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Substance Misuse and Suicidal Behaviors in an LGBTQIA+ Sample: Examining the Buffering Effects of Psychological Flexibility and Emotional Regulation

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SUBSTANCE MISUSE AND SUICIDAL BEHAVIORS IN A LGBTQIA+ SAMPLE: EXAMINING THE BUFFERING EFFECTS OF PSYCHOLOGICAL FLEXIBILITY AND EMOTIONAL REGULATION

by

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(Under the Direction of Jeff Klibert, Ph.D.)

ABSTRACT

Suicidal behaviors among LGBTQIA+ individuals, particularly in the context of substance misuse, present a significant area of exploration for mental health research and intervention. It is particularly important to evaluate factors capable of moderating this relationship, to promote more culturally affirming prevention models. This study aimed to explore the moderating roles of emotion regulation (ER) and psychological flexibility in the relationship between substance misuse and suicidal behaviors within the LGBTQIA+ community. Data were collected from 537 LGBTQIA+ adults through an online survey platform. Participants were asked to self-report on measures assessing the constructs of interest. The analysis focused on understanding how ER and psychological flexibility might buffer the adverse effects of substance misuse on suicidal behaviors. Results highlighted a significant moderating effect for ER. Notably, the relationship between substance misuse and suicidal behaviors varies as a function of difficulties in regulating emotions. At low levels of difficulty in regulating emotions, the relationship between substance misuse and suicidal behaviors weakens. This finding underscores the importance of ER as a protective factor and suggests that interventions aiming to enhance ER skills could be particularly beneficial for reducing suicidal behaviors in the LGBTQIA+ population. In contrast, psychological flexibility did not show a significant moderating effect, prompting further investigation into its role and potential conditions under which it might act as a protective factor. These findings contribute valuable insights to the literature, emphasizing the need for targeted

interventions that address both substance misuse concerns and difficulties in ER to help LGBTQIA+ individuals manage the risk of suicide. Future research directions and clinical implications are discussed, advocating for a nuanced understanding of protective factors for suicide, especially among LGBTQIA+ individuals engaging in substance misuse behaviors.

INDEX WORDS: Emotion Regulation (ER), Psychological Flexibility, Suicidal Behaviors, Substance Misuse, LGBTQIA+ Mental Health, Protective Factors, Rural and Non-Rural Differences

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DOCTOR OF PSYCHOLOGY

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DEDICATION

This dissertation is dedicated to my newly born daughter, Addison. May our collective efforts shape a world where acceptance and authenticity flourish for her and all generations to come.

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CHAPTER 1

LITERATURE REVIEW

Rationale

In recent years, the suicide risk among LGBTQIA+ individuals has become a growing focus of public discussion and concern. According to recent reports, suicide is the second leading cause of death among young people, with LGBTQIA+ individuals being four times more likely to attempt suicide than their heterosexual counterparts (CDC, 2021; Johns et al., 2019). Similarly, a 2018 meta-analysis review highlights that LGBTQIA+ individuals are 3.5 times more likely to attempt suicide than their heterosexual peers (Giacomo et al., 2018). Furthermore, the Trevor Project National Survey on LGBTQIA+ Youth Mental Health notes that 19% of LGBTQIA+ youth aged 12-18 and 8.3% of those aged 19-24 report attempting suicide annually, with a total of 712,990 LGBTQIA+ individuals attempting suicide overall (The Trevor Project, 2021). Moreover, in 2021, the National Institutes of Health (NIH) indicated that adults who identify as lesbian, gay, or bisexual report higher rates of suicidal thoughts and attempts relative to their heterosexual counterparts (NIH, 2021).

Considering how LGBTQIA+ individuals disproportionately report suicidal behaviors, targeted research is needed to evaluate different preventative models. Preventative models identify mechanisms that protect individuals from the debilitating effects of a risk factor on a problematic outcome (e.g., suicide; Davydov et al., 2010). From a methodological perspective, a protective factor is a variable that exhibits an inverse relationship and temporal precedence with a problematic outcome, while simultaneously counteracting the effects of stress (or other risk factors) on a clinical-related outcome such as suicide (Vagi et al., 2013; Steca et al., 2014). That is, protective factors seemingly reshape or alter a person's response to an environmental hazard

that predisposes them to a pathological outcome (Rutter, 1985). Recognizing that protective factors, compared to risk factors, play an equal role in the conceptualization of suicide prevention in the LGBTQIA+ population is an essential step forward. However, very little research has identified protective factors among LGBTQIA+ individuals reporting suicidal behaviors.

One factor actively contributing to the engagement in suicidal behaviors within different LGBTQIA+ communities is substance use. While multiple risk factors influence suicidal behaviors in the LGBTQIA+ community (Haas et al., 2010), individuals using substances are specifically susceptible to suicidal behaviors. In 2014, reports indicated that approximately 22% of deaths by suicide involved alcohol intoxication, with opiates present in 20% of suicide deaths, marijuana in 10.2%, cocaine in 4.6%, and amphetamines in 3.4% (CDC, 2014). Further, reports indicate that alcohol and drug use are associated with a 10-14 times increased risk for suicide compared to individuals who do not use alcohol and drugs (Wilcox et al., 2004). Unfortunately, substance use-related difficulties are also a substantial public health concern for individuals who identify as LGBTQIA+. For instance, several reports indicate an elevated risk for alcohol misuse compared to cisgender and heterosexual peers (Chaney, 2019; Dyar et al., 2020). More specifically, researchers report that gay men are 6.5 times more likely and bisexual men are three times more likely than their heterosexual counterparts to report primary methamphetamine use (Kerr et al., 2014). Furthermore, studies have found higher rates of substance use within communities of women who have sex with women and among transgender individuals (Chaney, 2019), indicating that substance use poses a risk for suicidal behaviors within LGBTQIA+ communities (SAMHSA, 2016). In consideration of the relationship between substance use and

suicide in the LGBTQIA+ community, identifying protective factors that buffer the effects of substance use on suicidal behaviors is of utmost importance.

Psychological flexibility and emotion regulation (ER) are two potential protective factors that may buffer against the effects of substance use on suicidal behaviors. In terms of definition, psychological flexibility involves being in contact with the present moment and fully aware of one's emotions and thoughts while moving in a direction connected to one's values (Ramaci et al., 2019). From a theoretical orientation perspective, approaches seeking to achieve high levels of psychological flexibility are effective tools for preventing a wide variety of psychological difficulties (Hayes et al., 2006; Powers et al., 2009). However, few, if any, studies investigate the protective role of psychological flexibility in minimizing suicide risk and other active engagement behaviors.

Another potential protective factor is ER, defined as one's ability to find awareness, clarity, and acceptance in shaping different emotional experiences. At an individual level, ER consists of implementing strategies in response to emotions, such as goal setting, seeking help, and alleviating negative feelings (Pisani et al., 2012). That is, individuals with developed ER skills can influence the type of emotions they experience based on a particular set of external circumstances. In addition, formal ER skills enable individuals to reflect and engage in circumstances with adaptation to environmental stimuli (Kobylińska & Kusev, 2019). Evidence suggests that practical ER skills boost an individual's performance on essential tasks, enhance interpersonal relationships, and create long-term well-being (Donoso et al., 2015). However, few studies examine ER as a protective tool, especially in offsetting risk to suicide in LGBTQIA+ samples.

Purpose

Given the lack of LGBTQIA+ preventative studies related to suicidal outcomes, this study evaluated different facets of psychological flexibility and ER tactics as protective factors for suicide in an LGBTQIA+ sample. Therefore, it aimed to answer the following questions: (a) were facets of psychological flexibility inversely related to reports of substance misuse and suicidal behaviors, (b) were facets of difficulties with ER positively associated with reports of substance misuse and suicidal behaviors, and (c) did certain facets of psychological flexibility and ER offset the relationship between substance misuse and suicidal behaviors in a sample of LGBTQIA+ adults? At an exploratory level, it evaluated whether LGBTQIA+ respondents from rural versus non-rural areas reported differences in suicidal behaviors, substance use, difficulties with ER tactics, and psychological flexibility.

Significance

Substantial attention has focused on how professionals respond to suicidal behaviors once they have occurred. However, information on early prevention efforts for suicide in the LGBTQIA+ population is scarce. Therefore, it is essential to further extend the literature to understand factors that protect LGBTQIA+ individuals from engaging in more severe behaviors higher on the suicidal trajectory. Identifying elements of ER and facets of psychological flexibility that assist in preventing suicidal behaviors is an important step in developing preventive models for this population. Identifying preventive models that protect against suicidal behaviors contributes to the overall safety and well-being of the LGBTQIA+ community (Marshall, 2016). Based on these results, clinicians will better understand how to develop prevention programs that bolster emotion regulation skills to protect against suicidal behaviors in the LGBTQIA+ population. Specifically, these results help clinicians develop preventive models

for LGBTQIA+ individuals, especially those who engage in high levels of substance misuse. In addition to clinical applicability, the identified protective factors further expand the scarce literature related to protective efforts associated with suicidal behaviors in the LGBTQIA+ population and give direction to researchers in the field of clinical preventive science. Overall, this project is the first to examine ER and psychological flexibility as means to prevent suicide in LGBTQIA+ individuals from a substance misuse framework.

Definition of Terms

Suicidal Behaviors. Suicidal behaviors are defined as harmful self-directed behaviors with the intent to die (Nock et al., 2008). A suicide attempt is a self-directed, non-fatal, harmful behavior with the intent to die (Nock et al., 2008). This definition includes suicidal ideation, which refers to passive thoughts about suicide and the means, intent, and planning of suicide attempts (Nock et al., 2008). Suicidal behaviors served as the outcome variable in this study.

Substance Misuse. Substance misuse can be defined as repetitive patterns of harmful use of substances for mood-altering purposes (Gans, 2022). Specifically, substance misuse consists of harmful use of substances such as alcohol, marijuana, cocaine, heroin, and methamphetamine that impair a person's ability to function properly (Gans, 2022). Substance misuse served as a predictor variable in this study.

Emotion Regulation. Emotion regulation (ER) is defined as implementing strategies in response to emotions, such as goal setting, seeking help, and alleviating negative feelings (Pisani et al., 2012). In this study, difficulties with engaging in different ER tactics are evaluated. ER tactics are defined as a person's ability to reflect and engage in circumstances with elasticity and adaptation to environmental stimuli (Kobylińska & Kusev, 2019). Notably, six different tactics were measured, including nonacceptance of emotional responses, difficulty engaging in goal-

directed behaviors, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. Difficulties with ER tactics served as moderating variables in the current study.

Psychological Flexibility. Psychological Flexibility is defined as being in contact with the present moment, fully aware of one's emotions and thoughts, both desired and undesired, while moving in a connected direction to one's values (Ramaci et al., 2019). There are six underlying facets of psychological flexibility, including flexible attention, contact with chosen values, committed action, perspective-taking sense of self, diffusion, and acceptance (Luoma et al., 2017). Psychological flexibility facet scores served as moderating variables in the current study.

Substance Misuse as a Risk Factor

Substance misuse is a substantial risk factor for suicide (Buckstein, 1993; Yuodelis-Flores & Ries, 2015). Notably, substance use is often conceptualized as a restrictive coping agent (McHugh et al., 2020; Thornton et al., 2012), decreasing one’s tolerance for pain and increasing one’s fearlessness toward acts of self-violence. Generally, an individual under the influence of substances acts immediately in response to external or internal stimuli with disinhibition, impulsiveness, and impaired judgment (Pompili, 2010). Specifically, substance use increases the risk for suicide because substance misuse is an impulsive response to minimize distress accompanied by decreases in cognitive capacities, which in combination impairs the use of alternative coping strategies (Hufford, 2001). Essentially, substance use is a maladaptive coping method, paradoxically leaving individuals vulnerable to heightened distress and restricted in accessing other, more socially effective coping mechanisms (Bakkenn et al., 2007; Kiluk et al., 2011). In addition, a major barrier for treating individuals at risk stemming from substances lies

within the substance's effectiveness in temporarily numbing negative affective or somatic states (Thornton et al., 2012). Although temporarily effective at reducing pain, prolonged or consistent substance use is restrictive in nature; it has a counteracting effect, leaving the individual with a lower capacity to navigate the pain of negative affective states while simultaneously increasing fearlessness when confronted with the choice to permanently eliminate their suffering. In short, substance use increases the desire for individuals to die by suicide by lowering their ability to manage negative affective states, while simultaneously providing fearlessness that eases the choice to act. Finally, individuals who engage in substance use increase their threshold for pain tolerance (Ekmekci-Ertek et al., 2019; Wolford-Clevenger et al., 2015). Notably, these individuals habituate to severe pain levels in a manner that leaves them vulnerable to making suicide attempts. For instance, because these individuals experience frequent pain (physical, emotional, cognitive) and often manage pain via numbing and deadening strategies (e.g., alcohol use), they often engage in negative beliefs designed to perpetuate their difficulties (Curry et al., 2019). This is an inherently dangerous mindset as suicide attempts often require individuals to persist through severe physical pain (Joiner, 2005).

Research confirms the role of substance use as a risk factor for suicide. Although there are a multitude of individual factors that can lead to suicide, there is substantial evidence to suggest that substance use is debilitating in the general community and specific to LGBTQIA+ communities. Generally, individuals using substances are at a 10-14 times greater risk of death by suicide compared to individuals who do not use substances (Wilcox et al., 2004). Interestingly, this heightened effect is similar across different types of drug use, whereby most substances confer risk to suicide (Esang & Ahmed, 2018; Wilcox et al., 2004). From a developmental perspective, almost 25% of people aged 60-69 consume alcohol before dying by

suicide, with alcohol use disorder reported as the second most common psychiatric disorder associated with older adult suicide (Blow et al., 2004; Esang & Ahmed, 2018). Furthermore, meta-analyses highlight that opioid use increases the risk for suicide by 13.5 times, which is rather high compared to other substances (e.g., alcohol use disorder increases risk only 10 times higher; Wilcox et al., 2004). More recent evidence suggests a diagnosis of any current substance use disorder (e.g., alcohol, cocaine, cannabis, opioid, amphetamine, sedative use disorder) is associated with an increased risk of suicide for both women and men (Bohnert, 2017).

Similar findings are reported in LGBTQIA+ studies, with substance abuse conferring an increased vulnerability to suicide. As highlighted previously, LGBTQIA+ individuals are at higher risk of using substances compared to cisgender and heterosexual peers (Chaney, 2019; Dyar et al., 2020) and consequently become vulnerable to engaging in suicidal behaviors (McHugh et al., 2020; Thornton et al., 2012). For instance, data collected by The Trevor Project (2021) demonstrate that prescription drug misuse, alcohol use, and regular marijuana use are associated with greater odds of attempting suicide in LGBTQIA+ individuals compared to their social counterparts. In addition, other reports illustrate that LGBTQIA+ individuals with substance use difficulties are more likely to have comorbid depression, suicidality, and self-harm difficulties (Connolly et al., 2016; Gonzales & Smith, 2017; SAMHSA, 2016). Overall, within the context of LGBTQIA+ communities, research highlights the compounding effect of substance use on increased vulnerability for suicidal behaviors.

Conditional Relationships

Despite substantial evidence for substance use as a risk factor for suicide, not all LGBTQIA+ individuals who use substances engage in suicidal behavior (Hall, 2017; Russon et al., 2022). While the research is limited in its scope, theoretical reviews and content analyses

reveal protective factors that inhibit suicidal behaviors, including self-acceptance, self-esteem, and social support for LGBTQIA+ individuals (Hall, 2017; Kleiman & Liub, 2013; Sharaf et al., 2009). In short, not every LGBTQIA+ individual who engages in substance use will automatically engage in suicidal behaviors. However, few of these identified protective mechanisms are studied, especially in the context of substance use. Given this shortcoming, it is essential to explore alternative factors that moderate the relationship between substance use and suicidal behaviors in LGBTQIA+ individuals. Two factors that might better explain this relationship are psychological flexibility and ER.

Psychological Flexibility as a Protective Factor

Philosophies surrounding psychological flexibility are gaining attention in the clinical literature (Alrefi, 2019). Recent research illustrates psychological flexibility as a theoretical model of change underlying Acceptance and Commitment Therapy (ACT; Kashdan & Rottenberg, 2010). Broadly, ACT refers to psychological flexibility as one's capacity to fully connect with the current moment as a conscious being and, depending on the circumstances, adapt or continue with behaviors that promote desired outcomes (Luoma et al., 2017). The primary purpose of psychological flexibility interventions is to target the manifestation of six processes perpetuating inflexibility: 1) inflexible attention, 2) lack of contact with chosen values, 3) inaction, impulsivity, or persistent avoidance, 4) attachment to a conceptualized self, 5) cognitive fusion, and 6) experiential avoidance (Louma et al., 2017). Despite the dynamic, widespread, and effective nature of psychological flexibility interventions (A-Tjak et al., 2014), research is in the early stages of exploring how psychological flexibility promotes positive coping outcomes when individuals are confronted with difficult life circumstances (Ruiz, 2017). Largely, research pinpoints psychological flexibility as a fundamental aspect of health (Kashdan

& Rottenberg, 2010) with higher levels of sub-categorical flexibility strongly associated with increased well-being and resilience when confronted with circumstantial barriers and challenges (Hayes et al., 2006). Psychological flexibility is generally viewed as an effective foundational skill designed to bolster a person's ability to initiate, implement, and utilize positive and health-sustaining coping strategies (Kashdan & Rottenberg, 2010). In summary, psychological flexibility is a foundational skill creating a modified stance toward subjective experiences and is characterized by openness and acceptance of internal thoughts and feelings (Hayes et al.,2012).

Connection with Suicide. Psychological flexibility is associated with increased levels of well-being and resilience when confronting life barriers and challenges (Hayes et al., 2006). Because psychological flexibility opens resources in challenging spaces, theorists highlight the potential for this construct to protect against suicidal behaviors (Ellis & Rufino, 2016). From a theoretical standpoint, psychological flexibility assists individuals in being reflective, non-judgmental, and accepting when confronted with internal thoughts and feelings related to suicide. Notably, changes in experiential avoidance (a sub-category of psychological flexibility) are associated with reduced suicidal ideation (Ellis & Rufino, 2016). In addition, psychological flexibility accounts for small amounts of variance when examining reductions in suicidal ideation 6 months post-treatment (Rufino & Ellis, 2017). Furthermore, psychological flexibility is associated with decreased suicide ideation in unique populations of people. For example, all sub-categories of psychological flexibility are associated with a reduced frequency of suicidal thinking in individuals with chronic pain and depression (McCracken et al., 2018). Although recent research suggests a connection between flexibility and reduced suicidal behaviors, a more in-depth analysis is needed regarding if and how the sub-categories of psychological flexibility differentially contribute to lower rates and reports of suicidal behaviors in underserved and

highly vulnerable populations. For instance, while theory strongly suggests different dimensions of psychological flexibility can actively serve as protective factors against suicide in LGBTQIA+ communities (Bhambhani, 2018; Singh & O'Brien, 2019; Yadavaia & Hayes, 2012), research examining this line of inquiry is under-evaluated.

Connection with Substance Misuse. The literature also suggests underlying dimensions of psychological flexibility play a critical role in minimizing substance use behaviors; psychological flexibility provides alternative coping resources and opportunities to support health-sustaining behaviors when individuals are confronted with cravings and urges (Mallik et al., 2021). From a theoretical perspective, psychological flexibility is utilized as a mechanism to increase non-judgmental awareness of internal thoughts and feelings (e.g., through mindfulness-based practices), negating substance cravings and misuse engagement (Garland et al., 2010). For example, utilizing psychological flexibility techniques helps individuals relate better to debilitating internal thoughts and feelings, which in turn, may reduce the tendency to be reactive when confronted with cravings. A plethora of research supports this connection. Specifically, interventions utilizing psychological flexibility contribute to significant improvements in substance use-related outcomes, especially among individuals with a stark history of misuse (Hayes et al., 2004; Smout et al., 2010; Thekiso et al., 2015). Overall, there is growing evidence for the use of psychological flexibility interventions to offset or minimize key substance misuse behaviors. Moreover, these same interventions also help individuals build an adaptive caravan of resources (e.g., mindfulness, thought defusion, value-driven actions) to support effective prevention efforts across different circumstances and settings (A-Tjak et al., 2014). In general, the literature suggests addressing psychological inflexibility may play a crucial role in treating substance misuse. However, there is limited research exploring the sub-processes of

psychological flexibility on substance use in unique and vulnerable populations. In fact, only one study examined such sub-processes (i.e., cognitive fusion and obstruction of valued living) and found a strengthened relationship between inflexibility and substance misuse in LGBTQIA+ adolescents (Weeks et al., 2020). Given the status of available literature, it is imperative to further examine sub-processes of psychological flexibility and their potential mitigating effects on substance use outcomes in diverse and under-researched populations.

Protective Effects. In general, psychological flexibility reduces stress and promotes well-being (Wersebe et al., 2017), while the absence of psychological flexibility is connected to pathological worry, symptoms of depression, and difficulties navigating stressful circumstances (Nolen-Hoeksema et al., 2008). Therefore, theorists suggest mechanisms within psychological flexibility provide protection against a variety of mental health difficulties through the acquisition and utilization of key underlying skills and processes (i.e., acceptance, mindfulness, values, committed action; Hayes et al., 2006; Luoma et al., 2017). From a theoretical perspective, common features of suicide markers (i.e., depression) lead to passive and inflexible behavioral response styles, an active agent preventing the development of meaningful goals and valued outcomes (Abramson et al., 1989; Nolen-Hoeksema et al., 2008). Because psychological flexibility addresses these underlying mechanisms, researchers operationalized a model of flexibility as a protective factor (Hayes et al., 2006). Research confirms psychological flexibility serves as a protective factor for depression, anxiety, and burnout (Bond et al., 2011; Martinez-Rubio et al., 2021), all key elements for suicide risk (Haas et al., 2010). There are more targeted results highlighting the protective effects of psychological flexibility. Namely, the relationship between depression and suicide ideation over time varies as a function of psychological flexibility, with higher levels of flexibility weakening the relationship (Bryan et al., 2015).

Alternatively, low levels of flexibility appear detrimental to health-promoting behaviors; psychological inflexibility strengthens the impact of stress, a key suicide determinant, on different suicidal behaviors (Crasta et al., 2020). Regarding LGBTQIA+ samples, psychological flexibility appears key in minimizing the relationships between key risk factors (e.g., work stress, Singh & O'Brien, 2019), self-stigma (Yadavaia & Hayes, 2012), experienced sexual racism and psychological distress (Bhambhani, 2018), and suicidal behaviors. These studies generate evidence for a stable platform to view psychological flexibility as a protective factor against suicide. However, no known studies explore the moderating effects of psychological flexibility concerning substance misuse on suicidal behaviors among LGBTQIA+ populations.

Emotion Regulation as a Protective Factor

One crucial factor in attaining, restoring, and maintaining psychological well-being is the ability to navigate and adapt to life's difficulties and barriers (Galderisi et al., 2015). ER skills are impactful in assisting individuals to cope with difficult life challenges and bolstering resources necessary to protect against psychopathology (Aldao et al., 2010). To explore ER, researchers often use a widely referenced and practical conceptualization encompassing four key elements: 1) the recognition, comprehension, and acknowledgment of emotional states, 2) the ability to act toward desired outcomes while resisting impulsiveness when experiencing negative feelings, 3) the flexible use of strategies to modulate the magnitude and/or duration of emotional responses, and 4) the readiness to endure unpleasant emotions as part of pursuing values in life (Gratz & Roemer, 2004). Based on these criteria, a considerable body of research showcases ER as a buffer for individuals navigating stressful circumstances (McCarthy et al., 2006; Schwartz & Proctor, 2000; Silk et al., 2007). Specifically, ER is connected to psychological well-being and positive affect, with lower levels (i.e., difficulties in identifying and describing feelings, lack of

emotional awareness) being related to somatic complaints, anxiety, depression, suicidal ideation, and substance misuse (Saxena, et al., 2011; Weinberg & Klonsky, 2009). Moreover, adaptive ER skills are linked to academic success and better social functioning (Gross, 2013), while meta-analytic studies highlight strong inverse connections between adaptive emotion regulation strategies and depression and anxiety symptoms (Schäfer et al., 2016). Overall, ER is viewed as a valuable mechanism providing the necessary skills to effectively modify emotional responses and bolster coping resources.

Connection with Suicide. Research consistently explores the connection between ER and suicide (Hatkevich et al., 2019; Neacsiu et al., 2017). Theoretically, individuals who can effectively regulate their emotions are less likely to engage in suicidal behaviors, as they are better equipped to manage and cope when confronted with a heightened emotional response (Rajappa et al., 2011). A large amount of literature supports this theory. For example, individuals with lower levels of ER skills reported significantly higher levels of suicidal ideation, compared to those with higher ER skills (Weinberg & Klonsky, 2009). In addition, ER difficulties account for variance in previous suicide attempts (Rufino et al., 2020), and adults with a history of suicidal behaviors express higher levels of ER difficulties (Neacsiu et al., 2017). These findings suggest ER skills are key mechanisms in preventing suicidal behaviors.

There is an emerging set of studies connecting ER to suicidal behaviors in LGBTQIA+ samples. For instance, ER is inversely related to engagement in suicidal behaviors (Hatzenbuehler et al., 2009; Mata-Greve et al., 2022). These studies meet the basic criteria in conferring ER as a protective factor for suicidal behaviors (Brausch & Woods, 2019; Shelef et al., 2015). However, ER skills seem important in understanding how pertinent risk factors relate to suicidal behaviors. Notably, ER mediates the link between minority stress, a primary risk

factor for LGBTQIA+ suicide, and suicidal behaviors in this population (Hatzenbuehler et al., 2009). A recent study in this population supports this line of evaluation further, highlighting ER difficulties as a mediator in the relationship between depressive symptoms and suicidal behavior and suggesting differential effects regarding different facets of ER functioning (i.e., lack of emotional clarity, difficulty engaging in goal-directed behavior, impulse control, nonacceptance of emotional regulation strategies; Mata-Greve et al., 2022). Overall, these studies highlight the importance of considering ER when evaluating different models of suicide risk. However, no known studies evaluate whether different indices of ER offset the relationship between key risk factors and suicidal behaviors in samples of LGBTQIA+ individuals.

Connection with Substance Use. ER difficulties are linked to a range of behavioral disorders, including substance misuse (Aldao et al., 2009; Saxena et al., 2011). From a theoretical perspective, substance misuse and ER are intertwined on multiple levels. Individuals with difficulties regulating their emotions use substances to numb negative affective experiences of pain and enhance positive emotional states (Le Moal, 2009). Moreover, substance misuse exacerbates emotion dysregulation, creating a cycle of maladaptive coping, dysregulation, and severe abuse (Sinha & Li, 2007). The literature supports this theory, as individuals with ER difficulties are more likely to engage in problematic alcohol use (Berking et al., 2011) and clinically significant levels of substance misuse (Buckholdt et al., 2014). Regarding the aggregated literature, ER is closely, if not causally connected to substance use. Notably, results from a meta-analysis highlight robust differences between individuals with substance use disorders vs. control participants on sub-categorical ER skills (Stellern et al., 2022). Specifically, individuals with substance misuse report greater difficulties with ER than those without substance use disorders. While there is a considerable amount of research on the connection

between ER and substance misuse, there is a lack of work examining these relationships with LGBTQIA+ samples. A handful of existing studies note significant connections between ER and substance-related concerns (Fitzpatrick et al., 2020; Rogers et al., 2017). Moreover, path analytic models highlight minority stress, a prominent risk factor in LGBTQIA+ literature, working through ER difficulties to explain problematic alcohol and substance use (Rogers et al., 2017). Similarly, emotion dysregulation mediates the relationship between discrimination and problematic drinking among sexual minority women (Fitzpatrick et al., 2020). Although research on ER among LGBTQIA+ populations is growing, further examination of the protective effects of ER on substance misuse is needed to direct prevention efforts.

Protective Effects. Although emerging literature suggests a connection among ER, suicide, and substance misuse within LGBTQIA+ samples, few, if any, studies evaluate the path analytical process among these variables. Clinical professionals broadly utilize ER skills to promote change when approaching a variety of mental health difficulties (Sloan et al., 2017; Gratz et al., 2015). In theory, ER strategies provide individuals with concrete techniques that can be taught and practiced, lessening the intensity of emotional experiences when confronted with difficult circumstances. A widely cited framework for examining the effectiveness of ER strategies is the process model of emotion regulation (Gross, 1998). Within this framework, attentional deployment (i.e., directing one's attention to influence one's emotional response) and cognitive reappraisal (i.e., changing one's interpretation of an emotional situation) positively alter emotional impacts (Gross, 2015) and promote resilience, which can serve to protect against harmful responses and outcomes (e.g., suicide, substance use) related to stress (Troy & Mauss, 2011). Several studies support this position. Specifically, cognitive reappraisal, a unique ER strategy, helps individuals cope with daily stressors and negative moods, enhancing positive

affect and resilience to overcome risk (Johnson et al., 2016). When confronted with negative emotion-eliciting circumstances, attentional deployment leads to diminished emotional responses to painful circumstances (Gross, 2015). Importantly, utilizing these ER strategies weakens the link between stress and suicidal thoughts (Franz et al., 2021). The protective features of ER also shield soldiers from suicidal ideation when confronted with high levels of emotional pain (Shelef et al., 2015). Furthermore, assessing for ER strategies can help prevent future engagement in suicidal behaviors and non-suicidal self-injury (NSSI; Brausch & Woods, 2018). Overall, implementing effective ER strategies provides an advantage across a variety of stressful circumstances (Troy & Mauss, 2011), leading to fewer reports of relevant risk dimensions (i.e., depression and substance use; Extremera & Roy, 2015; Stellern et al., 2022), and reduced engagement in suicidal behaviors and NSSI (Franz et al., 2021; Zelkowitz et al., 2016). Effective ER strategies display promising protective effects; however, very little research explores these mechanisms within an LGBTQIA+ population. Further exploration is required to establish ER as an effective preventative measure for suicide within vulnerable populations.

Current Study

This study aimed to investigate mechanisms likely to alter the relationship between substance misuse and suicidal behaviors in an exclusive LGBTQIA+ sample. While some LGBTQIA+ individuals engaged in suicidal behaviors, others facing the same challenges did not. The goal of the study was to identify the factors that distinguished these two groups and use this knowledge to develop effective clinical interventions. There was a lack of research on the role of ER and psychological flexibility and how they influenced the relationship between substance misuse and suicidal behavior. Through an examination of these factors and processes, the study

aimed to provide valuable insights needed to reduce the risk of suicide and enhance the well-being of LGBTQIA+ communities.

Hypotheses

Based on previous research, it was expected that substance misuse would be positively associated with suicidal behaviors among LGBTQIA+ individuals. It was also expected that difficulties in regulating emotions and expressing psychological flexibility would be linked to higher levels of substance misuse and suicidal behaviors. Additionally, it was hypothesized that difficulties with emotion regulation and psychological flexibility would impact the relationship between substance misuse and suicidal behaviors. Specifically, the relationship between substance misuse and suicidal behaviors was expected to weaken at lower levels of ER difficulties. Similarly, the relationship between substance misuse and suicidal behaviors was expected to weaken at higher levels of psychological flexibility. In short, ER and psychological flexibility were believed to buffer the relationship between substance misuse and suicidal behaviors within LGBTQIA+ individuals. At an exploratory level, the study evaluated whether rural LGBTQIA+ individuals reported different levels of suicidal behaviors, substance misuse, difficulties with emotional regulation tactics, and psychological flexibility facet scores compared to non-rural LGBTQIA+ individuals.

CHAPTER 2

METHOD

Participants

A total of 600 LGBTQIA+ adult participants were recruited for this study to ensure adequate power. The primary reason for recruiting a large sample was to allow a detailed analysis by differences in gender identity, sexual orientation, and rural status. To be included in this study, participants had to be at least 18 years old and identify as part of the LGBTQIA+ community. Participants were excluded from the data if they met one of three criteria: (1) their time to complete the survey was three standard deviations below the mean, (2) they did not correctly respond to all "check questions," or (3) they did not complete 90% of the survey items. No other exclusionary criteria were applied. At the end of the survey, participants were compensated $1.00 for their time.

Initially, 600 responses were submitted via the Qualtrics survey. To preserve the validity of the sample, 63 responses were removed because they were not sufficiently completed. Specifically, these individuals did not complete more than 20% of the survey items. No other participants were removed for another violation of validity checks. The total sample size included in the final analyses was 537. The average age of participants was 33 years, with a standard deviation of 9.93. Demographic information for the sample is provided in Table 1.

Table 1
Socio-Demographic Characteristics of the Sample

Demographic Variable		*n* (%)
Gender Identity		
	Cisgender Man	200 (37.0%)
	Cisgender Woman	308 (57.0%)
	Gender Nonconforming	18 (3.3%)
	Genderqueer or Nonbinary	8 (1.5%)
	Transgender Man	103 (19.1%)
	Transgender Woman	131 (24.3%)
	Other	6 (1.1%)
Sexual Orientation		
	Gay	56 (10.4%)
	Lesbian	104 (19.3%)
	Bisexual	344 (63.7%)
	Queer	9 (1.7%)
	Questioning	1 (0.2%)
	Other on LGB Spectrum	26 (4.8%)
Rural Status		
	Non-Rural	333 (61.7%)
	Rural	207 (38.3%)
Ethnicity		
	White/Caucasian	497 (92.0%)
	Black/African American	5 (0.9%)
	Asian/Asian American	19 (3.5%)
	Mexican American/Latino(a)	4 (0.7%)
	Multiracial	1 (0.2%)
	American Indian/Native American	14 (2.6%)
SES Status		
	Poor/Impoverished	16 (3.0%)
	Some Financial Resources	314 (58.1%)
	Substantial Financial Resources	191 (35.4%)
	Affluent/Rich	18 (3.3%)

Measures

Demographics Form. Participants completed a demographic form designed to assess basic information such as age, sexual orientation, gender identity, ethnic identity, SES status, and

marital status. Geographic location, specifically rurality, was also assessed using two demographic questions: (1) “Of these terms, [non-rural, rural] which best describes the area that you currently live?” and (2) “Of these terms, [non-rural, rural] which best describes the area in which you grew up?”

The Suicide Behaviors Questionnaire-Revised (SBQ-R). The SBQ-R (Osman et. al., 2001) is a 4-item self-report measure that examined risk behaviors associated with suicide. The questionnaire measured four behaviors within this domain: lifetime suicidal ideation and attempt, frequency of suicidal ideation, current risk to suicide attempt, and the likelihood of suicidal behavior in the future. Total scores for the SBQ-R range from 3 to 18, with higher scores indicating a greater risk for suicide. The SBQ-R demonstrated acceptable internal consistency in the literature ($\alpha = .71$) and excellent convergent validity measures for current ideation, attempt history, hopelessness, and thwarted belongingness (Gutierrez et al., 2019). In this study, the SBQ-R produced an alpha score of .868.

The Drug Use Questionnaire (DAST-20): The DAST-20 (Skinner, 2001) is a 20-item self-report questionnaire designed to measure the extent of problematic drug use. Participants evaluated items through two response options (yes-no). The total score was calculated by adding all items, with higher scores reflecting greater problematic substance use behaviors. The DAST-20 has been found to reliably detect problematic drug use with good internal consistency ($\alpha = .89$) and excellent convergent validity with similar substance-related instruments in the literature (Marshall & Marshall, 2006; Villalobos-Gallegos et al., 2015). In the current study, the DAST-20 produced an alpha score of .904.

The Multidimensional Psychological Flexibility Inventory (MPFI): The MPFI (Rolffs et al., 2016) is a 60-item scale measuring 12 dimensions of the Hexaflex model illustrated in

Acceptance and Commitment Therapy (ACT). These 12 dimensions represent a comprehensive method of measuring psychological flexibility, defined as being in contact with the present moment, fully aware of sensations, emotions, and thoughts, and moving in a direction that serves chosen values despite possible adverse circumstances. The MPFI is divided into two subscales with six elements measured in each: the flexibility subscale (e.g., acceptance, present moment awareness, self as context, defusion, values, committed action) and the inflexibility subscale (e.g., experiential avoidance, lack of contact with the present moment, self as context, fusion, lack of contact with values, inaction). The scores of the six flexibility and inflexibility subscales can be averaged to create a profile representing global flexibility and inflexibility, respectively. For the purposes of this study, participants' responses associated with flexibility subscale items only were surveyed. Elements within the flexibility subscale (e.g., acceptance, defusion, values) were measured using a 6-point Likert-type scale ranging from "never true" to "always true." In terms of psychometric properties, the MPFI scales have shown an excellent range of internal consistency scores across subscales in the literature (α = .94 -.96) and high construct validity as indicated by strong correlations with the three most widely used measures of inflexibility (Rolffs, et al., 2018). For the current study, the flexibility subscale of the MPFI produced an alpha score of .918.

Difficulties in Emotion Regulation Scale (DERS). The DERS (Gratz & Roemer, 2004) is a 36-item self-report measure that assessed participants' difficulties in regulating different emotions. The DERS produces an overall score and six domain scores, including non-acceptance of emotional responses, difficulties engaging in goal-directed behaviors, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. Items were rated on a 5-point Likert-type scale ranging from "almost never" to "almost always." The range of total scores for each domain score varies, though higher

scores on each domain indicate more significant difficulties with emotion regulation. The DERS has demonstrated solid to excellent internal consistency scores across the six domain scores in the literature (α = .81-.94; Haliczer et al., 2020) and excellent convergent validity with measures of short forms of the DERS (Hallion et al., 2018). In the current study, DERS subscale scores produced lower than desirable alpha scores (< .7). As a result, only the DERS total score was used in the current study. The DERS produced an alpha score of .883 for the overall scale.

Procedures

The best ethical practices were utilized to ensure participant anonymity during each step of data collection. Participants were recruited through Amazon's MTurk system. Through this system, participants received a link to a Qualtrics survey. Interested individuals clicked on the weblink to find the survey. Once at the survey, individuals were provided with an electronic informed consent form. The informed consent highlighted the potential risks and benefits of participating in the study. Those who wished to participate in the survey indicated their consent to participate by clicking on the "I agree" button. After providing their electronic consent, participants were asked to complete a demographics questionnaire followed by a randomized list of the previously discussed self-report measures. Following completion of the survey, participants were debriefed about the nature and purpose of the study and provided with free or low-cost mental health services referrals available nationally. Each participant was compensated with $1 for their participation in the study.

Data Storage. All data were initially stored on Qualtrics. Following data collection, the data were transferred from its online platform to SPSS, at which time it was deleted from Qualtrics. Data transmitted to SPSS will be stored on a secure, password-protected hard drive for three to five years after the completion of the project or publication, unless deemed otherwise necessary.

CHAPTER 3

RESULTS

Suicide Rates

Given the increasing public health concern regarding suicide rates, particularly within diverse populations, this study aimed to quantify the prevalence of suicidal behaviors among rural participants. The evaluation focused on a description of the sample responses related to suicide ideation, planning, lifetime suicide attempts, and the perceived likelihood of future attempts. The findings revealed significant engagement in suicidal behaviors within the rural cohort (n = 207). Specifically, 66.7% (n = 138) of rural participants reported having thought about suicide, and a considerable portion, 22.7% (n = 47) planned suicide at least once without attempting it. Furthermore, 24.2% (n = 50) expressed a strong desire to die, having made plans to that effect. In addition, 13.5% (n = 28) of the rural sample contemplated suicide as a passing thought. In terms of actual suicide attempts, 4.8% (n = 10) attempted suicide without wanting to die and 1.4% (n = 3) attempted with the hope of dying. These statistics underscore the range of suicidal behaviors among LGBTQIA + individuals in rural settings, highlighting the critical need for targeted mental health interventions and support systems in these communities.

In addressing the critical issue of suicide across different environments, the study extended its investigation to encompass the prevalence of suicidal behaviors among non-rural participants. This segment of the analysis delved into experiences with suicide ideation, planning, lifetime attempts, and assessment of future suicide risk. The results indicated that non-rural individuals (n = 333) also navigate a complex landscape of suicidal behaviors. Approximately, 60% (n = 134) of participants from non-rural areas reported having suicidal thoughts. Among non-rural LGBTQIA+ individuals, 19.2% (n = 64) entertained suicide as a fleeting consideration, whereas 22.5% (n = 75) formulated a plan for suicide without a

proceeding attempt. Additionally, 14.4% (n = 48) held a desire to end their lives, actively planning a suicide attempt at some point. When it comes to suicide attempts, 2.1% (n = 7) attempted suicide without the intent to die, and 1.5% (n = 5) engaged in attempts with the hope to die.

Rural Differences on Independent Suicidal Behaviors

A MANOVA was conducted to explore rural versus non-rural differences in suicidal behaviors among LGBTQIA+ populations, highlighting four key areas: suicide ideation, frequency of suicidal thoughts, seriousness of suicidal attempts, and likelihood of future suicide attempts. The analysis highlights significant disparities, underscoring the effect of geographical contexts on these critical behaviors.

In the area of suicide ideation, the difference between rural (M = 2.58, SD = 1.37) and non-rural (M = 2.23, SD = 1.258) individuals was significant, $F(1, 538) = 9.006$, $p = .003$, *partial* $\eta^2 = .016$, indicating rural participants reported higher levels of ideation than non-rural participants. Similarly, the frequency of suicidal thoughts differed among LGBTQIA+ from unique geographical locations, with rural respondents (M = 2.37, SD = 1.12) reporting higher frequencies than those in non-rural areas (M = 2.12, SD = 1.056), $F(1, 538) = 6.491$, $p = .011$, *partial* $\eta^2 = .012$. For the likelihood of future suicide attempts, rural participants reported significantly higher mean scores (M = 3.61, SD = 1.96) compared to their non-rural counterparts (M = 3.17, SD = 1.83), $F(1, 538) = 6.988$, $p = .008$, *partial* $\eta^2 = .013$. However, when analyzing the seriousness of suicidal attempts between rural (M = 2.29, SD = 1.141) and non-rural (M = 2.11, SD = 1.135) groups, there was a non-significant difference $F(1, 538) = 3.196$, p = .074, *partial* $\eta^2 = .006$.

Differences within Sexual Orientation

A 2 (Rural) x 3 (Sexual Orientation) Factorial MANOVA was evaluated to determine differences in overall suicidal behaviors, substance misuse, emotional regulation difficulties, and flexibility based on rurality and sexual orientation categories. For the purposes of this analysis, rurality was dichotomized into rural and non-rural categories, and sexual orientation was categorized into Gay, Lesbian, and Bisexual groups. The cell sizes for other sexual orientations (e.g., queer, questioning) were so small, they could not be included in the analyses. Table 2 highlights the means and standard deviations.

The analysis revealed significant multivariate main effects for rurality, $\lambda = .976$, $F(4, 495) = 3.027$, $p < .05$, *partial* $\eta^2 = .024$, and sexual orientation, $\lambda = .942$, $F(8, 990) = 3.752$, $p < .001$, *partial* $\eta^2 = .029$. However, the interaction effect between rurality and sexual orientation was not significant, $\lambda = .981$, $F(8, 990) = 1.223$, $p > .05$, *partial* $\eta^2 = .010$.

Given the significant main effects for rurality and sexual orientation, follow-up ANOVAs were conducted. The univariate analysis for overall suicidal behaviors did not reveal a significant effect for rurality, $F(1, 498) = 3.055$, $p > .05$, *partial* $\eta^2 = .006$, or sexual orientation $F(2, 498) = .810$, $p > .05$, *partial* $\eta^2 = .003$. For substance misuse, there was a significant effect for sexual orientation, $F(2, 498) = 5.815$, $p < .01$, *partial* $\eta^2 = .023$, with bisexual individuals ($M = 29.273$, $SD = 5.485$) reporting higher levels compared to gay individuals ($M = 26.286$, $SD = 6.327$). No significant differences were revealed for rurality, $F(2, 498) = .948$, $p > .05$, *partial* $\eta^2 = .002$. Regarding psychological flexibility, significant differences were detected, $F(2, 498) = 5.364$, $p < .01$, *partial* $\eta^2 = .021$. Notably bisexual individuals ($M = 207.701$, $SD = 29.242$) reported higher psychological flexibility compared to gay ($M = 204.696$, $SD = 38.114$) and lesbian ($M = 216.942$, $SD = 27.839$) individuals. However, psychological flexibility did not differ between

rural groups, $F(1, 498) = 7.548$, $p > .05$, *partial* $\eta^2 = .015$). Lastly, mean analyses associated with emotional regulation difficulties revealed non-significant effects for sexual orientation, $F(2, 498) = .898$, $p > .05$, $\eta^2 = .004$, and rurality, $F(1, 498) = 3.055$, $p > .05$, *partial* $\eta^2 = .006$.

Similarly, the univariate analysis revealed a non-significant interaction between rurality and sexual orientation across all dependent variables: suicidal behaviors ($F(2, 498) = 1.222$, $p > .05$, *partial* $\eta^2 = .005$), substance misuse ($F(2, 498) = 1.795$, $p > .05$, *partial* $\eta^2 = .007$), emotion regulation difficulties ($F(2, 498) = 1.430$, $p > .05$, *partial* $\eta^2 = .006$), and psychological flexibility ($F(2, 498) = 1.713$, $p > .05$, *partial* $\eta^2 = .007$).

Table 2
Means and Standard Deviations for Suicidal Behavior, Substance Misuse, Emotion Regulation Difficulties, and Flexibility by Sexual Orientation and Rurality

Variable	Sexual Orientation	Rural Mean (*SD*)	Non-Rural Mean (*SD*)
Suicidal Behavior			
	Gay (*n* = 56)	10.14 (5.92)	10.26 (4.09)
	Lesbian (*n* = 104)	11.51 (4.34)	9.79 (4.46)
	Bisexual (*n* = 344)	10.61 (4.65)	9.36 (4.52)
Substance Misuse			
	Gay (*n* = 56)	27.05 (7.07)	25.83 (5.90)
	Lesbian (*n* = 104)	29.91 (6.35)	28.93 (5.99)
	Bisexual (*n* = 344)	29.15 (5.35)	29.34 (5.57)
Emotion Regulation Difficulties			
	Gay (*n* = 56)	129.33 (12.50)	124.20 (24.32)
	Lesbian (*n* = 104)	129.42 (21.44)	131.77 (21.20)
	Bisexual (*n* = 344)	129.25 (19.61)	131.29 (15.30)
Flexibility			
	Gay (*n* = 56)	193.86 (49.34)	211.20 (28.31)
	Lesbian (*n* = 104)	214.53 (29.98)	218.64 (26.35)
	Bisexual (*n* = 344)	202.67 (30.80)	210.61 (27.96)

Correlations

Bivariate correlations were examined to determine whether significant relationships existed among suicidal behaviors, substance misuse, emotion regulation difficulties, and psychological flexibility (see Table 3). The correlation coefficients among these variables revealed several significant relationships, consistent with the study's hypotheses. As anticipated, the relationship between suicidal behaviors and substance misuse was significantly correlated in the positive direction, indicating higher levels of substance misuse are associated with higher levels of suicidal behaviors. Similarly, substance misuse was significantly and positively correlated with emotion regulation difficulties, suggesting increased substance misuse is associated with greater emotional regulation difficulties. A significant positive correlation was also found between suicidal behaviors and emotion regulation difficulties, indicating that individuals with greater emotional regulation difficulties tend to report higher levels of suicidal behaviors. The correlation between suicidal behaviors and psychological flexibility was not statistically significant. Unexpectedly, results revealed a significant and positive correlation between psychological flexibility and emotion regulation difficulties ($r = .397$, $p < .01$) indicating that higher flexibility is associated with greater emotional regulation difficulties. The relationship between substance misuse and psychological flexibility was not significant.

Table 3
Correlations among the Study's Main Variables

Variables	1	2	3	4
1. Suicidal Behaviors	--	.539**	.123**	.030
2. Substance Misuse	.539**	--	.276**	.089*
3. Difficulty with Emotional Regulation	.123**	.276**	--	.397**
4. Psychological Flexibility	.030	.089*	.397**	--

Note: * indicates *p*-values less than .05, ** indicates *p*-values less than .01

Moderated Models

A series of two moderated models were analyzed to examine the main and interaction effects of substance misuse, emotional regulation difficulty, and psychology flexibility on suicidal behaviors These analyses aimed to determine whether the interaction effects between substance misuse and the two moderators, emotional regulation difficulties and psychological flexibility, accounted for variance in suicidal behaviors.

In the first moderated model, the interaction between substance misuse and emotional regulation difficulty on suicidal behaviors was explored. The overall model for the regression equation was significant, $F(3, 500) = 70.457$, $p < .001$, with approximately 29.71% of the variance in suicidal behaviors accounted for by substance misuse, emotion regulation difficulties, and the interaction between the two. In terms of main effects, substance misuse was a significant predictor, $b = .439$, $p < .001$, while emotional regulation difficulties was not a significant predictor. The interaction between substance misuse and emotion regulation difficulties was also significant, $b = -.003$, $p = .041$, suggesting that the relationship between substance misuse and suicidal behaviors varies as a function of emotional regulation difficulties (see Table 4).

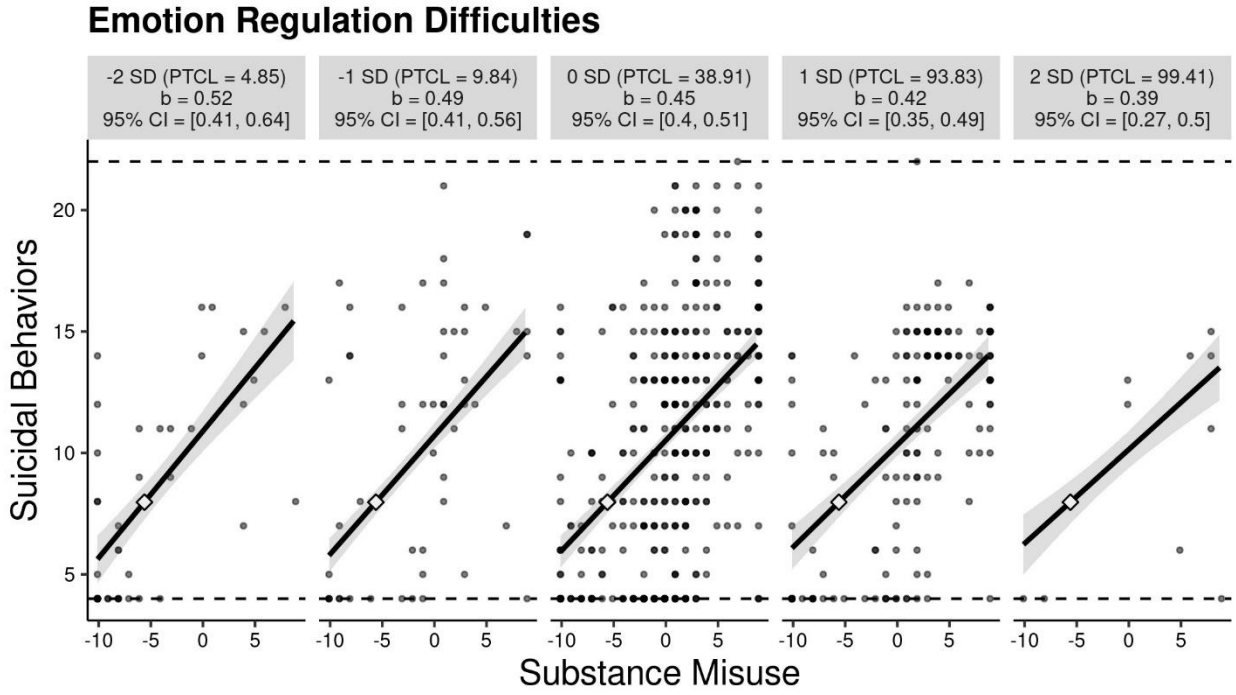
Table 4
Full model: Emotion Regulation Moderated Analysis.

	β	**SE**	***t***	***p***	**LLCI**	**ULCI**
Constant	10.1002	.1784	56.6123	< .001	9.7497	10.4508
Substance Misuse	.4385	.0311	14.1220	< .001	.3775	.4995
Emotion Regulation Difficulties	-.0208	.0118	-1.7536	.0801	-.0440	.0025
SubMisuse * EmoRegDiff	-.0033	.0016	-2.0508	.0408	-.0064	-.0001

Note. LLCI = lower limit confidence interval; ULCI = upper limit confidence interval. When zero does not fall between the LLCI and ULCI, there is a significant effect at the .05 level.

To unravel the significant moderated effect further, the conditional effects for the substance misuse x emotion regulation interaction were probed. Probing procedures were conducted through a simple slopes analysis and graphed using the interactive utility tool (see Figure 1; McCabe et al., 2018). The simple slopes analysis revealed that the relationship between substance misuse and suicidal behaviors is stronger at higher levels of emotional regulation difficulties. However, this relationship gradually decreases as the level of emotional regulation difficulties decreases, indicating a significant weakening effect consistent with the methodological definition of a protective factor. The Johnson Neyman technique was not used as the simple slopes analysis did not indicate that emotion regulation difficulties offset the relationship between substance misuse and suicide.

Figure 1. *A Simple Slopes Depiction of the Moderated Effect*



In the second moderated model, the focus shifted to the interaction between substance misuse and psychological flexibility in accounting for variance within suicidal behaviors. The model accounted for approximately 29.28% of the variance in suicidal behaviors, $F(3, 500) = 69.0138$, $p < .001$. The main effect of substance misuse on suicidal behaviors was significant ($b = .4299$, $p < .0001$). However, the main effect for psychological flexibility, $b = -.004$, $p = .493$, and the interaction effect between substance misuse and psychological flexibility, $b = -.001$, $p = .234$) was not significant. The regression statistics are depicted in Table 5.

Table 5
Full model: Psychological Flexibility Moderated Analysis.

	β	**SE**	***t***	***p***	**LLCI**	**ULCI**
Constant	10.0205	.1732	57.8540	< .001	9.6802	10.3608
SubMisuse	.4299	.0300	14.3329	< .001	.3709	.4888
Flexibility	-.0040	.0058	-.6861	.4929	-.0155	.0075
SubMisuse * Flexibility	-.0011	.0009	-1.1925	.2336	-.0028	.0007

Note. LLCI = lower limit confidence interval; ULCI = upper limit confidence interval. When zero does not fall between the LLCI and ULCI, there is a significant effect at the .05 level.

CHAPTER 4

DISCUSSION

Review of Purpose

The purpose of my study was to examine the relationship between substance misuse and suicidal behaviors within the LGBTQIA+ community. Uniquely, I evaluated the moderating roles of psychological flexibility and ER within this relationship. Recognizing the absence of targeted protective models for addressing substance use and suicidal risk in this community, I sought to investigate how varying facets of psychological flexibility and ER could act as potential buffers. My aim was to identify protective factors that could inform more effective interventions and support systems tailored to the unique needs and challenges of LGBTQIA+ individuals. Accordingly, my study aimed to answer the following research questions: (a) were facets of psychological flexibility inversely related to reports of substance misuse and suicidal behaviors? (b) were facets of difficulties with ER positively associated with reports of substance misuse and suicidal behaviors? (c) did certain facets of psychological flexibility and ER offset the relationship between substance misuse and suicidal behaviors in a sample of LGBTQIA+ adults?

LGBTQIA+ Suicide Rates

The elevated rates of suicidal behaviors within LGBTQIA+ communities underscore a pressing need for comprehensive evaluations across diverse segments of this population. The nuanced experiences of LGBTQIA+ individuals, shaped by their unique socio-cultural contexts, necessitate targeted research to understand and mitigate the factors contributing to these high rates. In response to this need, my study conducted descriptive statistical analyses to assess and compare the reports of suicidal behaviors between rural and non-rural LGBTQIA+ participants. This approach aimed to illuminate the variations in suicidal behaviors, offering insights into the

specific challenges faced by LGBTQIA+ individuals in different geographical settings. The findings revealed significant disparities, highlighting the importance of considering geographical context in suicide prevention efforts within the LGBTQIA+ community.

In my evaluation, I examined the prevalence of suicidal thoughts and actions among LGBTQIA+ individuals, distinguishing between non-rural and rural participants. The findings reveal a significant occurrence of suicidal ideation, planning, and attempts within the non-rural LGBTQIA+ community, emphasizing the critical need for accessible, targeted mental health services to address their unique challenges. The evaluation further uncovered distinct patterns of suicidal behavior among rural LGBTQIA+ participants, indicating a similarly high level of concern. This demographic showed varying degrees of suicidal ideation and attempts, including both fleeting and intense desires to die, as well as attempts made with and without the intent to die. These patterns underscore the necessity for comprehensive mental health support tailored to the rural LGBTQIA+ population, highlighting the importance of addressing the specific needs and experiences of this group to effectively mitigate the risk of suicide.

This evaluation highlights a significant engagement in suicidal behaviors within the rural LGBTQIA+ cohort compared to their non-rural counterparts. In total, these findings indicate that LGBTQIA+ individuals residing in rural areas are reporting higher rates of suicidal behaviors compared to non-rural LGBTQIA+ individuals. Moreover, LGBTQIA+ individuals residing in non-rural and rural areas are reporting considerably more suicidal behaviors when compared with nationwide rates (CDC, 2021), strengthening the position that LGBTQIA+ individuals are more vulnerable to suicide than non-LGTBQIA+ identifying individuals (The Trevor Project, 2021).

Not surprisingly, my findings indicated rural LGBTQIA+ individuals reported significantly higher rates of suicidal ideation, planning, and perceived likelihood of future suicide attempts compared to their non-rural counterparts. This pattern aligns well with existing literature suggesting rural populations often face unique challenges, such as limited access to LGBTQIA+-affirmative mental health services, increased stigma, and isolation (McCarthy et al., 2018) predisposing them to higher levels of suicide risk (Hass et al., 2010; McHugh et al., 2010). These disparities underscore the critical need for the development and implementation of suicide prevention models specifically tailored for rural LGBTQIA+ populations. Such models must account for the unique socio-cultural and environmental stressors (e.g., minority stressors, low access to affirming care) faced by these communities. A strengths-based approach, emphasizing the cultivation of resilience through emotion regulation strategies and community support may offer significant benefits. By focusing on enhancing protective factors and reducing the impact of rural-specific stressors on suicidal behaviors, these prevention strategies may improve the mental health and well-being of rural LGBTQIA+ communities.

Rural and Sexual Orientation Differences

In exploring rural and sexual orientation differences within the LGBTQIA+ community regarding substance misuse, psychological flexibility, and emotion regulation, my analyses did not reveal significant disparities based on rurality. This investigation was prompted by existing literature frequently reporting significant differences in substance misuse rates between urban and rural communities in the general population (SAMHSA, 2022). However, the specific focus on the LGBTQIA+ community in our study unveiled results that diverge from these established patterns, indicating no marked rural-urban divide in substance misuse, psychological flexibility, or emotion regulation among LGBTQIA+ individuals. The absence of geographic differences in

substance misuse within the LGBTQIA+ community is particularly noteworthy. While the broader literature underscores stark disparities in substance misuse rates between urban and rural settings (USDA, 2018), attributed to factors such as accessibility, social norms, and availability of resources, my findings suggest that these factors may not play a similarly pivotal role within LGBTQIA+ populations. This inconsistency might be attributed to several factors, including the unique challenges and protective mechanisms within LGBTQIA+ communities potentially overriding the typical rural versus non-rural disparities observed in general populations. For instance, the pervasive nature of LGBTQIA+ stigma and discrimination and the potential for strong, supportive networks within these communities might influence substance misuse rates more significantly than other geographical locations. Given the scarcity of literature focusing specifically on rural differences in the LGBTQIA+ population regarding substance misuse, my study highlights a critical gap in research. The results suggest that the impact of rurality on substance misuse and related, prospective protective factors, like psychological flexibility and emotion regulation, may differ fundamentally within LGBTQIA+ populations compared to broader trends observed in the general population. Future research should aim to unravel the complex interplay of factors influencing substance misuse within LGBTQIA+ communities across different geographical settings. Investigating the role of community support, access to LGBTQIA+-affirmative resources, and the influence of stigma and discrimination across rural and urban contexts could provide deeper insights into the mechanisms at play.

Sexual Orientation Differences

Results revealed unique differences among different sexual orientation groups. Notably, my findings yielded significant differences in substance misuse between gay and bisexual individuals, with bisexual individuals reporting notably higher levels. This pattern aligns well

with existing literature, such as the study by Kerr et al. (2014) documenting elevated rates of substance use among bisexual individuals compared to other LGBTQIA+ identity groups. The clear identification of these disparities emphasizes the necessity of further research to understand the unique experiences and challenges contributing to higher substance misuse, especially within bisexual communities. Notably, future research should delve into the complex interplay of factors influencing substance misuse among bisexual individuals when compared to other LGBTQIA+ identity groups. While my study does not specify the underlying causes for these disparities, it underscores the importance of exploring how social support systems, community engagement, and specific stressors experienced by bisexual individuals might impact their substance use behaviors. The need for interventions tailored to the specific needs of bisexual individuals is evident. Future studies should aim to identify protective factors and develop strategies effectively addressing the nuances of substance misuse within this group. Additionally, the establishment of bisexual-specific support groups and counseling services would be a significant step forward, ensuring that interventions are responsive to the unique contexts and experiences of bisexual individuals. This approach not only aligns with the goal of reducing substance misuse but also contributes to the broader aim of enhancing mental health and well-being within different sectors of the LGBTQIA+ community.

The study also revealed significant differences in psychological flexibility, with bisexual individuals reporting higher levels of flexibility compared to gay and lesbian individuals. This finding is somewhat counterintuitive given the broader literature often associating higher psychological flexibility with lower distress and better mental health outcomes (Kashdan & Rottenberg, 2010). At face value, this juxtaposition challenges the conventional understanding that psychological flexibility, a trait linked to resilience and adaptive coping, correlates with

healthier behavioral outcomes. However, it is possible that measurement error may have contributed to some of these patterns. Specifically, it is quite possible participants had difficulties relating and comprehensively understanding certain facets of psychological flexibility as the items can be abstractly phrased. For instance, given the complexity of the MPFI and its aim to measure various dimensions of psychological flexibility, including defusion, a specific item (question) from the defusion subscale could be illustrative of how abstract wording might lead to confusion among participants. An example item might be: "I was able to let negative feelings come and go without getting caught up in them." This item aims to measure the concept of defusion, which is the ability to observe one's thoughts and feelings as separate from oneself, reducing their immediate impact. However, the phrase “come and go” and the concept of not “getting caught up” in negative feelings could be confusing for some participants, especially those unfamiliar with mindfulness or psychological self-observation techniques. The metaphorical language used to describe a complex cognitive process might not translate directly into the lived experience of individuals who do not possess the psychological sophistication to understand and reflect upon complex cognitive and metacognitive processes.

To address potential confusion and better assess psychological flexibility within LGBTQIA+ identity groups, future research may benefit from more detailed instructions or examples that explain the concept of defusion in relatable terms. Additionally, incorporating items asking about specific, concrete situations where defusion might be applied could help clarify this abstract concept. For instance, questions could probe how individuals handle negative thoughts about their identity or how they manage feelings of distress without letting these feelings dictate their actions. Such specificity could reduce ambiguity and provide more accurate insights into psychological flexibility across different sexual orientation groups.

Correlations

Consistent with the study hypotheses, a significant positive correlation was observed between substance misuse and suicidal behaviors. This finding aligns with previous research speaking to strong connections between substance use and increased risk of suicidal thoughts and actions (CDC, 2021; The Trevor Project, 2021) in LGBTQIA+ communities. This correlation suggests as LGBTQIA+ individuals engage in higher levels of substance misuse, they also report an escalation in suicidal behaviors. Future research should explore the causal mechanisms underlying this relationship through longitudinal studies, potentially focusing on the role of specific mental health interventions in mitigating the impact of substance misuse on suicidal behaviors.

The positive correlation between suicidal behaviors and ER difficulties further supports existing literature identifying low ER as a significant risk factor for suicidal behaviors (Pisani et al., 2013; Rajappa et al., 2012). This relationship indicates individuals who struggle with regulating their emotions are more likely to report higher levels of suicidal behaviors. Moving forward, research should investigate the efficacy of specific ER interventions in reducing suicidal behaviors, particularly in populations at high risk for both ER difficulties and suicide.

Detected findings on psychological flexibility and suicidal behaviors contrast with expectations based on prior research (Ellis & Rufino, 2016; Rufino & Ellis, 2017). While psychological flexibility is associated with reduced suicidal ideation and thought frequency in various populations, including those with chronic pain and depression (McCraken et al., 2018), my results did not show a significant correlation within this LGBTQIA+ sample. This finding is very confusing given the nature of psychological flexibility and its utility in framing positive mental health outcomes (Kashdan & Rottenberg, 2010). On the surface, this finding suggests a

more complex relationship warranting further exploration, particularly considering the theoretical support for psychological flexibility as a protective factor to a range of problematic psychological outcomes (Bhambhani, 2018; Hayes et al., 2006; Singh & O'Brien, 2019). However, this finding was likely attributed to problems with sampling participants. For instance, it is possible my efforts to detect low quality data were not sufficient; essentially these patterns allowed for more measurement error to impact my ability to detect significant findings. For instance, there could have been a significant number of participants who sped through the psychological flexibility survey, as it was one of the longest questionnaires on the survey. Future research should re-evaluate this relationship within diverse LGBTQIA+ samples, taking care to stringently evaluate for low quality data.

Moderated Models with Emotion Regulation

I investigated the moderating effect of ER on the relationship between substance misuse and suicidal behaviors among LGBTQIA+ individuals. The findings revealed a significant interaction effect between substance misuse and difficulties regulating emotions. Using probing procedures, results highlighted the relationship between substance misuse and suicidal behaviors varies as a function of difficulties regulating emotions. When LGBTQIA+ individuals report low difficulties with regulating emotions, the relationship between substance misuse and suicidal behaviors significantly weakens. This result is particularly important as it highlights ER as a crucial factor in mitigating the risk of suicide, aligning with existing literature underscoring the protective roles of ER strategies in promoting positive mental health outcomes (Pisani et al., 2013; Rajappa et al., 2012). The uniqueness of my study lies in its application to the LGBTQIA+ population, marking a significant contribution to the limited body of research in this area. Essentially, this was one of the first studies to offer evidence regarding the protective effects of

ER on suicidal behaviors within an LGBTQIA+ sample. However, the analysis was constrained by the inability to examine ER at the facet level due to low internal consistency scores, pointing to a critical area for future research. Specifically, because alpha levels were so low, I could not determine if one ER strategy was better suited to serve in a protective capacity versus other ER strategies. This ultimately may limit how clinicians pinpoint tailored strategies to manage suicidal concerns. To advance this line of inquiry, it is essential to explore whether specific ER strategies buffer the adverse effects of substance misuse on suicidal behaviors within the LGBTQIA+ community.

Given these considerations, the next step in research could involve a detailed examination of ER sub-facets and their protective capabilities on suicidal behaviors among LGBTQIA+ individuals. Future studies could employ a mixed-methods approach, combining quantitative measures of ER facet scores with qualitative interviews to gain insights into the lived experiences of LGBTQIA+ individuals. This would allow for a deeper understanding of how specific ER strategies are employed in response to substance misuse and suicidal thoughts. Additionally, longitudinal research designs could track the development and impact of these ER strategies over time, providing valuable information on their long-term efficacy in preventing suicidal behaviors.

By focusing on the nuanced aspects of ER and its role in the LGBTQIA+ population, future research can offer more targeted and effective intervention strategies. This would not only fill a significant gap in the current literature but also contribute to the development of tailored support systems that address the unique challenges faced by LGBTQIA+ individuals, ultimately aiding in the prevention of suicide within this community.

Moderated Models with Psychological Flexibility

In the exploration of the moderating role of psychological flexibility on the relationship between substance misuse and suicidal behaviors among LGBTQIA+ individuals, I conducted a moderated regression analysis. Contrary to expectations, my findings indicated no significant interaction between psychological flexibility and substance misuse in predicting suicidal behaviors. This null result was surprising, especially given the theoretical and empirical backing for psychological flexibility as a protective factor on other mental health outcomes, including its inverse relationship with suicidality in broader populations (Hayes et al., 2006; Kashdan & Rottenberg, 2010). The absence of significant findings contrasts with existing literature positioning psychological flexibility as a cornerstone of adaptive coping and resilience, associated with reduced mental health issues, including lower suicide risk (Bhambhani, 2018; Singh & O'Brien, 2019). This discrepancy prompts an evaluation of potential methodological issues that may have influenced my results. Several factors could account for this unexpected outcome, including potential limitations related to participant engagement and selecting appropriate measures. For instance, the complexity and abstract nature of psychological flexibility as a construct might have posed challenges for participants, particularly if they had limited prior exposure to concepts central to ACT. Additionally, the administration of the measures, including the length and phrasing of items assessing psychological flexibility, might have impacted participants' understanding and responses, potentially diluting the potential to detect significant effects.

Looking ahead, should future studies continue to find null results in the context of psychological flexibility's moderating role in suicidal behaviors among LGBTQIA+ populations, it may suggest that psychological flexibility's effectiveness is conditional. This could indicate

that psychological flexibility is selectively beneficial, perhaps most effective in mitigating risk factors for suicide under specific conditions or within specific communities of the LGBTQIA+ population. Future research should consider exploring the conditions under which psychological flexibility may serve as an effective protective factor. This could include examining variables such as the severity of substance misuse, the presence of supportive social networks, or individuals' engagement with mental health services.

To address these complex questions, future studies might employ a more nuanced approach, including refining measurement tools to better capture the multidimensional nature of psychological flexibility and ensuring that study protocols are sensitive to the unique experiences of LGBTQIA+ participants. Additionally, qualitative research could provide deeper insights into how LGBTQIA+ individuals understand and apply psychological flexibility in their lives, offering valuable perspectives on the contexts in which this construct can be most beneficial. By critically examining the conditions under which psychological flexibility may exert its protective effects, future research can contribute to a more nuanced understanding of its role in promoting mental health and well-being among LGBTQIA+ individuals, particularly those at high risk of suicide.

Clinical Significance/Clinical Implications

The moderating role of ER in the relationship between substance misuse and suicidal behaviors presents significant clinical implications, especially in the context of simultaneous intervention strategies aimed at reducing both suicide risk and substance use within the LGBTQIA+ community. This approach underscores the importance of integrating ER strategies into therapeutic interventions to address these intertwined concerns effectively. Drawing from the findings, it becomes evident that enhancing ER capabilities can serve as a critical

intervention point for therapists working with high-risk LGBTQIA+ clients. Given the demonstrated relationship among low ER, substance misuse, and suicidal behaviors, interventions that bolster ER skills offer a promising avenue for reducing the prevalence of these issues simultaneously. Specifically, therapists might focus on helping clients identify and understand their emotional experiences, develop healthier coping mechanisms for managing distress, and apply these skills in contexts where substance use and suicidal thoughts emerge.

Incorporating ER into treatment plans necessitates a dual focus: addressing the immediate risk factors associated with substance misuse and suicidality and fostering clients' ability to adaptively manage emotional distress. For instance, cognitive-behavioral therapies that include techniques on mindfulness, distress tolerance, and emotional awareness could be particularly beneficial. These approaches not only aim to mitigate the negative impacts of substance misuse and suicidal ideation, but also promote a broader sense of emotional well-being. Moreover, the application of strength-based ER strategies within therapeutic settings could enhance engagement and retention among LGBTQIA+ individuals seeking treatment for mental health concerns. By emphasizing clients' inherent resources and capacities for positive emotional experiences, mental health professionals can work to heal internalized stigma and overcome the barriers that often hinder individuals from seeking or fully engaging in treatment.

Utilizing these insights, mental health professionals are encouraged to develop comprehensive prevention plans that not only target the reduction of substance misuse and suicidal behaviors but also actively enhance clients' emotional regulation and engagement. Such an approach can create a more holistic and effective framework for addressing the complex needs of LGBTQIA+ clients at risk. Ultimately, by integrating these elements into treatment, our field can foster a therapeutic environment that not only mitigates risk but also promotes

resilience, emotional well-being, and a sustained engagement in individualized meaning and purpose.

Limitations

The interpretation of my study's findings must be contextualized within the limitations of the study. Primarily, the reliance on self-report measures, collected through an online platform (MTurk), introduces potential biases related to social desirability and the accuracy of self-assessment. These concerns suggest that the results may be influenced by participants' desire to present themselves in a favorable light or their subjective interpretation of questions, which could affect the validity of the reported associations between substance misuse, suicidal behaviors, emotion regulation, and psychological flexibility.

The use of MTurk for participant recruitment, while beneficial for accessing a diverse and widespread population, also raises concerns regarding the quality of data. MTurk samples can sometimes include individuals who are motivated primarily by compensation rather than genuine engagement with the study, potentially leading to rushed or inattentive responses. This risk was partially mitigated through measures to identify and exclude low-quality responses, but it remains a limitation that could affect the generalizability and reliability of the findings. Additionally, the cross-sectional design of this study limits the ability to infer causality or temporal relationships between the variables. The snapshot provided by a single administration does not capture the dynamic and potentially fluctuating nature of the constructs explored, such as how changes in ER or psychological flexibility over time might influence the risk of substance misuse and suicidal behaviors. Another limitation concerns the generalizability of the findings. While MTurk allows for a broad reach, the resulting sample may not fully represent the diversity within the LGBTQIA+ community, particularly in terms of geographical location,

socioeconomic status, and the intersectionality of identities. The use of an online platform might also skew the sample toward individuals with internet access and the digital literacy required to participate in online surveys, potentially excluding segments of the population who could provide valuable insights into the phenomena under investigation. Therefore, it is possible that my findings may only generalize to LGBTQIA+ individuals who identify with more common queer identities, possess enough resources to complete online surveys, and possess enough cognitive resources to understand abstract psychological constructs.

To address these limitations and build on the findings of this study, future research should consider employing a mixed-methods approach, incorporating behavioral or observational measures alongside self-report instruments to validate and deepen the understanding of the relationships explored. Longitudinal studies could also be beneficial by examining how these relationships evolve over time, providing stronger evidence for causality and the temporal precedence of protective factors like ER and psychological flexibility. Additionally, efforts to recruit a more diverse and representative sample of the LGBTQIA+ community, perhaps through targeted outreach or collaboration with community organizations, could enhance the generalizability and relevance of the findings. By addressing these methodological challenges, future studies can further elucidate the complex interplay of these factors and inform the development of targeted, effective interventions for at-risk populations within the LGBTQIA+ community.

General Conclusions

This study marks a significant advancement in understanding the interplay between ER, substance misuse, and suicidal behaviors within the LGBTQIA+ community, revealing ER's critical moderating role. By demonstrating that individuals with poorer ER are at increased risk

for suicidal behaviors amid substance misuse, it underscores the necessity of integrating ER-focused strategies in therapeutic interventions for this population. Importantly, my research contributes novel insights into the importance of ER and offering some guidelines on applying these findings specifically to the LGBTQIA+ community, a group often underrepresented in psychological research. The distinctions in suicidal behaviors between rural and non-rural LGBTQIA+ individuals further enrich the discourse, emphasizing the need for geographically sensitive approaches to mental health care. While psychological flexibility's moderating effect was not significant, the exploration itself adds value, encouraging deeper investigation into its potential protective roles given refined methodology. Overall, the study's findings about the protective factors against suicide for LGBTQIA+ individuals struggling with substance misuse provide a strong foundation for future research and clinical practice, inspiring continued exploration into tailored interventions that address the unique challenges faced by this community.

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