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Mindfulness and Avoidant Coping: Examining the Behavioral Correlates of Suicidal Ideation among Sexual Minority College Students

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MINDFULNESS AND AVOIDANT COPING

Mindfulness and avoidant coping: Examining the behavioral correlates of suicidal ideation
among sexual minority college students

A thesis submitted in partial fulfillment of the requirement
for the degree of Bachelor of Science in Psychological Sciences from
William & Mary

by

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Accepted for Honors
(Honors, High Honors, Highest Honors)



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December 12, 2022

**Mindfulness and avoidant coping: Examining the behavioral correlates of suicidal ideation
among sexual minority college students**

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Abstract

Lesbian, gay, and bisexual (LGB) individuals are at higher risk for mental health problems including suicidal ideation (SI). Previous research has indicated that coping strategies and mindfulness may explain disparities in SI among LGB individuals. The aim of the present study was to examine how coping strategies (self-sufficient, avoidant, socially-supported) and trait mindfulness facets (observing, describing, acting with awareness, non-judging, non-reactivity) contribute to these differences. The sample consisted of 927 college students, 124 of whom identified as LGB. Within the analytic sample, a majority identified as women ($n = 639$, 68.9%), 18 or 19 years of age ($n = 573$, 61.8%), and college freshmen ($n = 551$, 59.4%). LGB individuals exhibited significantly higher levels of socially-supported coping, SI, and observing, marginally higher levels of avoidant coping, and significantly lower levels of non-judging and acting with awareness. Mediation analyses revealed that LGB identity was linked to higher levels of SI via higher avoidant coping. None of the moderated mediation models were significant, such that variations in mindfulness did not significantly moderate the association between LGB identity and avoidant coping. Exploratory analyses revealed acting with awareness and non-judging significantly moderated differences in SI, meaning LGB individuals with higher levels of acting with awareness and non-judging were at lower risk for SI. These results provide a better understanding of the underlying mechanisms of the SI risk disproportionately affecting the LGB community and shed light on the importance of programs designed to develop healthy coping strategies and mindful thinking.

Keywords: *suicidal ideation, coping, avoidant coping, mindfulness, LGB*

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Mindfulness and avoidant coping: Examining the behavioral correlates of suicidal ideation among sexual minority college students

Individuals who identify as lesbian, gay, and bisexual (LGB) consistently demonstrate poorer mental health outcomes compared to their heterosexual counterparts. LGB individuals are known to experience higher prevalence rates of depression, anxiety disorders, and dependence on alcohol and other substances compared to their heterosexual counterparts (Janković et al., 2020; King et al., 2008). LGB individuals are also at higher risk for suicidal ideation (SI) (Garofalo et al., 1998; King et al., 2008; Ramchand et al., 2022) and suicide attempts (Garofalo et al., 1998; King et al., 2008). A 2019 report found that 27.9% of LGB young adults (aged 18-25) had serious thoughts of suicide, 11.5% made a plan for suicide, and 5.5% attempted suicide; all of these are higher than the general population of young adults (Curtin & Hedegaard, 2019; Substance Abuse and Mental Health Services Administration, 2020). Research suggests that these disparities may be attributed to the unfair treatment of sexual minorities from damaged familial and peer relationships, victimization in school, stigma, and more (Garofalo et al., 1998, Rimes et al., 2019). Given such high disparities in mental health (particularly suicidality), researchers have attempted to find both risk and protective factors contributing to the differences in SI among sexual identity groups. The present study focused on maladaptive coping (risk factor) and trait mindfulness (protective factor) as factors that may play a role in explaining disparities among LGB individuals.

Coping

Coping is referred to as a response, both cognitively and behaviorally, to potentially problematic events (Pearlin & Schooler, 1978). Instead of being perceived as an individualized response to threat, coping has shifted to be interpreted as a product of an individual's experiences

and social roles (Pearlin & Schooler, 1978). Coping has the potential to be advantageous or harmful depending on the type and context (Folkman & Lazarus, 1980).

The most common assessment of coping strategies is the COPE measure (Carver et al., 1989), a questionnaire that distinguishes between fifteen independent coping strategies: positive reinterpretation and growth (optimism), mental disengagement (participating in distracting activities), focus on and venting of emotions, instrumental social support (reaching out to others for logistical purposes), active coping (concentration and action towards the issue), denial, religious coping, humor, behavioral disengagement (choosing to participate in other activities), restraint (hesitancy to perform activities), emotional social support (reaching out to others for sympathy and understanding), substance use, acceptance, suppression of competing activities (prioritizing issue at hand over others), and planning (Carver et al., 1989). The COPE can be further assessed by three major categorizations of these coping strategies: *self-sufficient coping* is defined by activities motivated by the individual to target distress (planning, active coping, positive reinterpretation and growth, suppression of competing activities, acceptance, restraint, humor, turning to religion), *avoidant coping* is defined by the alteration of thoughts or behavior to deflect distress (denial, behavioral disengagement, substance use, mental disengagement), and *socially-supported coping* is defined by interactions with others related to distress (emotional social support, instrumental social support, focus on and venting of emotions) (Litman, 2006).

Among these three broad categories of coping, research has drawn a relationship between Litman's division of avoidant coping and suicidality. The components of avoidant coping have been found to be associated with depressive symptoms, which is the largest risk factor for SI (Weber et al., 1997), in a sample of Portuguese adults (Almeida et al., 2021). Studies have also found a link between avoidant coping and suicide risk in American college students (Yi et al.,

2021) high-risk psychiatric patients (Ambrus et al., 2017), previous suicide attempters, depressed individuals without a history of suicide (Ambrus, 2016), and college students in Hong Kong (Ong & Thompson, 2018). Avoidant coping and SI were also correlated in a sample of LGB French young adults (Charbonnier et al., 2018). On the other hand, there are mixed findings as to the protective effects of self-sufficient coping and its relationship with both depressive symptoms and suicidality in a wide variety of populations, while socially-supported coping does not seem to have an effect on either (Ambrus et al., 2017; Yi et al., 2021).

Disparities in Utilization of Coping Strategies

Minority stress theory (Meyer, 2003) posits that issues such as prejudice, stigma, and discrimination contribute to a detrimental social environment for individuals of any minority status. This then forces these individuals to turn to maladaptive coping strategies, which is in part associated with mental health problems. One application of this theory is in LGB individuals, who experience a lack of support from legislators around the world and negative social attitudes from the general population.

In support of social stress theory, LGB individuals exhibit differences within Litman's division of avoidant coping. Using the youth version of the Coping Response Inventory (Maller, 1997), an alternative measure to the COPE, LGB high school students demonstrated higher avoidant coping compared to their heterosexual counterparts (Lock & Steiner, 1999). Another study found that homosexual men use more avoidant coping than heterosexual men (Sandfort et al., 2007). Within avoidant coping, substance use is known to be higher among LGB individuals (Schuler et al., 2019) and this is heavily influenced by internal normative beliefs that the LGB community uses substances to cope (Boyle et al., 2017). This disparity in avoidant coping is not due to natural differences in populations, but more due to a lack of support from the general

population (i.e., prejudice) which makes socially-supported coping less accessible for LGB individuals. The unique stressors that impact this community may inhibit individuals' motivation for adaptive coping. For example, the more discrimination that LGB individuals face, the lower their coping self-efficacy (Denton et al., 2014); this is further associated with the increased use of maladaptive coping strategies including mental and behavioral disengagement (Lane et al., 2002). LGB individuals therefore may be more likely to engage in avoidant coping, which may place them at higher risk for SI. With such associations, there is an ever-present need for establishing protective factors that may reduce avoidant coping to lower the risk of SI within the LGB community.

Mindfulness as a Protective Factor

Mindfulness is typically defined as an awareness in the present moment without judgment (Bishop et al., 2004). In examining trait mindfulness, researchers have focused on five facets assessed via the Five Facet Mindfulness Questionnaire (FFMQ) (Baer et al., 2006). Specifically, trait mindfulness facets include observing (sensory awareness), describing (labeling of experiences), acting with awareness (choices aligning with the present moment), non-judging of inner experience (avoiding the "inner critic"), and non-reactivity to inner experience (detachment from thoughts and emotions). Trait mindfulness has been consistently examined as a protective factor for many mental health outcomes, including SI (Brown & Ryan, 2003; Lamis & Dvorak, 2013; Tucker et al., 2014).

Monitor and Acceptance Theory (MAT) is a proposed model to explain these protective effects. Specifically, MAT proposes that increased awareness from mindfulness improves attention monitoring, which improves cognitive functioning. Tied to more health-related behaviors, acceptance reduces affective reactivity, which is associated with a lower risk of SI.

(Lindsay & Creswell, 2017; Wang et al., 2021). Within mindfulness, health outcomes improve when individuals actively address their behavior rather than understanding the processes that underlie their issues. Researchers have found two FFMQ facets – acting with awareness and non-judging – are aligned with mental health improvements. Tied to SI, acting with awareness and non-judging are associated with lower suicidality (Bravo et al., 2018a; Per et al., 2022; Tucker et al., 2014).

Within the LGB community, individuals have reported lower FFMQ scores in describing, acting with awareness, and non-judging (Wedell et al., 2021). Perhaps this contributes to the higher demonstrated use of avoidant coping in the LGB community. For example, trait mindfulness was found to be negatively associated with avoidant coping in a college student sample (Palmer & Rodger, 2010). Disparities in avoidant coping may be attributed to differing levels of mindfulness (particularly acting with awareness and non-judging); this could then be tied to differences in SI. Therefore, higher mindfulness should serve as a protective factor for SI by reducing the relationship between LGB identity and avoidant coping.

Present Study

The present study aimed to examine the relationship between coping strategies using Litman's division of the COPE inventory and SI in LGB and heterosexual college students. Additionally, the study investigated how trait mindfulness may be able to serve as a protective factor in these relationships. We hypothesized that SI would be higher in LGB college students compared to their heterosexual counterparts due to higher avoidant coping (i.e., mediation model). Given marginal evidence in the literature, we did not expect self-sufficient and socially-supported coping to mediate this relationship (although this was explored in the present study). We also hypothesized that those with higher trait mindfulness would exhibit a weaker

relationship between identity and coping, thus reducing the risk for SI (i.e., moderated mediation, see Figure 1). Similar to coping, all of the facets of mindfulness will be analyzed, though it is expected that non-judging and acting with awareness will be most influential in these models.

Method

Participants and Procedure

The following study is a secondary analysis of previously collected data focused on examining non-prescription stimulant use among college students (Looby et al., 2021).

Participants were undergraduate college students in Psychology Department Participant Pools recruited from seven American universities across six states (Colorado, New Mexico, New York, Texas, Virginia [2 sites], and Wyoming). A total of 4,764 students took the online survey between Fall 2019 and Spring 2020 for research participation credit. Due to the large number of constructs assessed, a planned missing data design was used (i.e., matrix sampling) (Graham et al., 2006; Schafer, 1997). This method has been successful in other large studies with multi-site college student populations (e.g., Bravo et al., 2018a). All participants received core measures focusing on mental health and substance use followed by a randomized (10 of 22) selection of supplemental measures, including the COPE (coping responses) and the FFMQ (mindfulness). This study used a single-site IRB model, and all procedures were approved by the University of Wyoming IRB.

Given the aims of the present study, a total of 927 participants with reported information on sexual identity, SI, coping strategies, and trait mindfulness were included in our analyses. Within the total sample, 803 (86.6%) were heterosexual and 124 (13.4%) were LGB. Further, the total sample was 68.9% women ($n = 639$), 47.2% white ($n = 438$), 61.8% were 18 or 19 years of age ($n = 573$), and 59.4% were college freshmen ($n = 551$). Within the LGB sample, 18.5% were

gay or lesbian ($n = 23$), 69.4% were bisexual ($n = 86$), 1.6% were asexual ($n = 2$), and 10.5% were pansexual ($n = 13$). Demographics depicted across identity groups are reported in Table 1.

Measures

LGB Identity. To measure sexual identity, participants were asked: “Do you consider yourself to be” and were given the options of “straight, that is, heterosexual,” “gay or lesbian,” “bisexual,” “pansexual,” “questioning/don’t know,” and “asexual.” We operationalized LGB identity to those who answered “gay or lesbian,” “bisexual,” “pansexual,” or “asexual.” Those who answered “questioning/don’t know” were excluded from analyses. Individuals who identified as pansexual and asexual were included in order to generalize our results more broadly to the sexual minority community as a whole.

Coping Mechanisms. Coping was assessed via the COPE inventory (Carver et al., 1989), which asked participants how often they perform particular types of coping activities on a 4-point Likert scale (1 = *I usually don’t do this at all*, 4 = *I usually do this a lot*). Questions included “I hold off doing anything about it until the situation permits” and “I act as though it hasn’t even happened”. For the present study, we used Litman’s (2006) divisions to split the 15 mechanisms into three broad categories: self-sufficient coping ($\alpha = .93$), avoidant coping ($\alpha = .87$), and socially-supported coping ($\alpha = .91$).

Suicidal Ideation. SI was measured using the DSM Self-Rated Level 1 Cross-Cutting Symptoms Measure – Adult (American Psychiatric Association, 2013), which was created as part of the DSM-5 to measure mental health symptoms across a variety of psychological disorders. A 5-point Likert scale (0 = *None, not at all*, 4 = *Severe, nearly every day*) was used to ask participants “In the past TWO (2) WEEKS, how much (or how often) have you been bothered by the following problems?” To measure SI, participants responded to the following:

“Thoughts of actually hurting yourself?” An examination of the psychometric properties of the measure demonstrated that it is both a reliable and valid measure of suicidal ideation in college students (Bravo et al., 2018b).

Trait Mindfulness. Mindfulness was assessed using the FFMQ (Baer et al, 2006), which asks questions that are answered on a 5-point Likert scale (1 = *Never or very rarely true*, 5 = *Very often or always true*). Example questions include “I’m good at finding the words to describe my feelings” and “In difficult situations, I can pause without immediately reacting” and are categorized into five facets: observing ($\alpha = .85$), describing ($\alpha = .81$), acting with awareness ($\alpha = .89$), non-judging ($\alpha = .91$), and non-reactivity ($\alpha = .82$) (Baer et al., 2006). The FFMQ has been demonstrated to have high validity following the examination of its psychometric properties (Baer et al., 2008).

Data Analysis

SPSS Version 27.0 was used to conduct the following statistical analyses. First, we calculated descriptive statistics, correlational relationships, and t-tests across all constructs (SI, three types of coping, and five facets of mindfulness). We then ran three mediation models for each category of coping to see if coping strategies mediated the relationship between sexual identity and SI using SPSS Macro, PROCESS v4.0 (Model 4; Hayes, 2013). Statistical significance was determined using 95% bootstrap (10,000 samples) confidence intervals that did not contain zero within the bounds of the confidence intervals.

In addition, we performed moderated mediation models (see Figure 1) with Model 7 of Process (Version 4.0; Hayes, 2013). We used a moderated mediation model to determine the influence of coping, specifically avoidant coping (M), on disparities in SI (Y) among LGB college students vs heterosexual students (X), and whether these differences are conditional upon

levels of mindfulness, specifically non-judging and acting with awareness (W). For interpretation purposes, all continuous variables that defined products of the interaction term were mean-centered and all interaction terms were probed regardless of statistical significance. Moderation effects were probed by analyzing the conditional effect of the focal predictor (sexual identity) on the mediator (coping strategies) at differing values of the moderator (mindfulness) corresponding to 1 SD below the mean, the mean, and 1 SD above the mean. The index of moderated mediation for each model was used to determine the statistical significance of the moderated-mediated effect. Statistical significance was determined using 95% bootstrap (10,000 samples) confidence intervals that did not contain zero within the bounds of the confidence intervals.

Results

Descriptive Statistics and Bivariate Correlations

Table 2 presents the correlations and t-tests comparing LGB and heterosexual individuals on all study variables. LGB individuals reported significantly higher levels of SI, socially-supported coping, and observing compared to heterosexual individuals. They had significantly lower levels of acting with awareness and non-judging compared to heterosexual students. Differences in the use of avoidant coping between LGB and heterosexual individuals were marginally significant ($p = .054$). Among correlations, both groups displayed a positive relationship between SI and avoidant coping; they also displayed a negative relationship between SI and both acting with awareness and non-judging.

Mediation Models

Within the self-sufficient coping mediation model, sexual identity was not significantly associated with self-sufficient coping ($b = -1.509$, $\beta = -.09$, 95% CI $[-4.71, 1.69]$), but was uniquely associated with increased suicidal ideation ($b = 0.31$, $\beta = .37$, 95% CI $[.15, .48]$).

Further, self-sufficient coping was not significantly associated with suicidal ideation ($b = 0.00$, $\beta = .01$, 95% CI $[-.00, .00]$). When examining indirect effects, self-sufficient coping did not mediate the associations between sexual identity and suicidal ideation (indirect $\beta = -.00$, 95% CI $[-.01, .01]$).

Within the avoidant coping mediation model, sexual identity was marginally associated with avoidant coping ($b = 1.52$, $\beta = .19$, 95% CI $[-.02, 3.06]$), but was uniquely associated with increased suicidal ideation ($b = 0.26$, $\beta = .31$, 95% CI $[.11, .42]$). Further, avoidant coping was significantly associated with suicidal ideation ($b = 0.03$, $\beta = .31$, 95% CI $[.03, .04]$). When examining indirect effects, avoidant coping mediated the associations between sexual identity and suicidal ideation (indirect $\beta = .05$, 95% CI $[.00, .11]$), accounting for 16.09% of the total effect of sexual identity on SI.

Within the socially-supported mediation model, sexual identity was significantly associated with socially-supported coping ($b = 2.30$, $\beta = .27$, 95% CI $[.70, 3.91]$), and was uniquely associated with increased suicidal ideation ($b = 0.31$, $\beta = .36$, 95% CI $[.15, .47]$). However, socially-supported coping was not significantly associated with suicidal ideation ($b = 0.00$, $\beta = .01$, 95% CI $[-.01, .01]$). When examining indirect effects, socially-supported coping did not mediate the associations between sexual identity and suicidal ideation (indirect $\beta = .00$, 95% CI $[-.01, .02]$).

Moderated Mediation Model

Since avoidant coping was the only mechanism with a significant indirect effect on suicidal ideation, self-sufficient and socially-supported coping were not included in the moderated mediation models. As displayed by Table 3, none of the five facets of mindfulness significantly moderated the association between avoidant coping and suicidal ideation: observing

($b = 0.24$, 95% CI $[-1.65, 2.13]$), describing ($b = 0.97$, 95% CI $[-1.06, 3.00]$), acting with awareness ($b = 1.07$, 95% CI $[-.54, 2.69]$), non-judging ($b = 0.35$, 95% CI $[-1.16, 1.85]$), and non-reactivity ($b = 0.70$, 95% CI $[-1.40, 2.79]$). Thus, none of the indices of moderated mediation were significant: observing (index = .01, 95% CI $[-.06, .08]$), describing (index = .03, 95% CI $[-.04, .10]$), acting with awareness (index = .04, 95% CI $[-.03, .10]$), non-judging (index = .01, 95% CI $[-.04, .07]$), and non-reactivity (index = .02, 95% CI $[-.07, .12]$).

Exploratory Analysis: Moderation Model

An exploratory analysis was performed using SPSS Macro, PROCESS v4.0 (Model 1; Hayes, 2013) to examine the moderating effects of the mindfulness facets on suicidal ideation without the inclusion of coping strategies (see Table 4). Interaction effects for observing ($b = 0.15$, 95% CI $[-.05, .35]$), describing ($b = 0.06$, 95% CI $[-.15, .27]$), and non-reactivity ($b = -0.06$, 95% CI $[-.28, .16]$) were not statistically significant. There was a significant interaction for non-judging ($b = -0.21$, 95% CI $[-.39, -.03]$), such that the health disparity relationship between LGB and SI was weakened (i.e., buffered/reduced) at higher levels of non-judging of inner experience: high levels ($b = -0.13$, 95% CI $[-.36, .11]$), average levels ($b = 0.18$, 95% CI $[-.02, .37]$), and low levels ($b = 0.48$, 95% CI $[-.29, .68]$). Similarly, we found a significant interaction for acting with awareness ($b = -0.34$, 95% CI $[-.50, -.18]$), such that the health disparity relationship between LGB and SI was weakened (i.e., buffered/reduced) at higher levels of acting with awareness: high levels ($b = 0.03$, 95% CI $[-.21, .27]$), average levels ($b = 0.19$, 95% CI $[-.03, .36]$), and low levels ($b = 0.36$, 95% CI $[-.17, .55]$).

Discussion

The present study examined the relationship between coping strategies and SI among sexual minority college students (compared to their heterosexual peers) using a mediation

framework. We additionally looked at the moderating effects of trait mindfulness on the path between identity and coping. In examining mean differences across groups, we found that LGB college students reported significantly higher levels of SI, socially-supported coping, observing, and avoidant coping (marginally significant). Meanwhile, they reported significantly lower levels of acting with awareness and non-judging. Within our mediation analysis and in line with hypotheses, we found that LGB students reported higher SI compared to heterosexual students and this relationship was mediated by higher engagement in avoidant coping by LGB students. Self-sufficient and socially-supported coping did not significantly mediate disparities in SI. Counter to hypotheses, no mindfulness facet significantly moderated the relationship between LGB identity and coping.

Our findings demonstrate that LGB individuals exhibit disparities in coping, mindfulness, and SI. Levels of SI were significantly higher in LGB individuals, which is supported by previous literature (Garofalo et al., 1998; King et al., 2008; Ramchand et al., 2022). Given the increasingly overt acceptance of LGB identities, particularly on college campuses, it would be plausible that these individuals would no longer display such stark mental health disparities. This could be due to a variety of LGB-specific stressors, explained by the minority stress theory (Meyer, 2003). For example, the coming out process is associated with high stress in LGB individuals, identifying a lack of coping resources as a main contributor (Charbonnier & Graziani, 2016). Internalized homophobia, which is the negative self-concept of one's sexual identity, is also associated with psychological distress (Walch et al., 2016; Xu et al., 2017). More indirectly, this disparity could be explained by engagement in risk behaviors (i.e., substance abuse, sexual behaviors); LGB youth participate in these activities more often and at an earlier age than their heterosexual counterparts, which have further been demonstrated to be linked to SI

(Garofalo et al., 1998). These disparities are community-dependent, such that LGB individuals in less progressive areas demonstrate poorer mental health outcomes (Perales & Todd, 2018). Further and in line with minority stress theory (Meyer, 2003), deficits in coping resources may contribute to this disparity.

As expected, avoidant coping was the only coping category significantly correlated with SI in the LGB and heterosexual samples. This supports previous findings (Ambrus, 2016; Ambrus et al., 2017; Ong & Thompson, 2018), and strengthens the validity of Litman's categorizations of the COPE inventory (Litman, 2006). Moreover, avoidant coping was the only coping category to mediate the relationship between LGB status and SI. Previous studies have found associations between LGB identity and avoidant coping and between avoidant coping and SI, but few studies have simultaneously examined the relationship between all three variables in one model. One study (Charbonnier et al., 2018) found a mediating effect of avoidant coping in LGB individuals between cognitive appraisal and SI; however, they did not factor in SI disparities between LGB and heterosexual individuals.

One proposed reason for this effect is expressive suppression, which is defined as the hiding of emotionally-expressive behaviors; expressive suppression is associated with avoidance coping (Ong & Thompson, 2018), and has been shown to predict SI independent of the presence of a depressive episode (Forkmann et al., 2014). Another concept that ties into this is experiential avoidance, which is an unwillingness to keep in touch with various internal circumstances (i.e. sensations, emotions) (Hayes et al., 1996). Experiential avoidance is associated with a variety of measurements of avoidant coping (Hayes et al., 2004). A recent meta-analysis revealed an association between experiential avoidance and SI (Angelakis & Gooding, 2021). Altogether,

these findings further support the minority stress theory (Meyer, 2003); the lack of LGB support from a variety of sources encourages unhealthy thoughts and behaviors such as avoidant coping.

As expected, there were no differences in self-sufficient coping. To our surprise, LGB individuals exhibited significantly higher levels of socially-supported coping; this is not aligned with previous research (Ambrus et al., 2017; Yi et al., 2021). Even though LGB college students are known to receive lower social support (Christie, 2020), perhaps they can form a community and rely on each other. One potential reason for these findings is that participants were all undergraduate college students, a population known to be associated with higher family income (Kinsler & Pavan, 2011). LGBT youth who come from higher socioeconomic status receive more social support, including from family, peers, and significant others (McConnell et al., 2015). LGB individuals exhibited marginally significantly higher levels of avoidant coping; perhaps a larger sample of LGB individuals would lead to confirmed significance, as this disparity was found in previous research (Ambrus, 2016; Ambrus et al., 2017; Lock & Steiner, 1999; Sandfort et al., 2007). Nonetheless, self-sufficient and socially-supported coping were not significant mediators in the model.

In examining mindfulness facets, LGB individuals exhibited higher scores in the observing facet of the FFMQ, which replicates prior research (Wedell et al., 2021). However, this facet has been criticized for its lack of relation to psychological symptoms and has been proposed to potentially lead to psychological harm when it is not approached with a mindful context (Raphiphatthana et al., 2016; Rudkin et al., 2018). In other words, simply observing a situation without further intentions of action may do more harm than help. No differences were found in describing or non-reactivity to inner experience. Acting with awareness and non-judging of inner experience were lower among LGB individuals, which has been found in

previous research (Wedell et al., 2021), and this finding is especially relevant due to the disparities in SI by sexual identity. Prior literature has found support for the protective effects of acting with awareness and non-judging of inner experience on SI (Cheng et al., 2018; Roush et al., 2018). Within the present study, acting with awareness and non-judging were negatively correlated with SI in both samples. It is plausible that lower rates of acting with awareness and non-judging among LGB individuals could be attributed to avoidant coping. Being able to come to terms with and actively address a certain behavior (i.e., mental health difficulty) takes a certain level of assertion. Societal pressures such as stigma and discrimination may serve as a buffer that keeps LGB individuals from practicing more adaptive, non-avoidant coping strategies that could in turn lead to more monitoring and acceptance, which would ultimately lead to improved health outcomes.

The moderated mediation models assessing the protective effects of the five mindfulness facets in the relationship between LGB identity, avoidant coping, and SI were not significant, including acting with awareness and non-judging. This came to our surprise, especially considering the negative correlations between the two facets and avoidant coping and the positive correlations with SI. A previous study (Wedell et al., 2021) found that mindfulness significantly moderated the mediation relationship between LGB identity, affective lability, and SI. Perhaps the protective effects associated with mindfulness target emotion regulation processes rather than avoidant coping.

Despite null findings for the moderated-mediation analyses, we also ran an exploratory analysis of the moderating effects of mindfulness between LGB identity and SI without the inclusion of avoidant coping. We found that acting with awareness and non-judging were the two facets that significantly moderated that relationship, such that the disparity in SI between LGB

and heterosexual students weakened among individuals reporting higher levels of both acting with awareness and non-judging.

Clinical Implications

The results of this study indicate that LGB individuals are at higher risk for SI, and this can be explained by disparities in coping strategies and mindfulness. Clinicians must understand that LGB individuals are ultimately at higher risk for SI, so developing a relationship where the patient is comfortable disclosing their sexual identity is imperative. Since avoidant coping mediates the relationship between LGB identity and SI, there should be increased momentum in the field to develop programs that target the fostering of more adaptive coping strategies (i.e., non-avoidant coping). This is most commonly done through cognitive-behavioral therapy (CBT), and there have been several adaptations to target LGB-specific minority stressors, but there is limited research on SI as an outcome variable (Russon et al., 2021). One of these that targets maladaptive coping is Promoting Resilience in Discriminatory Environments (Project PRIDE); it has been shown to improve mental health outcomes among gay and bisexual men (Smith et al., 2017). Affirmative group-based cognitive therapy (AFFIRM) is designed to target healthy coping skills in a group environment of gender and sexual minority youth and has been shown to reduce depression (Craig & Austin, 2016).

Our findings from our exploratory moderation models suggest that mindfulness may be protective in reducing disparities in SI among LGB students. An online version of Mindfulness-Based Stress Reduction (MBSR) showed reductions in perceived stress in LGB individuals in Appalachian Tennessee (Tree & Patterson, 2019). Another study found improvements in stress and life satisfaction in a group of LGBTQ+ youth after mindfulness training (Cochrane, 2017). Another mindfulness-based intervention modified for sexual and gender minority youth reduced

depression and anxiety symptoms (Iacono et al., 2022). Nevertheless, there is an imperative need for more thorough research on mindfulness-based interventions in the LGB community, specifically targeting SI. Particularly, larger sample sizes and a direct focus on SI as the outcome variable are necessary.

Limitations and Future Research

Our study found a mediating impact of avoidant coping on the relationship between LGB identity and SI, but there are some limitations to consider. First, the cross-sectional nature of the present study prevents us from concluding a causal relationship; in the future, a longitudinal/experimental design could allow us to further apply our results. In addition, our sample consisted of undergraduate students who were primarily female and either freshmen or sophomores. Future research could aim to gather a more representative sample that includes populations historically underrepresented in research. This includes imminent incorporation of more gender minorities (i.e., transgender and gender non-binary), which could allow for more nuanced research on health disparities associated with SI.

Another limitation was that SI was assessed by one question measured on a 5-point Likert scale. Though the measure is reliable and valid (Bravo et al., 2018b), there are a wide variety of more thorough measurements of SI that are broken down into constructs and could allow for a more in-depth analysis (Ghasemi et al., 2015). Finally, a major limitation was our small LGB sample size. This was largely due to the secondary analysis nature of the present study, such that only LGB-identifying individuals who completed information on the COPE and the FFMQ were included in analyses (SI was measured in all participants); additionally, LGB individuals were not the target population of the study. Within the LGB sample, a majority of individuals identified as bisexual. Including a wider variety of sexual minority identities could help expand

this research. We recommend that future research focuses on the recruitment of LGB individuals to encapsulate more diversity of identity.

Conclusions

Our findings revealed that avoidant coping served as a mediating factor in explaining disparities in SI by LGB identity, while socially-supported and self-sufficient coping did not. Moderated mediation analyses revealed that none of the mindfulness facets significantly moderated avoidant coping's impact on the relationship between LGB identity and coping. Exploratory moderation analyses revealed the protective impact of non-judging and acting with awareness on SI disparities. Taken together, these findings demonstrate the importance of coping strategies when considering SI in the LGB community. These preliminary linkages provide further support for the use of CBT and mindfulness-based interventions to foster healthy coping strategies and mindful practices. In addition, this supports the adaptation of these programs to target LGB-specific minority stressors.

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Tables and Figures

Table 1. *Demographics.*

	<i>LGB, n=124</i>	<i>Heterosexual, n=803</i>
Gender	n (%)	n (%)
Male	16 (12.9)	261 (32.5)
Female	99 (79.8)	540 (67.2)
Non-Binary	4 (3.2)	0 (0.0)
Trans Man	1 (0.8)	0 (0.0)
Trans Woman	2 (1.6)	1 (0.1)
Other	1 (0.8)	0 (0.0)
Missing or Refused to Respond	1 (0.8)	1 (0.1)
Age	n (%)	n (%)
<i>M</i> (<i>SD</i>)	19.79 (2.42)	19.92 (3.26)
18	30 (24.2)	239 (29.8)
19	45 (36.3)	259 (32.3)
20	23 (18.5)	122 (15.2)
21+	26 (21.0)	183 (22.7)
Race/Ethnicity	n (%)	n (%)
American Indian/Alaska Native	1 (0.8)	5 (0.6)
Asian	5 (4.0)	63 (7.8)
Black/African American	12 (9.7)	110 (13.7)
White, non-Hispanic White	65 (52.4)	373 (46.5)
Hispanic/Latino	7 (5.6)	50 (6.2)
Mixed	33 (26.6)	190 (23.7)
Other	1 (0.8)	12 (1.5)
Sexual Identity	n (%)	n (%)
Heterosexual	0 (0.0)	803 (100.0)
Gay or lesbian	23 (18.5)	0 (0.0)
Bisexual	86 (69.4)	0 (0.0)
Asexual	2 (1.6)	0 (0.0)
Pansexual	13 (10.5)	0 (0.0)
Class Standing	n (%)	n (%)
Freshman	70 (56.5)	481 (59.9)
Sophomore	33 (26.6)	202 (25.2)
Junior	21 (16.9)	119 (14.8)
Senior	0 (0.0)	0 (0.0)
Missing	0 (0.0)	1 (0.1)
Site	n (%)	n (%)
Wyoming	10 (8.1)	109 (13.6)
William & Mary	15 (12.1)	115 (14.3)
Colorado State	26 (21.0)	86 (10.7)
Albany	8 (6.5)	109 (13.6)
New Mexico	21 (16.9)	82 (10.2)
Texas State	24 (19.4)	147 (18.3)
Old Dominion	20 (16.1)	155 (19.3)

Table 2. *Bivariate correlations of all observed variables among LGB and heterosexual college students*

										<i>LGB</i>		<i>Heterosexual</i>		<i>t</i>	<i>p</i>
	1	2	3	4	5	6	7	8	9	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
1. Self-Sufficient Coping	---	.34	.57	.44	.25	-.17	-.22	.43	.01	78.30	15.52	79.81	17.10	-.925	.36
2. Avoidant Coping	.29	---	.31	.21	-.13	-.43	-.36	.12	.32	31.07	7.98	29.56	8.16	1.93	.05
3. Socially-Supported Coping	.49	.19	---	.31	.26	-.20	-.21	.15	.05	31.99	7.56	29.69	8.62	3.09	.002
4. Observing	.35	.25	.33	---	.22	-.43	-.50	.60	.08	3.31	0.80	3.01	0.77	4.05	<.001
5. Describing	.24	-.06	.38	.22	---	.17	.10	.27	-.10	3.19	0.77	3.12	0.68	0.90	.37
6. Acting with Awareness	-.22	-.39	-.11	-.22	.08	---	.60	-.37	-.21	2.99	0.88	3.29	0.77	-3.91	<.001
7. Non-judging	-.21	-.37	-.06	-.41	.05	.51	---	-.38	-.23	2.94	0.98	3.21	0.87	-3.11	.002
8. Non-Reactivity	.60	.19	.25	.38	.33	-.19	-.17	---	.05	2.79	0.74	2.88	0.72	-1.27	.21
9. Suicidal ideation	-.02	.32	-.14	.17	-.05	-.34	-.48	-.01	---	0.64	1.13	0.33	0.80	2.98	.003

Note. Significant correlations ($p < .05$) and mean differences between subsamples ($p < .05$) are bolded for emphasis. Correlations for the LGB subsample ($n = 124$) are below the diagonal. Correlations for the heterosexual subsample ($n = 803$) are above the diagonal.

Table 3. *Conditional indirect effects of sexual orientation to suicidal ideation via avoidant coping by levels of mindfulness facets*

Outcome: Suicidal ideation		
Conditional Indirect Effects	b	95% CI
Observing Level: High (1 <i>SD</i>)	.032	[-.039, .109]
Observing Level: Average	.026	[-.020, .074]
Observing Level: Low (-1 <i>SD</i>)	.020	[-.050, .096]
Indirect Effect Differences	b	95% CI
High Observing vs. Low Observing	.013	[-.102, .126]
High Observing vs. Average Observing	.006	[-.051, .063]
Average Observing vs. Low Observing	.006	[-.051, .063]
Conditional Indirect Effects	b	95% CI
Describing Level: High (1 <i>SD</i>)	.074	[.006, .152]
Describing Level: Average	.052	[.003, .107]
Describing Level: Low (-1 <i>SD</i>)	.030	[-.036, .104]
Indirect Effect Differences	b	95% CI
High Describing vs. Low Describing	.045	[-.053, .143]
High Describing vs. Average Describing	.022	[-.026, .072]
Average Describing vs. Low Describing	.022	[-.026, .072]
Conditional Indirect Effects	b	95% CI
Acting with Awareness Level: High (1 <i>SD</i>)	.043	[-.020, .109]
Acting with Awareness Level: Average	.014	[-.027, .058]
Acting with Awareness Level: Low (-1 <i>SD</i>)	-.014	[-.083, .060]
Indirect Effect Differences	b	95% CI
High Acting with Awareness vs. Low Acting with Awareness	.057	[-.055, .161]
High Acting with Awareness vs. Average Acting with Awareness	.028	[-.028, .081]
Average Acting with Awareness vs. Low Acting with Awareness	.028	[-.028, .081]
Conditional Indirect Effects	b	95% CI
Non-judging Level: High (1 <i>SD</i>)	.034	[-.028, .101]
Non-judging Level: Average	.024	[-.020, .070]
Non-judging Level: Low (-1 <i>SD</i>)	.013	[-.055, .087]
Indirect Effect Differences	b	95% CI
High Non-judging vs. Low Non-judging	.021	[-.083, .119]
High Non-judging vs. Average Non-judging	.010	[-.042, .060]
Average Non-judging vs. Low Non-judging	.010	[-.042, .060]
Conditional Indirect Effects	b	95% CI
Non-reactivity Level: High (1 <i>SD</i>)	.073	[-.022, .171]
Non-reactivity Level: Average	.056	[.006, .112]
Non-reactivity Level: Low (-1 <i>SD</i>)	.039	[-.034, .120]
Indirect Effect Differences	b	95% CI
High Non-reactivity vs. Low Non-reactivity	.033	[-.108, .171]
High Non-reactivity vs. Average Non-reactivity	.017	[-.054, .085]
Average Non-reactivity vs. Low Non-reactivity	.017	[-.054, .085]

Note. Significant effects are in bold typeface for emphasis and were determined by a 95% bootstrapped confidence interval (based on 10,000 bootstrapped samples) that does not contain zero.

Table 4. *Conditional effects of sexual orientation to suicidal ideation by levels of mindfulness facets*

Conditional Effects	Outcome: Suicidal ideation	
	b	95% CI
Observing Level: High (1 <i>SD</i>)	.368	[.171, .566]
Observing Level: Average	.249	[.081, .416]
Observing Level: Low (-1 <i>SD</i>)	.129	[-.129, .387]
Conditional Effects	b	95% CI
Describing Level: High (1 <i>SD</i>)	.360	[.148, .571]
Describing Level: Average	.318	[.156, .479]
Describing Level: Low (-1 <i>SD</i>)	.276	[.050, .501]
Conditional Effects	b	95% CI
Acting with Awareness Level: High (1 <i>SD</i>)	.028	[-.213, .268]
Acting with Awareness Level: Average	.194	[.032, .357]
Acting with Awareness Level: Low (-1 <i>SD</i>)	.362	[.171, .552]
Conditional Effects	b	95% CI
Non-judging Level: High (1 <i>SD</i>)	-.126	[-.358, .106]
Non-judging Level: Average	.179	[.022, .336]
Non-judging Level: Low (-1 <i>SD</i>)	.483	[.292, .675]
Conditional Effects	b	95% CI
Non-reactivity Level: High (1 <i>SD</i>)	.268	[.031, .505]
Non-reactivity Level: Average	.313	[.151, .475]
Non-reactivity Level: Low (-1 <i>SD</i>)	.358	[.141, .575]

Note. Significant effects are in bold typeface for emphasis and were determined by a 95% bootstrapped confidence interval (based on 10,000 bootstrapped samples) that does not contain zero.

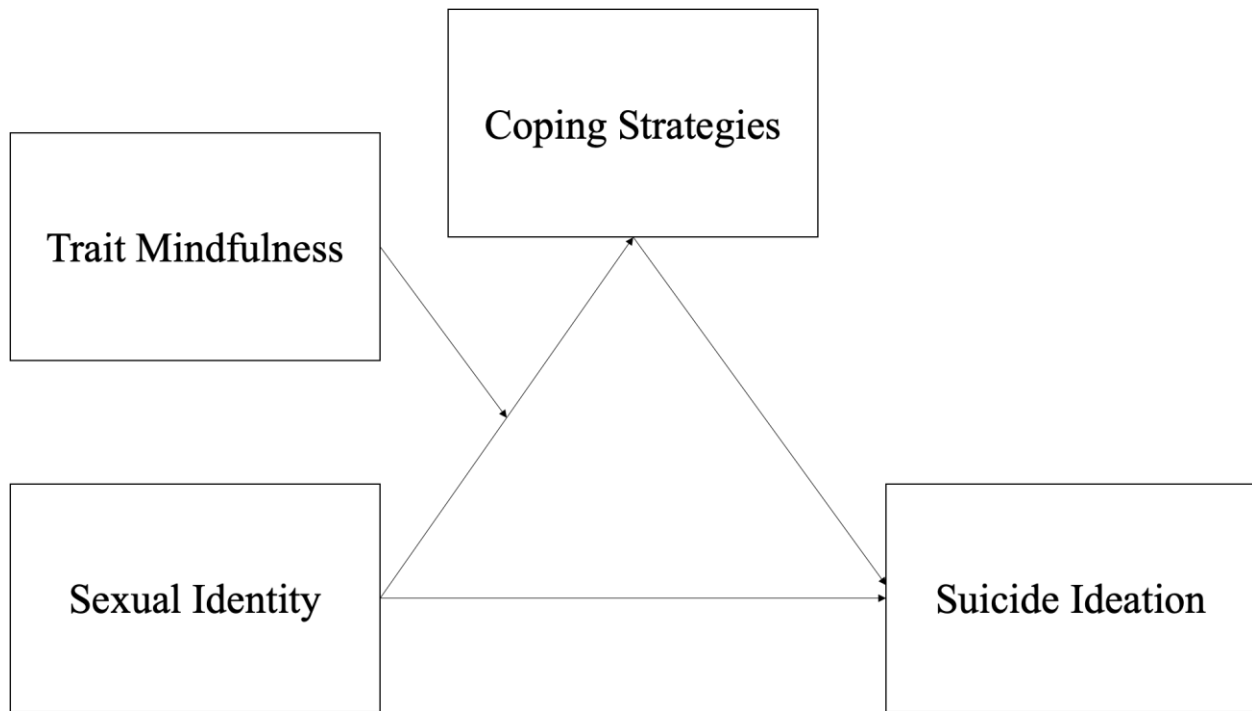


Figure 1. Conceptual model of proposed moderated mediation model.