quite small, the discrepancy between covariances estimated by the target and baseline model in which all covariances among indicators are fixed to zero will be small and yield a low CFI value. On the other hand, the CFI value provides some evidence that the models confirming the factor structure of the CERQ and the models testing indirect effects and conditional indirect effects may not have shown good enough fit to the data to be able to interpret the results with confidence.

Furthermore, even though power analyses suggested an adequate sample size to determine model fit, there was very limited power to detect indirect effects. Fritz and MacKinnon (2007) estimated that a sample size of over 460 would be necessary for adequate power (.80 or greater) to detect an indirect effect using bias-corrected bootstrapping procedures when *a* and *b* path weights are both small (less than 0.14), as they were in the current study and in previous research testing this effect (Hatzenbuehler et al., 2008). Power to detect conditional

indirect effects was likely even more limited, due in part to differences between the proportions of SMY and heterosexual youth included in the sample (Stone-Romero, Alliger, & Aguinis, 1994). Self-identified LGBQ youth made up only 13.7% of the total sample, which is similar to the proportions seen in previous studies within community samples (e.g., Almeida et al., 2009; Hatzenbuehler et al., 2008). Although the size of this group is not surprising given estimates that sexual minority individuals make up a small proportion of the population, the difference in proportions between SMY and heterosexual youth likely had an impact on power. Therefore, it could be that many of the relationships examined in this study were small but present, and did not rise to the level of statistical significant due to sample size limitations. Future research in this area should take care to ensure adequate sample size in their studies to explore to what extent ER mediates the relationship between sexual minority status and internalizing symptoms, and in turn, whether the parent-child relationship can serve to buffer SMY from difficulties with ER and subsequent mental health disparities.

Conclusions

Despite the limitations noted above, this study also has several strengths which should be acknowledged. First, SMY in this sample were self-identified as LGBQ, rather than using a measure of romantic or sexual attraction. Although these are overlapping groups, it is often self-identified SMY who can be most easily identified and targeting with prevention and intervention programs, through school or LGBTQ community organizations or in clinical practice. Thus, understanding the outcomes, risks, and protective factors for this group has important implications for applied settings. For example, results from the current study might suggest that community organizations focus on prevention and intervention efforts targeting symptoms of depression rather than anxiety. Second, several ER strategies were examined as potential

mechanisms of risk linking sexual orientation and internalizing symptoms. This expands upon previous literature in this area, which has focused on only a few aspects of ER, including strategies like rumination and suppression and other theoretically related measures like emotional awareness (Hatzenbuehler et al., 2008; Hatzenbuehler et al., 2009). Furthermore, the scale used to measure ER has been validated in previous adolescent samples and the ER strategies it captures have been shown to be associated with depression and anxiety in several samples of children and adolescents (Garnefski & Kraaij, 2006; Garnefski et al., 2003; Garnefski et al., 2005; Legerstee et al., 2010). Finally, to my knowledge, this study is the first to examine how a positive parent-child relationship may influence not only mental health disparities between SMY and heterosexual youth, but also ER as a mechanism of risk for those disparities. This contributes to a new direction in the literature, highlighting how findings from the developmental field on how youth's ER develops can inform our understanding of risk and protective factors for the mental health of SMY.

The current study showed that SMY report higher levels of depression, but not anxiety symptoms, and that this disparity was not accounted for by use of cognitive ER strategies or positive parent-child relationship quality. Future research should continue to build on this and related literature examining intrapersonal mechanisms of risk for mental health disparities and family factors that may buffer SMY from difficulties with ER and internalizing symptoms. This line of research has important theoretical implications for understanding pathways of risk and resilience. In addition, it can provide useful information for developing and targeting evidence-based clinical prevention and intervention efforts to reduce disparities in mental health outcomes between SMY and their heterosexual peers.

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Table 1. Descriptive statistics for key study variables.

Variable	Mean	SD	Skewness	Kurtosis
Sexual Minority Status	0.14	0.34	2.13	2.54
CTQ Total	35.69	10.54	1.85	4.65
CDI Total	10.33	6.91	1.04	0.96
MASC Total	2.00	0.41	0.15	0.18
IPPA Total	78.87	12.29	-2.51	11.27

N = 278.

Table 2. Means and SDs of key study variables by sexual orientation subgroups.

Variable	Heterosexual Youth (*N* = 240)		Sexual Minority Youth (*N* = 38)	
	Mean	SD	Mean	SD
CTQ Total	35.19	10.24	38.87	11.91
CDI Total	9.71	6.54	14.21	7.97
MASC Total	1.99	0.39	2.02	0.48
IPPA Total	79.88	9.48	79.56	8.52

Table 3. Linear regression model predictors of Total CDI score.

	b	*SE B*	*β*	*p*
Step 1				
Constant	-6.04	1.76		.001
Gender	1.83	0.70	.13	.010
CTQ Total	0.38	0.04	.52	<.001
Step 2				
Constant	-5.66	1.75		.001
Gender	1.59	0.70	.12	.023
CTQ Total	0.37	0.04	.51	<.001
Sexual Minority Status	2.73	1.02	.14	.008

Table 4. Linear regression model predictors of Total MASC score.

	b	*SE B*	*β*	*p*
Step 1				
Constant	1.51	0.11		<.001
Gender	0.15	0.05	.18	.002
CTQ Total	0.01	0.002	.19	.001
Step 2				
Constant	1.50	0.11		<.001
Gender	0.15	0.05	.18	.002
CTQ Total	0.01	0.002	.20	.001
Sexual Minority Status	-0.03	0.07	-.02	.724

Table 5. Bivariate correlations among CERQ items.

	CERQ2	CERQ11	CERQ20	CERQ29	CERQ4	CERQ13	CERQ22	CERQ31	CERQ5	CERQ14	CERQ23	CERQ32	CERQ6	CERQ15	CERQ24	CERQ33	CERQ7	CERQ16	CERQ25
CERQ2	1.000																		
CERQ11	.594**	1.000																	
CERQ20	.216**	.158**	1.000																
CERQ29	.472**	.504**	.275**	1.000															
CERQ4	.049	.069	-.037	.043	1.000														
CERQ13	.007	.137*	-.056	.063	.416**	1.000													
CERQ22	.045	.168**	-.008	.099	.375**	.572**	1.000												
CERQ31	.021	.211**	-.077	.149*	.448**	.543**	.606**	1.000											
CERQ5	.102	.256**	-.143*	.096	.395**	.312**	.361**	.431**	1.000										
CERQ14	.242**	.341**	-.083	.169**	.291**	.240**	.214**	.336**	.408**	1.000									
CERQ23	.190**	.206**	-.109	.157**	.144*	.170**	.230**	.303**	.278**	.373**	1.000								
CERQ32	.130*	.202**	-.109	.183**	.265**	.240**	.239**	.419**	.517**	.457**	.464**	1.000							
CERQ6	.272**	.392**	-.100	.201**	.231**	.116	.151*	.266**	.459**	.458**	.329**	.384**	1.000						
CERQ15	.236**	.404**	-.006	.268**	.199**	.146*	.186**	.260**	.391**	.473**	.249**	.371**	.523**	1.000					
CERQ24	.237**	.332**	-.111	.252**	.255**	.219**	.354**	.394**	.351**	.315**	.365**	.407**	.431**	.364**	1.000				
CERQ33	.228**	.334**	-.174**	.267**	.287**	.247**	.326**	.496**	.439**	.390**	.330**	.505**	.479**	.413**	.696**	1.000			
CERQ7	.204**	.366**	.114	.262**	.148*	.256**	.340**	.298**	.216**	.219**	.238**	.230**	.334**	.261**	.420**	.397**	1.000		
CERQ16	.228**	.319**	.046	.273**	.199**	.258**	.216**	.276**	.139*	.293**	.350**	.235**	.370**	.434**	.426**	.408**	.450**	1.000	
CERQ25	.269**	.334**	.021	.255**	.208**	.265**	.336**	.302**	.291**	.347**	.356**	.271**	.332**	.274**	.626**	.463**	.431**	.495**	1.000
CERQ34	.278**	.326**	-.067	.283**	.169**	.310**	.327**	.342**	.222**	.298**	.376**	.270**	.343**	.328**	.497**	.531**	.520**	.667**	.528**
CERQ1	.239**	.111	.188**	.060	-.036	.008	-.050	-.097	-.056	-.056	.096	-.043	.049	.008	.014	-.087	-.011	.119*	.092
CERQ10	.180**	.174**	.123*	-.017	.002	.066	.053	.054	-.028	.068	.109	-.011	-.018	-.003	.035	-.024	.042	.058	.039
CERQ19	.290**	.246**	.292**	.158**	-.059	-.043	-.045	-.012	.028	.074	.197**	.128*	.108	.120*	.066	.041	.091	.141*	.052
CERQ28	.125*	.074	.232**	.156**	-.068	.006	-.040	-.009	-.065	-.056	.064	-.021	-.032	-.027	.004	-.102	.012	.143*	-.023
CERQ3	.353**	.308**	.074	.199**	.138*	-.033	-.100	.042	.185**	.346**	.232**	.225**	.264**	.309**	.073	.110	-.029	.108	.045
CERQ12	.268**	.244**	.193**	.213**	.114	.064	-.023	.06	.034	.087	.169**	.146*	.008	.079	.081	.076	.121*	.145*	.111
CERQ21	.241**	.280**	.148*	.264**	.087	.181**	.243**	.164**	.136*	.213**	.275**	.138*	.132*	.240**	.119*	.135*	.125*	.177**	.108
CERQ30	.174**	.134*	.355**	.223**	.074	-.009	-.179**	-.066	-.118*	-.061	-.016	-.028	-.083	.010	-.119*	-.184**	-.072	.054	-.085
CERQ8	-.006	.118*	.134*	.131*	.018	.053	.017	.034	.057	.010	.171**	.027	.023	.117	.053	.045	.033	.001	-.087
CERQ17	.003	.042	.283**	.047	-.005	.065	-.099	-.023	-.024	-.028	.072	.005	-.128*	-.024	-.057	-.158**	-.056	.011	-.120*
CERQ26	-.059	.063	.159**	.033	.006	.037	.163**	.157**	.094	-.045	.123*	.077	-.011	.055	.094	.066	.104	-.033	.017
CERQ35	.103	.050	.347**	.170**	-.045	-.023	-.106	-.122*	-.109	-.044	.084	.009	-.095	-.015	-.009	-.165**	-.009	.062	-.006
CERQ9	-.013	-.111	.141*	-.013	.011	.006	-.121*	-.007	-.060	-.033	.010	.003	-.130*	-.050	-.083	-.099	.016	-.014	-.096
CERQ18	.027	-.061	.172**	.106	-.011	.008	-.087	.018	-.092	-.040	.045	.008	-.066	-.002	.041	-.070	-.029	.020	-.058
CERQ27	.066	.053	.217**	.217**	.069	.124*	-.020	.113	.014	.016	.142*	.076	-.031	.090	.016	.011	.021	.071	.030
CERQ36	.008	-.047	.224**	.096	.083	.036	-.015	.100	.012	-.026	.116	.110	-.020	.011	.007	.041	.103	.080	-.083

	CERQ34	CERQ1	CERQ10	CERQ19	CERQ28	CERQ3	CERQ12	CERQ21	CERQ30	CERQ8	CERQ17	CERQ26	CERQ35	CERQ9	CERQ18	CERQ27	CERQ36
CERQ34	1.000																
CERQ1	.022	1.000															
CERQ10	-.026	.486**	1.000														
CERQ19	.038	.356**	.337**	1.000													
CERQ28	.007	.435**	.420**	.347**	1.000												
CERQ3	.086	.192**	.177**	.251**	.085	1.000											
CERQ12	.082	.262**	.286**	.305**	.250**	.268**	1.000										
CERQ21	.172**	.207**	.204**	.304**	.175**	.359**	.238**	1.000									
CERQ30	-.098	.177**	.189**	.346**	.233**	.321**	.472**	.244**	1.000								
CERQ8	.038	.062	.118*	.180**	.146*	.048	.123*	.265**	.238**	1.000							
CERQ17	-.044	.193**	.218**	.264**	.237**	.236**	.311**	.200**	.453**	.380**	1.000						
CERQ26	.018	.074	.087	.099	.066	-.020	.115	.158**	.122*	.345**	.288**	1.000					
CERQ35	.009	.319**	.245**	.256**	.203**	.174**	.349**	.128*	.500**	.315**	.576**	.290**	1.000				
CERQ9	-.086	-.043	-.078	.067	-.017	.007	.113	.108	.244**	.239**	.211**	.056	.184**	1.000			
CERQ18	-.035	-.087	-.087	.124*	.014	-.011	.126*	.197**	.301**	.312**	.287**	.155**	.237**	.679**	1.000		
CERQ27	.004	.043	-.082	.188**	.110	.103	.147*	.218**	.313**	.331**	.295**	.221**	.244**	.375**	.414**	1.000	
CERQ36	.064	-.075	-.128*	.107	.015	.003	.156**	.147*	.249**	.284**	.349**	.251**	.249**	.502**	.608**	.455**	1.000

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

Table 6. Factor loadings of indicators in CFA model 3 of emotion regulation strategies.

Emotion Regulation Items	***b***	***SE***	***p***
Factor: Acceptance			
I think that I have to accept that this has happened (CERQ2)	1.000	0.000	-
I think that I have to accept the situation (CERQ11)	1.043	.091	<.001
~~I think that I cannot change anything about it (CERQ20)~~	-	-	-
I think that I must learn to live with it (CERQ29)	0.835	.089	<.001
Factor: Positive Refocusing			
I think of nicer things than what I have experienced (CERQ4)	1.000	0.000	-
I think of pleasant things that have nothing to do with it (CERQ13)	1.169	0.141	<.001
I think of something nice instead of what has happened (CERQ22)	1.351	0.153	<.001
I think about pleasant experiences (CERQ31)	1.364	0.153	<.001
Factor: Refocus on Planning			
I think of what I can do best (CERQ5)	1.000	0.000	-
I think about how I can best cope with the situation (CERQ14)	0.898	0.098	<.001
I think about how to change the situation (CERQ23)	0.711	0.090	<.001
I think about a plan of what I can do best (CERQ32)	1.053	0.102	<.001
Factor: Positive Reappraisal			
I think I can learn something from the situation (CERQ6)	1.000	0.000	-
I think that I can become a stronger person as a result of what has happened (CERQ15)	0.919	0.109	<.001
I think that the situation also has its positive sides (CERQ24)	1.150	0.109	<.001
I look for the positive sides to the matter (CERQ33)	1.268	0.115	<.001
Factor: Putting into Perspective			
I think that it all could have been much worse (CERQ7)	1.000	0.000	-
I think that other people go through much worse experiences (CERQ16)	1.262	0.125	<.001
I think that it hasn't been too bad compared to other things (CERQ25)	0.949	0.100	<.001
I tell myself that there are worse things in life (CERQ34)	1.325	0.125	<.001
Factor: Self-Blame			
I feel that I am the one to blame for it (CERQ1)	1.000	0.000	-
I feel that I am the one who is responsible for what has happened (CERQ10)	1.047	0.115	<.001
I think about the mistakes I have made in this matter (CERQ19)	0.439	0.135	.001
I think that basically the cause must lie within myself (CERQ28)	0.894	.105	<.001
Factor: Rumination	***b***	***SE***	***p***

I often think about how I feel about what I have experienced (CERQ3)	1.000	0.000	-
I am preoccupied with what I think and feel about what I have experienced (CERQ12)	1.004	0.150	<.001
I think about the mistakes I have made in this matter (CERQ19)	0.794	0.165	<.001
I want to understand why I feel the way I do about what I have experienced (CERQ21)	1.104	0.173	<.001
~~*I dwell upon the feelings the situation has evoked in me* (CERQ30)~~	-	-	-
Factor: Catastrophizing			
I often think that what I have experienced is much worse than what others have experienced (CERQ8)	1.000	0.000	-
I keep thinking about how terrible it is what I have experienced (CERQ17)	1.540	0.233	<.001
I often think that what I have experienced is the worst that can happen to a person (CERQ26)	0.598	0.131	<.001
I continually think about how horrible the situation has been (CERQ35)	1.491	0.230	<.001
Factor: Blaming Others			
I feel that others are to blame for it (CERQ9)	1.000	0.000	-
I feel that others are responsible for what has happened (CERQ18)	1.061	0.074	<.001
I think about the mistakes that others have made in this matter (CERQ27)	0.744	0.086	<.001
I feel that basically the cause lies with others (CERQ36)	0.791	0.064	<.001

Table 7. Correlations Among Emotion Regulation Factors in CFA Model 3.

	Acceptance	Positive Refocusing	Refocus on Planning	Positive Reappraisal	Putting into Perspective	Self-Blame	Rumination	Catastro-phizing	Blaming Others
Acceptance	.867 (.130)								
Positive Refocusing	.114* (.044)	.366 (.078)							
Refocus on Planning	.325** (.072)	.334** (.059)	.771 (.129)						
Positive Reappraisal	.400** (.072)	.293** (.053)	.592** (.086)	.678 (.120)					
Putting into Perspective	.383** (.069)	.260** (.050)	.374** (.068)	.519** (.079)	.638 (.115)				
Self-Blame	.170** (.055)	-.017 (.033)	-.009 (.050)	-.022 (.045)	.042 (.044)	.499 (.083)			
Rumination	.381** (.068)	.041 (.032)	.250** (.057)	.153** (.048)	.118** (.045)	.247** (.050)	.371 (.086)		
Catastrophizing	.040 (.041)	-.030 (.027)	.006 (.872)	-.059 (.037)	-.027 (.035)	.170** (.042)	.192** (.045)	.312 (.087)	
Blaming Others	-.016 (.051)	-.005 (.032)	-.004 (.049)	-.039 (.044)	-.022 (.042)	-.050 (.040)	.118** (.041)	.198** (.043)	.556 (.075)

* $p < .05$, ** $p < .01$. *SE*s shown in parentheses. Variances and *SEs* of the factors are reported along the diagonal.

Table 8. Direct effects of predictors and mediators on mediators and Total CDI score.

	b	*SE*	90% Confidence Interval	*p*
Predictor – Outcome				
SMS – Total CDI	2.128	3.239	-3.997, 5.548	.349
Gender – Total CDI	1.479	0.666	0.383, 2.581	.029
Total CTQ – Total CDI	0.301	0.044	0.231, 0.375	.002
Predictor – Mediator				
SMS – Acceptance	0.098	0.186	-0.216, 0.400	.602
SMS – Positive Refocusing	0.038	0.121	-0.166, 0.234	.776
SMS – Refocus on Planning	-0.295	0.192	-0.560, 0.060	.189
SMS – Positive Reappraisal	-0.094	0.179	-0.366, 0.209	.648
SMS – Putting into Perspective	-0.182	0.163	-0.442, 0.094	.290
SMS – Self-Blame	0.332	0.171	0.064, 0.634	.042
SMS – Rumination	0.168	0.143	-0.066, 0.418	.208
SMS – Catastrophizing	-0.094	0.112	-0.270, 0.084	.373
SMS – Blaming Others	-0.058	0.137	-0.263, 0.189	.698
Mediator – Outcome				
Acceptance – Total CDI	-0.762	4.322	-12.458, 2.610	.522
Positive Refocusing – Total CDI	0.642	3.235	-2.336, 6.385	.651
Refocus on Planning – Total CDI	-2.363	7.132	-16.642, 4.653	.444
Positive Reappraisal – Total CDI	0.075	6.216	-6.051, 9.831	.964
Putting into Perspective – Total CDI	0.479	3.534	-3.854, 4.599	.764
Self-Blame – Total CDI	2.237	4.245	-6.157, 5.793	.386
Rumination – Total CDI	1.037	12.372	-9.274, 29.226	.724
Catastrophizing – Total CDI	2.104	4.681	-4.774, 7.778	.412
Blaming Others – Total CDI	0.225	2.681	-2.830, 2.844	.857

Note. Unstandardized regression coefficients are shown. *SMS* = Sexual Minority Status.

Table 9. Parameter estimates of the indirect effect of sexual minority status on Total CDI score.

Mediator	Estimate of Indirect Effect (Unstandardized)	Standard Error	90% C. I.	*p*
Acceptance	-0.075	0.845	-2.749, 0.269	.444
Positive Refocusing	0.003	0.188	-0.123, 0.236	.819
Refocus on Planning	-0.344	2.431	-12.778, 0.365	.360
Positive Reappraisal	0.037	0.501	-0.209, 0.874	.572
Putting into Perspective	-0.051	0.926	-2.205, 0.332	.604
Self-Blame	0.742	1.615	-0.586, 3.141	.244
Rumination	0.174	2.466	-0.988, 10.587	.521
Catastrophizing	-0.197	0.636	-1.845, 0.236	.342
Blaming Others	-0.013	0.355	-0.737, 0.195	.687

Table 10. Direct effects of predictors and mediators on mediators and Total MASC score.

	b	*SE*	90% Confidence Interval	*p*
Predictor – Outcome				
SMS – Total MASC	-0.157	0.339	-1.337, 0.067	.245
Gender – Total MASC	0.148	0.046	0.079, 0.226	.002
Predictor – Mediator				
SMS – Acceptance	0.100	0.190	-0.218, 0.406	.610
SMS – Positive Refocusing	0.039	0.121	-0.163, 0.246	.750
SMS – Refocus on Planning	-0.295	0.195	-0.561, 0.059	.197
SMS – Positive Reappraisal	-0.094	0.182	-0.373, 0.214	.677
SMS – Putting into Perspective	-0.182	0.164	-0.438, 0.105	.300
SMS – Self-Blame	0.336	0.172	0.061, 0.644	.040
SMS – Rumination	0.172	0.144	-0.073, 0.418	.242
SMS – Catastrophizing	-0.096	0.116	-0.275, 0.095	.381
SMS – Blaming Others	-0.058	0.132	-0.255, 0.185	.696
Mediator – Outcome				
Acceptance – Total MASC	-0.172	0.339	-1.799, 0.013	.122
Positive Refocusing – Total MASC	0.057	0.285	-0.115, 1.270	.478
Refocus on Planning – Total MASC	-0.315	0.611	-3.185, 0.036	.135
Positive Reappraisal – Total MASC	0.167	0.564	-0.150, 2.974	.318
Putting into Perspective – Total MASC	-0.024	0.288	-0.676, 0.234	.741
Self-Blame – Total MASC	-0.053	0.288	-1.533, 0.124	.455
Rumination – Total MASC	0.610	0.873	0.082, 4.598	.057
Catastrophizing – Total MASC	-0.119	0.380	-1.330, 0.111	.351
Blaming Others – Total MASC	0.011	0.172	-0.789, 0.127	.781

Note. Unstandardized regression coefficients are shown. *SMS* = Sexual Minority Status.

Table 11. Parameter estimates of the indirect effect of sexual minority status on Total MASC score.

Mediator	Estimate of Indirect Effect (Unstandardized)	Standard Error	90% C. I.	*p*
Acceptance	-0.017	0.072	-0.310, 0.007	.255
Positive Refocusing	0.002	0.035	-0.012, 0.159	.523
Refocus on Planning	0.093	0.256	-0.004, 1.411	.134
Positive Reappraisal	-0.016	0.147	-0.796, 0.020	.302
Putting into Perspective	0.004	0.074	-0.029, 0.177	.566
Self-Blame	-0.018	0.097	-0.619, 0.027	.338
Rumination	0.105	0.218	0.001, 1.320	.091
Catastrophizing	0.011	0.061	-0.005, 0.418	.252
Blaming Others	-0.001	0.024	-0.025, 0.040	.987

Table 12. Direct effects of predictors, mediators, and interactions on mediators and Total CDI score.

	b	*SE*	90% Confidence Interval	*p*
Predictor – Outcome				
SMS – Total CDI	2.904	3.681	0.096, 8.897	.090
Gender – Total CDI	1.509	0.655	0.442, 2.600	.024
Total CTQ – Total CDI	0.293	0.049	0.221, 0.378	.001
Predictor – Mediator				
SMS – Acceptance	0.098	0.191	-0.224, 0.407	.607
IPPA-R – Acceptance	0.003	0.007	-0.011, 0.013	.757
SMSxIPPA-R - Acceptance	-0.010	0.024	-0.053, 0.027	.572
SMS – Positive Refocusing	0.037	0.122	-0.165, 0.235	.773
IPPA-R – Positive Refocusing	0.006	0.005	-0.001, 0.014	.143
SMSxIPPA-R – Positive Refocusing	-0.006	0.013	-0.029, 0.014	.629
SMS – Refocus on Planning	-0.308	0.188	-0.602, 0.011	.113
IPPA-R – Refocus on Planning	0.006	0.006	-0.004, 0.016	.311
SMSxIPPA-R – Refocus on Planning	-0.045	0.023	-0.081, -0.006	.048
SMS – Positive Reappraisal	-0.096	0.180	-0.369, 0.203	.662
IPPA-R – Positive Reappraisal	0.018	0.006	0.009, 0.028	.003
SMSxIPPA-R – Positive Reappraisal	-0.021	0.022	-0.058, 0.013	.289
SMS – Putting into Perspective	-0.187	0.167	-0.444, 0.098	.271
IPPA-R – Putting into Perspective	0.018	0.006	0.010, 0.028	.003
SMSxIPPA-R Putting into Perspective	-0.029	0.021	-0.067, 0.001	.124
SMS – Self-Blame	0.334	0.176	0.058, 0.651	.044
IPPA-R – Self-Blame	0.001	0.006	-0.010, 0.011	.997
SMSxIPPA-R – Self-Blame	0.008	0.019	-0.023, 0.040	.653
SMS – Rumination	0.170	0.147	-0.080, 0.419	.228
IPPA-R - Rumination	-0.001	0.005	-0.009, 0.009	.938
SMSxIPPA-R - Rumination	0.009	0.019	-0.023, 0.040	.702
SMS – Catastrophizing	-0.094	0.115	-0.272, 0.088	.375
IPPA-R - Catastophizing	-0.009	0.005	-0.020, -0.002	.043
SMSxIPPA-R - Catastrophizing	0.006	0.014	-0.015, 0.031	.596
SMS – Blaming Others	-0.066	0.132	-0.280, 0.161	.624
IPPA-R – Blaming Others	-0.017	0.006	-0.027, -0.009	.003
SMSxIPPA-R – Blaming Others	-0.011	0.018	-0.043, 0.017	.536
Mediator – Outcome				
Acceptance – Total CDI	-0.605	5.718	-2.613, 10.377	.753
Positive Refocusing – Total CDI	-0.087	4.185	-5.445, 2.888	.924
Refocus on Planning – Total CDI	-0.317	8.836	-5.501, 13.720	.986
Positive Reappraisal – Total CDI	-1.267	10.770	-13.648, 5.790	.618
Putting into Perspective – Total CDI	0.518	6.446	-6.406, 5.358	.774
Self-Blame – Total CDI	3.354	6.114	-0.619, 13.324	.128
Rumination – Total CDI	-2.717	16.229	-32.544, 6.986	.566
Catastrophizing – Total CDI	3.012	8.313	-1.430, 14.548	.217
Blaming Others – Total CDI	0.808	2.962	-1.541, 5.159	.562

Note. Unstandardized regression coefficients are shown. *SMS* = Sexual Minority Status. *SMSxIPPA-R* = interaction term of centered Sexual Minority Status * centered Total IPPA-R score.

Table 13. Direct effects of predictors, mediators, and interactions on mediators and Total MASC score.

	b	*SE*	90% Confidence Interval	*p*
Predictor – Outcome				
SMS – Total MASC	0.035	0.213	-0.244, 0.413	.801
Gender – Total MASC	0.152	0.047	0.084, 0.236	.001
Predictor – Mediator				
SMS – Acceptance	0.099	0.189	-0.215, 0.411	.579
IPPA-R – Acceptance	0.003	0.007	-0.010, 0.014	.691
SMSxIPPA-R - Acceptance	-0.011	0.024	-0.056, 0.025	574
SMS – Positive Refocusing	0.038	0.122	-0.166, 0.231	.765
IPPA-R – Positive Refocusing	0.006	0.005	-0.001, 0.014	.158
SMSxIPPA-R – Positive Refocusing	-0.006	0.013	-0.029, 0.013	.606
SMS – Refocus on Planning	-0.308	0.185	-0.602, 0.004	.106
IPPA-R – Refocus on Planning	0.007	0.006	-0.003, 0.018	.254
SMSxIPPA-R – Refocus on Planning	-0.044	0.022	-0.081, -0.007	.042
SMS – Positive Reappraisal	-0.098	0.178	-0.387, 0.197	.639
IPPA-R – Positive Reappraisal	0.018	0.006	0.008, 0.027	.004
SMSxIPPA-R – Positive Reappraisal	-0.021	0.022	-0.058, 0.012	.266
SMS – Putting into Perspective	-0.187	0.168	-0.440, 0.099	.287
IPPA-R – Putting into Perspective	0.018	0.006	0.010, 0.029	.003
SMSxIPPA-R Putting into Perspective	-0.029	0.020	-0.066, 0.002	.131
SMS – Self-Blame	0.340	0.179	0.061, 0.661	.046
IPPA-R – Self-Blame	0.002	0.006	-0.008, 0.012	.750
SMSxIPPA-R – Self-Blame	0.008	0.019	-0.021, 0.043	.627
SMS – Rumination	0.172	0.146	-0.084, 0.410	.234
IPPA-R - Rumination	-0.002	0.006	-0.012, 0.006	.517
SMSxIPPA-R - Rumination	0.010	0.020	-0.023, 0.041	.643
SMS – Catastrophizing	-0.097	0.116	-0.272, 0.097	.369
IPPA-R - Catastophizing	-0.009	0.006	-0.020, -0.002	.048
SMSxIPPA-R - Catastrophizing	0.006	0.014	-0.016, 0.031	.623
SMS – Blaming Others	-0.066	0.131	-0.276, 0.159	.619
IPPA-R – Blaming Others	-0.017	0.006	-0.027, -0.009	.004
SMSxIPPA-R – Blaming Others	-0.011	0.018	-0.044, 0.016	.497
Mediator – Outcome				
Acceptance – Total MASC	0.144	0.309	-0.082, 0.978	.313
Positive Refocusing – Total MASC	-0.136	0.207	-0.555, 0.072	.276
Refocus on Planning – Total MASC	0.199	0.407	-0.198, 0.867	.467
Positive Reappraisal – Total MASC	-0.169	0.550	-1.015, 0.361	.494
Putting into Perspective – Total MASC	0.008	0.385	-0.583, 0.440	.982
Self-Blame – Total MASC	0.202	0.334	-0.017, 1.074	.122
Rumination – Total MASC	-0.266	0.847	-2.473, 0.400	.509
Catastrophizing – Total MASC	0.093	0.423	-0.192, 1.358	.510
Blaming Others – Total MASC	0.142	0.174	0.010, 0.549	.080

Note. Unstandardized regression coefficients are shown. *SMS* = Sexual Minority Status. *SMSxIPPA-R* = interaction term of centered Sexual Minority Status * centered Total IPPA-R score.

Figure 1. Conceptual model for Aim 3.