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DEVELOPMENT OF A MINORITY STRESS PREVENTIVE INTERVENTION FOR
SEXUAL AND GENDER MINORITY YOUTH AND YOUNG ADULTS

by

Natalie R. Holt

A DISSERTATION

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Under the Supervision of Professor Debra A. Hope

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DEVELOPMENT OF A MINORITY STRESS PREVENTIVE INTERVENTION FOR
SEXUAL AND GENDER MINORITY YOUTH AND YOUNG ADULTS

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University of Nebraska, 2021

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Mental health disparities amongst sexual and gender minority (SGM) individuals are spurred by exposure to minority stressors and sustained by mediators of problems with emotion regulation, social support, and cognitive processes. Emerging clinical research suggests empirically supported behavioral health treatments can be culturally adapted to address these mental health disparities, however less work has focused on the prevention of symptoms. The present study developed a brief preventive intervention targeting mediators of the minority stress model for SGM youth and young adults aged 17 to 26. Focus groups with 8 SGM participants informed development to ensure the content and delivery of the intervention was culturally appropriate. Intervention components included psychoeducation on the minority stress model, skills for emotion regulation, compiling lists of local affirming resources, and practice of cognitive restructuring techniques with internalized stigma examples. Twenty-six participants, in 4 cohorts, received the 90-minute intervention in a multiple baseline design trial to establish preliminary feasibility and efficacy. Participants completed measures of internalizing symptoms, emotion regulation, social support, stress appraisal, and internalized stigma every 2 weeks for 5 time-points. Participants rated the intervention as successful, logical, and appropriate for SGM youth and young adults. Limited change was seen in outcome measures at follow-up time-points. Onset of the COVID-19 pandemic necessitated changes to the intervention delivery mode, and along with factors such as limited dosing, may explain lack of improvement on distal outcome measures.

With further refinement, this brief preventive intervention can easily be delivered to SGM youth and young adults to provide skills and resources for coping with minority stress.

DEDICATION

To my grandfathers - Gordon Vigés for teaching me the importance of creative endeavors and Roger Holt for being the exemplar of a lifelong student.

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CHAPTER 1: INTRODUCTION

Sexual and gender minority (SGM) populations include individuals who identify under a broad spectrum of sexual orientations and gender identities. These identities may include sexual orientations such as lesbian, gay, bisexual, pansexual, or queer and gender identities that differ from one's sex assigned at birth, such as transgender, gender nonconforming, genderqueer, or agender. Sexual orientation and gender identity are different concepts (American Psychological Association, 2015) but often studied together in research. SGM individuals face unique stressors across the lifespan and experience health and mental health disparities compared to their heterosexual and cisgender counterparts (Meyer, 2003; Hendricks & Testa, 2012). As such, culturally-tailored prevention and intervention of these disparities is necessary to improve health outcomes and reduce disparities.

In the United States, the portion of the population who identify as SGM is growing, largely due to an increasing percentage of youth and young adults. A recent report based on Gallup tracking polls suggested 4.5% of Americans identify as "LGBT" (lesbian, gay, bisexual, and transgender), including 8.2% of the Millennial cohort, individuals born between 1980 and 1999 (Newport, 2018). These numbers increase when inquiring about history of same-gender sexual behavior or level of same-gender attraction (Gates, 2011). The growing number of SGM youth and young adults are impacted by their unique contexts and environments, including school and families, which contribute to risk and protective factors for mental health disparities.

1.1a. School

SGM youth and young adults are highly impacted by their experiences in educational settings. Retrospective studies and research with current secondary students demonstrate SGM students face high rates of school victimization (Kosciw et al., 2016; Russell et al., 2011). In a large national survey completed by the Gay, Lesbian, and Straight Education Network (GLSEN; Kosciw et al., 2016) over 10,000 students aged 13 to 21 reported on their experiences during the 2014-2015 school year. Results of this survey demonstrated most students (57.6%) felt unsafe at school due to their sexual orientation and 43.3% of students felt unsafe because of their gender expression. Concerns about safety led nearly one third of students to miss a day of school in the previous month. SGM students reported high rates of physical harassment and assault, sexual harassment, and 98.1% of students heard “gay” used in a derogatory manner. Many students experienced school policies that were discriminatory to SGM students, such as not being able to use their affirmed name and pronouns or being prohibited from taking someone of the same gender to a school dance. High levels of school victimization were related to poorer attendance, lower GPA, being disciplined more often, less desire to pursue post-secondary education, and lower self-esteem. Further, gender minority students experienced worse school climates than sexual minority students, particularly when considering school context. Schools in rural areas and small towns were rated as having worse climates than urban and suburban schools, as were middle schools compared to high schools and religious schools compared to public schools and non-religious private schools. Though victimization, discrimination, and harassment occurred frequently, there

was some improvement in rates of hearing discriminatory remarks and experiencing physical harassment or assault from previous years.

Research initiatives such as the Family Acceptance Project (e.g. Toomey et al., 2010) have documented the impact of school experiences on later outcomes for SGM individuals. For example, school violence in high school is linked to risk for STDs and HIV and associated with higher levels of depression and suicide in young adulthood (ages 21 – 25). Beyond risk factors, potential protective factors from high school experiences have also emerged. Being out during high school is correlated with positive psychosocial adjustment in young adulthood when controlling for school victimization and later adjustment (Russell et al., 2014). Additionally, the presence, participation, and effectiveness of a high school Gay-Straight Alliance (GSA) sometimes buffered the negative correlations of school victimization and well-being in young adulthood (Toomey et al., 2011). Not only do school supports such as GSAs improve perceptions of school climates, but students who attended high schools with GSAs showed fewer problematic alcohol use behaviors and lower depression and psychological distress symptoms in college than students who did not attend high schools with GSAs (Heck et al., 2011).

Beyond secondary school, many SGM young adults desire to pursue post-secondary education – nearly 95% of the GLSEN 2015 survey participants (Kosciw et al., 2016). Experiences of discrimination and harassment continue for SGM students in higher education (Rankin et al., 2010). A survey of SGM students at a large, public Midwestern university showed students who experienced more unfair treatment from instructors, concealed their SGM identity from other students, and felt LGBT bias had a negative impact on their emotional support from friends and families had lower perceptions of

campus climate than other SGM students (Tetreault et al., 2013). Greathouse et al. (2018) compiled a massive analysis of national surveys of college students from 2016 and 2017 to explore experiences of over 66,000 queer-spectrum students and more than 6,600 trans-spectrum students spanning 918 universities in the United States. This analysis revealed queer-spectrum and trans-spectrum students reported feeling valued less on their campuses compared to heterosexual and cisgender students. Regarding health outcomes, queer-spectrum and trans-spectrum students reported engaging in self-injury in the previous 12 months or considering suicide more than heterosexual and cisgender students and also endorsed higher rates of anxiety and depression (Rankin et al., 2019). All together these studies indicate SGM students face negative experiences in high school and college which continue to impact their mental health later in life.

1.1b. Family

A review of suicide risk in SGM populations identified parental and family rejection as major stressor and risk factor (Haas et al., 2011). Sexual minority (SM) youth are 8 times more likely to make a suicide attempt in young adulthood when parental rejection occurred during adolescence (Ryan et al., 2010). In addition to suicidal behavior, SM young adults who reported having low family acceptance during adolescence had greater depressive symptoms, risky sexual behavior, and substance abuse than SM young adults with high family acceptance (Ryan et al., 2009; Ryan et al., 2010). These mental health problems amongst SGM youth and young adults with family rejection can be compounded by the possible negative outcomes of youth disclosing their SGM identities to their parents, such as homelessness. An estimated 40% of homeless youth in the U.S. are SGM (Durso & Gates, 2012).

The opposite of family rejection, acceptance and support, is also an important factor for SGM youth and young adults. From a large sample of 461 LGB adolescents and young adults in Israel, family acceptance and support had a significant positive effect on the youth's acceptance of their sexual orientation and had a negative effect on psychological distress, indicating family acceptance can be a buffer of mental health concerns (Shilo & Savaya, 2011). The Family Acceptance Project has explored family acceptance in a U.S. based sample (Ryan et al., 2010). High family acceptance in adolescence was related to greater self-esteem, social support, and general health. Additionally, young adults who reported having high family acceptance during adolescence had lower rates of suicide attempts, suicidal thoughts, depression, and substance abuse. Further highlighting the need for family support, Snapp and colleagues (2015) included friend support and community support in their investigation of the psychosocial adjustment of SGM young adults. As expected, family acceptance predicted positive adjustment but also was salient compared to support from friends and community. The influence of SGM youth and young adults' families can be a buffer against psychological distress, if the family is supportive and accepting, or be associated with mental health concerns, including suicidality if the family environment is unsupportive or rejecting because of the youth's sexual orientation or gender identity.

1.1c. Other special considerations

Beyond school and family or other support systems, other unique considerations for SGM youth and young adults include the influence of technology and intersecting identities, such as race/ethnicity and religion. Youth, regardless of their sexual orientation and gender identity, connect with technology at high rates – measured at 7.5 hours per

day in one study (Rideout et al., 2010). There is emerging evidence that SM youth engage at higher rates than non-SM peers (GLSEN et al., 2013). Technology carries risks like cyberbullying and encountering unsafe content that cautions some adults about these high usage rates. Craig and colleagues (2015) conducted interviews with 10 SM youth and some gender minority (GM) youth and young adults, aged 18 to 22, who frequently use multiple forms of technology. Despite online risks, SM youth spoke of the importance of online safe spaces and community support. In fact, the youth noted that their interactions offline, at school for example, were scarier than their interactions online. Participants offered recommendations for service providers working with SM youth including posting useful resources online, learning about SM youth culture online, and providing youth education about how to be safe online and about the benefits of connecting online. In addition to finding community support via technology, some SGM youth seek important health information online, but may experience barriers to accessing information including questioning the validity of the health information and being caught by others, including parents (Magee et al., 2012). Technology remains a vital support tool for SGM youth and can be better utilized to share health information.

Intersecting marginalized identities also compound the experiences of SGM youth and young adults. For example, SGM youth of color experience greater disparities compared to White or European American SGM youth (Murphy & Hardaway, 2017). SGM youth of color face discrimination and stressors both due to their SGM identity and their racial-ethnic identity, creating an even more vulnerable population. In a survey of SGM youth of color in Boston, 1/5 had attempted suicide in the previous year (Conron et

al., 2015). Additional minority identities, however, can also be sources of pride and support and foster resiliency in youth (Murphy & Hardaway, 2017; Singh, 2013).

Religious identity is another complex intersecting identity. In a survey of nearly 3,000 SGM young adults conducted in 2000, individuals who were raised in religious contexts had higher odds of experiencing suicidal thoughts and suicide attempts (Gibbs & Goldbach, 2015). This relationship was partially mediated by internalized stigma. Maintaining a religious identity in young adulthood can impact sexual identity integration. More contemporary studies show religious SM young adults report that self-acceptance and knowledge of religious readings are important to successful identity integration (Dahl & Galliher, 2009). SGM youth can experience conflict between their SGM identity and religious identity, but reconciliation is possible. However, while religiosity is often a protective factor for youth against mental health problems, being raised in a religious context can be a risk factor for SGM youth and young adults (Gibbs & Goldbach, 2015).

1.2. SGM Youth and Young Adult Mental Health

1.2a. Disparities

Most mental disorders begin in youth, though may not be detected until later in life (Patel et al., 2007). Population estimates across several nations suggest between the yearly prevalence rate of mental disorders in youth and young adults is at least 1 in 4 or 1 in 5 (Patel et al., 2007). Risk factors for mental disorders include biological origins such as prenatal exposure to drugs and alcohol or family history, psychological precursors like personality traits and abuse or neglect, and social environments and stressors within family, school, and the broader community (Patel et al., 2007). Regardless of sexual

orientation or gender identity, suicide is a leading cause of death for youth and young adults and the mental health concerns in this age group are significant (Patel et al., 2007). However, some groups are at even greater risk.

SGM youth and young adults experience substantial mental health disparities compared to their heterosexual and cisgender peers. Several studies, using various measures of SGM identity or behavior to capture sexuality, document these disparities. Mustanski et al. (2010) conducted structured diagnostic interviews and symptom measures with 246 SGM youth aged 16 to 20. One third of the participants met criteria for any disorder on the interview, 17% had conduct disorder, 15% had major depression, 9% met criteria for post-traumatic stress disorder (PTSD), and 31% reported a previous suicide attempt. These rates were higher than youth in national samples, but showed a similar rate of suicidal behaviors of youth in the same geographic area. Nonetheless, the high suicide attempt rate warrants attention. Zhao et al. (2010) found LGB adolescents had higher rates of suicidal behavior than heterosexual adolescents. Regarding substance use, high-risk sexual minority youth living in Los Angeles and New York City had higher use of prescription opioids and tranquilizers and more childhood abuse than heterosexual youth (Kecojevic et al., 2012).

Mental health disparities are still evident based on sexual behavior. In a comparison of risk between youth who report sex with same-sex partners and youth who report sex with both male and female partners, youth with sex partners of more than one gender had higher reports of drug use, suicide attempts, sexual victimization, and being removed or running away from the home (Moon et al., 2007). Similarly, an earlier population-based survey of low-income young women concluded that self-identified

lesbians and bisexual women had more substance abuse and experiences of coerced sex than straight women, as did women with both male and female sex partners compared to women with male sex partners only (Scheer et al., 2003). These disparities appear to persist. A more recent study among youth revealed that individuals who identify as heterosexual or questioning but engage in same sex behavior have greater sexual health risk behavior than heterosexual or questioning youth who do not (Poteat et al., 2019).

1.2b. Risk Factors and Protective Factors

The unique school, family, social, and cultural contexts of SGM youth and young adults coalesce into risk factors and protective factors for psychological distress. Violence, victimization, and family rejection are substantial risk factors. Intimate partner violence, for example, was identified as a risk factor for sexually risky behaviors and future mental health outcomes amongst SGM young adults (Reuter et al., 2017). School victimization in adolescence also is associated with poor mental health outcomes in young adulthood, including depression, suicidal ideation, and HIV/STD risk (Russell et al., 2011). Steadily high or increasing levels of victimization based on one's SGM identity leads to higher risk for depression and PTSD (Mustanski et al., 2016). In addition to victimization, SGM youth who experience family rejection face increased rates of suicidal behavior (Haas et al., 2011).

Opposite of family rejection, SGM youth who are accepted by their family can be buffered against psychological distress (Ryan et al., 2010). Similarly, data from a large survey of 6th, 9th, and 12th graders showed that family connectedness, perceived caring from adults, and school safety largely mediated disparities in suicidal behavior between LGB youth and heterosexual youth. Combined with research about attending a school

with a GSA (Toomey et al., 2011), a positive school can protect SGM youth from psychological distress, highlighting the importance of social support for preventing mental health disparities.

1.3. Minority Stress Model

The dominant framework to explain mental health disparities of SGM youth and young adults is the minority stress model (Meyer, 2003). Minority stress is grounded in social stress theory which posits that exposure to discrimination and prejudice creates life changes that require adaptation. The minority stress model explains SGM mental health disparities are due to exposure to proximal and distal stressors related to sexual orientation and gender identity. Proximal stressors are internal processes, such as internalized homophobia, internalized transphobia, or expectation of rejection. This often involves adopting a societal stigma as one's own belief or a hypervigilance based on previous negative experiences. Distal stressors are external. They include violence, discrimination, harassment, and microaggressions. They may be committed at the individual level, such as being fired from one's job due to an SGM identity, or experienced at sociocultural levels, such as living in a state without employment protections or hearing negative messages about SGM people conveyed in the media.

While proximal and distal stressors are negative experiences, the minority stress model also considers adaptive responses to stress, such as resiliency or community connectedness, which can buffer against stressors. Utilizing resiliency is a healthy response to stress that disrupts the causal chain of proximal and distal stressors leading to psychological distress (Meyer, 2015). These strengths can come from individual characteristics or from community and identity levels. Belonging to and connecting with

the SGM community is associated with positive outcomes in youth (Detrie & Lease, 2007). Building on community resilience is often a target of interventions to reduce the psychological distress in the minority stress model (Singh, 2018).

The risk factors and protective factors associated with psychological distress in SGM youth and young adults – school and other forms of victimization, family rejection or acceptance, and cultural factors like religion – fit as stressors in the minority stress model. School victimization is a distal stressor unique to SGM youth, one of the earliest forms of harassment or discrimination SGM individuals will face. Distal school factors such as being involved in a GSA, however, can be harnessed as adaptive responses to minority stress. Family rejection, like school victimization, is a distal stressor but also can be related to proximal stressors including internalized homophobia (Puckett et al., 2015b). A SGM individual's other identities may also contribute to proximal stressors, as being raised in a religious household is related to internalized stigma (Gibbs & Goldbach, 2015). Factors unique to youth and young adults, such as consumption of technology (Nelson & Nelson, 2010), can also fit the minority stress model – both distal stressors (e.g. cyberbullying and witnessing anti-SGM content) and adaptive responses to minority stress (e.g. finding community support online). A culmination of SGM-specific stressors and youth/young-adult specific stressors contribute to the significant mental health disparities between SGM youth and young adults and their cisgender and straight peers.

1.4 Psychological Mediation Framework

The minority stress model explains the progression from experiencing social stress to increase psychological distress and mental health disparities, but does not explain why this connection occurs. To meet that gap, Hatzenbuehler (2009) proposed the

psychological mediation framework, which adds mediators to explain the minority stress model. The psychological mediation framework posits that exposure to increased stress leads to emotion regulation problems, interpersonal problems, and difficulties with cognitive processes which mediates the relationship between increased minority stress and psychological problems.

1.4a. Emotion Regulation

With his model, Hatzenbuehler (2009) reviewed literature on emotion regulation and depression, anxiety, and substance abuse in LGB populations. For example, rumination was highlighted as an emotion regulation strategy that is linked to depression and anxiety (Nolen-Hoeksema et al., 2008) and LGB individuals who ruminated after an autobiographical discrimination task showed increased stress compared to those who were told to use distraction (Hatzenbuehler et al., 2009). Other studies have found rumination to link minority stress and distress in SGM youth and young adults. In a Dutch sample of sexual minority youth, rumination explained the relationship between experiencing microaggressions and depressive symptoms (Kaufman et al., 2017). In LGB college students, rumination mediated the relationship between sexual orientation uncertainty and psychological distress (Borders et al., 2014). Hatzenbuehler (2009) described additional strategies such as emotional awareness, coping motives, and reappraisal as mediators of minority stress or LGB identity and depression, anxiety, and alcohol problems (Hatzenbuehler et al., 2011; Hatzenbuehler et al., 2008; Safren & Heimberg, 1999).

1.4b. Interpersonal Problems

The second mediator in Hatzenbuehler's model (2009) is interpersonal problems,

such as social isolation. Compared to heterosexual individuals, LGB individuals are less satisfied with their support network. Within the psychological mediation framework, lack of support and isolation caused by minority stressors contribute to psychological distress. For example, SGM youth may experience a distal stressor of family rejection which causes them to have limited social support and isolates them, putting them at increased risk for mental health problems (e.g. Ryan et al., 2009). Hatzenbuehler referenced similar work showing suicidal behavior disparities between LGB youth and heterosexual youth was mediated by protective interpersonal factors such as family connectedness and adult caring – both of which LGB youth report lower levels of compared to heterosexual peers (Eisenberg & Resnick, 2006). In a short prospective study across 10 days, LGB young adults reported feeling more isolated on days they experienced more minority stressors. The increased isolation mediated the prospective relationship between minority stress and psychological distress (Hatzenbuehler et al., 2009). These studies demonstrate that an increase in minority stress is related to an increase in psychological distress via interpersonal problems.

1.4c. Cognitive Processes

Like emotion regulation, the third mediator in Hatzenbuehler's model (2009) is at the individual level. Cognitive processes related to the maintenance of internalizing mental health problems, such as hopelessness (Abramson et al., 1989), are influential in SGM mental health disparities. For example, the connection between same-sex attraction and suicidality in adolescents partially reduced when controlling for hopelessness and other psychological processes including depression and alcohol abuse (Russell & Joyner, 2001). A pessimistic explanatory style is another problematic cognitive process that may

explain SGM mental health disparities, as pessimism and related internal attributions can arise when stigma-related stress seems chronic and persistent. Hatzenbuehler (2009) noted a longitudinal study with bereaved gay men in which minority stress contributed to increased pessimism – a significant predictor of internalizing symptoms across the study (Hatzenbuehler et al., 2010). Another cognitive process central to theories of depression, negative self-schema, had mixed evidence as a mediator of minority stress and psychological distress (Hatzenbuehler, 2009). However, LGB individuals in an Austrian sample were likely to have lower self-esteem, a type of self-schema, compared to heterosexual individuals (Ploderl & Fartacek, 2005) and school victimization, a distal minority stressor, leads to low self-esteem for SGM youth (Kosciw et al., 2013). More research is needed to establish negative self-schema as a mediator of SGM mental health disparities, but it relates both to minority stressors and psychological distress.

1.5. Prevention

A substantial literature has identified mental health disparities for SGM populations and theoretical models including the minority stress model (Meyer, 2003) and psychological mediation framework (Hatzenbuehler, 2009) seek to explain why such disparities occur. This allows interventions to be tailored to SGM populations and structured with empirical and theoretical foundations. Culturally responsive treatment considers the unique characteristics and risk factors of a population. Recent work has adapted cognitive behavioral therapy, an evidence-based treatment for internalizing disorders and symptoms in youth and young adults (Hofmann et al., 2012; Kendall, 2011), for SGM populations (e.g. Craig & Austin, 2016; Pachankis et al., 2015). The AFFIRM program from Craig and Austin (2016) is an 8 session coping group

intervention designed for SGM youth. AFFIRM includes modules core to CBT such as understanding how thoughts affect feelings and overcoming counterproductive thoughts and feelings infused with minority stress and SGM adaptations including psychoeducation on minority stress and identifying and fostering affirming and safe support networks. In an open trial with 30 SGM youth (ages 15 – 18), participants showed lower depressive symptoms and an increase in reflective coping skills. Participants also shifted from appraising stress as a threat to viewing it as a challenge.

Another adapted intervention, ESTEEM, has been tested in a randomized control trial with 63 young gay and bisexual men (Pachankis et al., 2015). ESTEEM is an adaptation of the Unified Protocol (Barlow et al., 2010), an empirically supported transdiagnostic treatment. Similar to AFFIRM, ESTEEM is grounded in the minority stress model and includes minority stress psychoeducation and adaptations while utilizing the core of the Unified protocol to facilitate emotion awareness, acceptance, and regulation (a key mediator in the psychological mediation framework). Participants in treatment improved their depressive symptoms, alcohol use problems, and sexual risk behaviors compared to wait-list participants. ESTEEM was also adapted into EQUiP, treatment protocol for sexual minority women, still based in the minority stress model (Pachankis et al., 2020a). In a randomized control trial with 60 young adult sexual minority cisgender and gender diverse women, participants randomized to immediate treatment with EQUiP experienced improvement in depressive and anxiety symptoms compared to participants randomized to a waitlist condition. These results offer promising evidence that the minority stress model and psychological mediation framework can be utilized to create impactful interventions to reduce SGM mental health

disparities by offering concrete mechanisms of change. This work, however, also calls for the prevention of mental health disparities (Hatzenbuehler, 2009), not just the amelioration.

1.5a. Prevention Frameworks

Prevention is often classified based on the target audience – a whole population or a subset. Caplan and Grunebaum (1967) described primary prevention as efforts to reduce the rates of mental disorders in a whole population; secondary prevention as targeting programs for individuals with risk factors; and tertiary prevention targets individuals in recovery. The primary prevention approach often incorporated health promotion, in addition to disorder and symptom prevention (Weissberg et al., 2003). In 1994 the Institute of Medicine released a report that shifted prevention typologies to universal, selective, and indicated (Mrazek & Haggerty, 1994). Universal prevention, like primary prevention, treats the general public in an area or a whole population as the intervention recipient. However, universal prevention limits the inclusion of health promotion to focus on intervention “driven by an emphasis on illness” as opposed to “the enhancement of well-being” (Mrazek & Haggerty, 1994). Selective preventive interventions are designed for individuals or groups with a risk factor for a particular mental disorder. Indicated prevention, the narrowest approach, is for individuals with high-risk and subthreshold symptoms not meeting diagnostic criteria. Compared to universal prevention, more focused prevention approaches may be more efficient, cost effective, and can be tailored to the specific subgroup (Robinson et al., 2017). However, the label of individuals as “at risk” can be stigmatizing – the social context should be considered.

1.5b. Prevention Principles

Principles of effective prevention programs offer a framework for developing new interventions (e.g. Coie et al., 1993; Nation et al., 2003; Robinson et al., 2017). First, prevention programs should be grounded in theory and comprehensive to target all components of a risk model and affected system levels (Coie et al., 1993; Nation et al., 2003). Coie and colleagues recommend the preventive intervention be delivered to individuals high at risk prior to risk becoming dysfunction (1993). The delivery of prevention must be appropriately timed in order to have an effect on the problem symptoms or disorder (Nation et al., 2003). The preventive intervention should also be culturally relevant to different identity categories and domains including sexuality, gender, race/ethnicity, and developmental stage (Coie et al., 1993; Nation et al., 2003; Robinson et al., 2017). Finally, successful prevention requires evaluation including efficacy and effectiveness trials then sustainability and scaling analyses (Robinson et al., 2017). Testing the effect of the preventive intervention on desired outcomes creates an evidence-base to guide refinement of the intervention for maximum impact.

1.5c. Example Prevention Interventions

Meta-analyses show substantial evidence for preventive interventions with children and adolescents – effectiveness on par with therapy (Durlak & Wells, 1998). Internalizing symptoms, including depression and anxiety, are responsive to universal, selective, and indicated preventive interventions in youth (Stockings et al., 2016). Additionally, selective preventive interventions with psychological components lead to greater reduction in disorder onset and greater reduction in internalizing symptoms as

opposed to selective preventive interventions with education-only (Stockings et al., 2016).

Preventive interventions can be developed with community involvement to be culturally relevant and adapted based on cognitive, affective-motivational, and environmental factors to meet the needs of diverse populations (Castro et al., 2004). For example, Allen and colleagues (2018) used community-based participatory research (CBPR) to develop high and low intensity suicide and alcohol risk preventive interventions for Alaska Native youth. CBPR incorporates community members as equal research partners to generate science and resources grounded in the needs of the community being served. This research paradigm is particularly useful for addressing health disparities as it privileges community knowledge and engages communities beyond serving as recipients of an intervention (Wallerstein & Duran, 2006). As communities were engaged in the intervention development, Allen and colleague's preventive intervention was grounded in a culturally-relevant theory, a Yup'ik Indigenous theory of change and was highly flexible (2018). There were 26 possible modules that were chosen by the community for adaptation based on local culture and the season. Communities implemented one or more modules which could be at an individual, family, or community level and taught culturally-relevant protective factors. The intervention produced a significant increase in a culturally-adapted version of the Brief Reasons for Living Inventory for Adolescents (Osman et al., 1996).

Despite the evidence for use of preventive interventions in general and mental health disparities in SGM populations, very limited mental health prevention work has been conducted with SGM populations apart from HIV prevention (e.g. Gause et al.,

2018; Mustanski et al., 2013), though SGM youth are underrepresented in HIV prevention programs (Mustanski et al., 2013). Mustanski et al. (2015) implemented a sexual health promotion intervention, Queer Sex Ed (QSE), online with 202 SGM youth aged 16 to 20. QSE was developed after mixed-methods studies exploring SGM youth's engagement with sexual health information online and interest/limitations of online health promotion (DeHaan et al., 2013; Magee et al., 2012). This approach ensured QSE was culturally-relevant, an important principle of prevention. QSE's development adhered to other principles of prevention - it was delivered to a group often excluded from sexual health information, meaning the target audience was at-risk, the intervention was grounded in theory, specifically the information-motivation-behavioral skills model (Fisher & Fisher, 2002), and had multiple sources of outcome evaluation to establish efficacy and refine the program. QSE included five modules which were introduced by an online avatar and presented information via text, images, and videos. Each module concluded with a quiz and immediate feedback. Participants were recruited through social media and targeted ads on both general social networking sites and SGM specific sites leading to most eligible participants who clicked the ads to enroll in the study. Qualitative feedback showed pluses and minuses of the program. For example, participants liked the inclusion of relationship skills discussion in addition to sexual health information but did not like how long the intervention was. Quantitative results showed significant improvement on most outcomes including communication skills and safer sex.

Another prevention program designed explicitly for SGM youth is Keep It Up! (KIU!; Mustanski et al., 2013), a HIV prevention online program for young men who have sex with men. Similar to QSE, KIU! was developed to be culturally-relevant,

applied the information-motivation-behavioral skills model, and appropriately timed as indicated prevention to reach young men at a critical point of risk (immediately after testing negative for HIV at a clinic). KIU! was completed across 3 online sessions and included 7 modules totaling 2 hours of participation. The modules included engaging videos, games, and animations to present information on topics including sexual health, dating, and communication. One hundred and two participants completed either KIU! or a HIV education control that required the same amount of time as KIU!. On the primary outcome variable of rate of unprotected anal sex, KIU! participants had 44% lower incidence rate than control participants. Both groups increased their HIV knowledge and there were no significant differences in self-efficacy or intentions to use condoms.

Beyond sexual health promotion and prevention, approaches to mental health prevention and promotion in SGM youth may include training, such as Safe Zone to create peers and adults educated on SGM mental health and suicide risks (Johnson et al., 2013) or other educational supports like GSAs (Mail & Safford, 2003). A review of “safe school” supports and programs found positive psychological outcomes for sexual minority students when these interventions were implemented (Black et al., 2012). Several of these interventions, such as implementing a GSA or providing diversity training for school staff, represent a universal approach to prevention as they are applied to a whole school environment. Dissemination and implementation of such universal programs can be costly and difficult to tailor to specific groups (Robinson et al., 2017). Conversely, the online delivery of interventions like KIU! and QSE is one way to manage costs and maintain avenues for dissemination (Mustanski et al., 2015).

A more targeted prevention approach was used in a smaller group intervention conducted over 6 days in Ireland and the United Kingdom (Ramon & Warrener, 2015). Young SGM adults, many students, were recruited into a program focused on empowerment in the face of minority stressors. Ramon and Warrener described that participants engaged in activities to reflect on their experiences with minority stress, develop resiliency and skills to support others, grounded in an action research framework as a research means to combat oppression. Qualitative and quantitative outcome data was collected via questionnaires, focus groups, and responses to hypothetical vignettes. Ramon and Warrener reported participants improved their awareness of self, gained self-confidence and comfort to “call people out,” and felt more prepared to cope with stigma and discrimination. It is unclear if the quantitative data collected showed significant improvement across the three time-points (prior to the intervention, immediately at the end of the intervention, and a later follow-up). Feedback from participants led authors to conclude that their goal of empowering SGM young adults in the face of minority stress was largely achieved.

Research on health communication and instruction techniques in interventions offer some guidance for constructing a prevention intervention. For example, using a tailored approach with customized messaging appropriate for the audience segment, in this instance SGM youth and young adults, narrows health messaging towards a particular demographic (Hawkins et al., 2008). This can be more practical than a universal prevention approach which would employ a broad health message with less cultural relevancy. The messaging can also be customized based on needs and preferences identified directly by the community being served, as done by Crooks et al.

(2010) with First Nations youth in Canada. Combined with community input, strengths based and resiliency frameworks may be appropriate for working with marginalized groups in prevention and programming. Building on communities' resources and strengths lessens the potential for communicating that skills deficits or risk is the fault of participants' or their identities. Health messages that convey culpability for risk or health problems on an individual may be met with guilt or shame (Guttman & Salmon, 2004). It is imperative when working with groups such as SGM youth and young adults to address the social context of mental health disparities and empower youth through resiliency, rather than focus on their identities as risk factors. Strategies used in prevention programs and to empower youth include peer mentoring and building networks with peers, guided instruction and opportunities to practice, and creating access to services and resources (Pittman et al., 2003).

The empowerment and resiliency framework used by Ramon and Warrener (2015) represents a prevention approach to minority stress as opposed to an intervention model used in groups such as ESTEEM (Pachankis et al., 2015) and AFFIRM (Craig & Austin, 2016). More work is needed to establish culturally-responsive preventive interventions for coping with minority stress. Interventions have been successfully implemented with SGM youth for HIV prevention, sexual health promotion, and improving school climate both online, in person in small groups, and system-wide. Yet a gap exists for a preventive intervention that has a strong theoretical base and targets several risk factors for SGM youth mental health disparities. SGM youth and young adults will experience minority stress, however prevention may limit that stress from causing psychological distress and the onset of mental disorders.

CHAPTER 2 – STATEMENT OF PURPOSE

SGM youth and young adults experience mental health disparities compared to heterosexual and cisgender peers, including depression, anxiety, substance abuse, and suicidal behavior (Kecojevic et al., 2012; Mustanski et al., 2010; Zhao et al., 2010). These disparities can be explained by the minority stress model (Meyer, 2003), which considers proximal and distal stressors unique to SGM individuals, and the psychological mediation framework that explains how minority stressors cause psychological distress through problems with emotion regulation, interpersonal relationships, and cognitive processes (Hatzenbuehler, 2009). Recent studies have adapted evidence-based interventions for SGM youth and young adults around a minority stress framework to reduce mental health symptoms (e.g. Craig & Austin, 2016; Pachankis et al., 2015). However, very little research has been dedicated to the prevention of mental health disparities in this population.

Preventive interventions are efficacious with youth (Durlak & Wells, 1998) and may be implemented with general populations (universal prevention) or targeted to individuals based on risk factors or presence of subclinical symptoms (selective and indicated prevention). Principles for preventive intervention development emphasize that the intervention have a theoretical foundation, be appropriately timed, culturally-relevant and responsive, and empirically tested (Coie et al., 1993; Nation et al., 2003; Robinson et al., 2017). Given the substantial empirical support for minority stress theory and the psychological mediation framework, it is appropriate to develop a preventive intervention targeting the risk factors and mechanisms of mental health disparities in SGM youth and young adults: difficulties with emotion regulation, interpersonal relationships, and

cognitive processes following exposure to distal and proximal stressors. The most common prevention and health promotion work with SGM youth and young adults surrounds HIV risk (e.g. Mustanski et al., 2013). While HIV is a key public health concern for SGM youth and young adults, the considerable internalizing mental health disparities also merit attention for prevention efforts. Evidence-based culturally responsive prevention is a proactive intervention approach that can go beyond the existing treatment adaptations to reach SGM youth and young adults before the onset of mental disorders.

This study developed a brief selective preventive intervention for SGM youth and young adults, grounded in the minority stress model and psychological mediation framework. In line with prevention development principles, the intervention was developed with community-informed research principles to be culturally-relevant and appropriately timed with a target audience of SGM youth and young adults aged 17 – 26, near the age of onset of several mental disorders (Patel et al., 2007). This study included a multiple baseline design pilot trial and opportunities for participant feedback to refine the preventive intervention.

CHAPTER 3 – AIMS AND HYPOTHESES

The purpose of the current study was to develop and test the feasibility and preliminary efficacy of a selective preventive intervention for SGM youth and young adults targeting risk factors of mental health disparities.

3.1 Development of intervention

3.1a. Aim 1

The first aim of the current study was to develop the preventive intervention. This required identifying skills and resources for intervention modules that address risk factors and stressors in the minority stress model and psychological mediation framework. SGM youth and young adult community preferences and needs for skills in each module were established.

3.2 Pilot efficacy trial

3.2a. Aim 2

The second aim of this study was to examine preliminary feasibility and efficacy with a multiple baseline design trial (Kazdin, 2003). Specifically, the feasibility of recruiting and delivering a brief, group preventive intervention with SGM youth and young adults needed to be established. Additionally, the potential efficacy of the intervention on relevant outcomes including positive and negative affect, emotion regulation, stress appraisal, social support, internalized stigma, depression, and anxiety was evaluated using comparisons across 4 groups receiving the intervention at multiple time-points spaced two weeks apart.

3.2b. Hypothesis 1

Participants would show improved knowledge relating to key module components from pre-test to post-test immediately following the delivery of the intervention.

3.2c. Hypothesis 2

Participants would show improvement on psychological outcomes including social support and community connectedness, emotion regulation, internalized stigma, stress appraisal, depression, and anxiety following implementation of the intervention.

3.2e. Hypothesis 3

Improved adjustment on psychological outcomes (following implementation of the intervention) would be maintained in following time-points.

3.2f. Hypothesis 4

Participants would describe the intervention as positive and helpful given its culturally-responsive development.

3.2g. Hypothesis 5

The intervention would be delivered with high fidelity defined as 90% adherence.

CHAPTER 4 – METHODS

4.1. Design Overview

4.1a. Development of Preventive Intervention

The first step to developing the preventive intervention was identifying skills and techniques that target the mechanisms and risk factors in the minority stress model and psychological mediation framework to form the intervention modules. Based on a review of relevant clinical literature and available community resources, several skills, techniques, and resources were identified for possible inclusion in the modules (see Table 4.1).

Table 4.1. Potential Strategies and Techniques for Intervention Modules

Intervention Set-Up	Emotion Regulation	Social Support	Cognitive Processes
Psychoeducation on minority stress model and mental health disparities	Relaxation training and mindfulness -Smart phone apps for meditation, deep breathing, and progressive muscle relaxation -Guided meditation on YouTube	Education on local resources (e.g. PFLAG, school GSAs) and group generates list of safe places they've identified	Cognitive reappraisal techniques -Worksheets vs using technology -Group practice with examples related to minority stress
Share experiences of stigma and impact on mental health and coping	Distraction techniques -Have whole group or smaller group generate list of possible techniques -Individuals select activities that would work in their life from a larger list (e.g. list of pleasurable activities)	Secure social networking sites like TrevorSpace Discuss healthy relationships Map social support network and discuss who isn't affirming and what to do about it Open discussion of activism – benefits to community and building resiliency	Dissect internalized stigma -Discuss what messages SGM people get from different environments

After assembling potential components of the preventive intervention, two focus groups were conducted with SGM youth and young adults to establish community preferences for different skills and resources within the modules (e.g. discussions of a safe, online community marketed for LGBTQ youth such as *Trevor Space* or presenting youth with local, community resources; see Appendix B for participant version). Participants were also asked about skills, resources, or techniques they have found

helpful in coping with minority stress that were not previously identified. Following qualitative analysis of the focus group, participants' feedback was integrated with recommendations from the health communication literature to select the components and delivery of the preventive intervention.

4.1b. Pilot Efficacy Trial

The preventive intervention was tested in a multiple baseline design trial, an ethical and cost-effective alternative to randomized control trials in public health and community-based interventions (Hawkins et al., 2007). SGM youth and young adults were recruited and randomized to intervention groups which dictated when they received the intervention, as detailed in Table 4.2. This was completed in two waves such that participants in Wave 1 were randomized to receive the intervention between either time-point one and two, or between time-point two and three. Participants completed online measures of psychological outcomes (e.g. social support, stress appraisal, emotion regulation, and depression) every two weeks. Participants completed the preventive intervention in one 2-hour session, which included assessment of skills taught, credibility/expectancy, and acceptability of the intervention. Quantitative analyses were completed to identify changes in pre-test to post-test knowledge and changes in psychological outcomes from baseline time-points to the time-points following implementation of the intervention.

Table 4.2

Multiple Baseline Trial Design

		Time-point # (every 2 weeks)				
		1	2	3	4	5
Group A	Baseline	Post-intervention	Post-intervention	Post-intervention	Post-intervention	Post-intervention
Group B	Baseline	Baseline	Post-intervention	Post-intervention	Post-intervention	Post-intervention
Group C	Baseline	Baseline	Baseline	Post-intervention	Post-intervention	Post-intervention
Group D	Baseline	Baseline	Baseline	Baseline	Baseline	Post-intervention

Note: Black bar indicates implementation of intervention

4.2. Rationale for Study Design

The study was a sequential qual -> QUAN mixed methods design (Plano Clark & Ivankova, 2015). The qualitative strand occurred first and included two focus groups. These data informed the final version of the preventive intervention that were tested in a pilot multiple baseline design trial. Data collected from the trial phase was mostly quantitative to evaluate outcomes on relevant psychological measures and knowledge acquisition. Limited qualitative data also was collected in the trial phase as participant feedback on their likes, dislikes, and utility of the intervention. Mixing of the quantitative and qualitative strands occurred at the connecting of the phases and quantitative data was given priority in assessing the potential impact of the prevention intervention.

A mixed methods approach was used in the current study for several reasons. First, the qualitative strand informed the quantitative strand by generating community preferences for the components of the intervention, recruitment, and serving a development purpose (Plano Clark & Ivankova, 2015). Additionally, collecting both qualitative and quantitative data in the pilot efficacy trial helped provide a more complete

evaluation of the intervention than could be accomplished with only one data source, offsetting each approach's strengths and weaknesses (Plano Clark & Ivankova, 2015).

The quantitative data described the potential effectiveness of the intervention on psychological outcomes in a systematic way. The qualitative data allowed participants to share their experiences, preferences, and thoughts on the intervention to better explain the quantitative results. Similarly, using mixed methods is also important when working with marginalized groups in order to empower participants to share their experiences and generate credible research grounded in the needs of communities (Plano Clark & Ivankova, 2015).

Related to a social justice rationale for using mixed methods, the current study utilized community based participatory research principles (CBPR; Israel et al., 2018). As the purpose of the current study was to create a preventive intervention that is culturally-responsive, the research process adhered to CBPR principles which seek to equalize researchers and community members. For example, the research utilized community resources and strengths, such as incorporating community organizations and SGM-created resources into the content of the intervention. Community members who participated in the focus group contributed to the design of the intervention and recommend appropriate strategies for recruitment, marketing, and dissemination ensuring those most in need of a preventive intervention are reached. Additionally, the iterative process of community feedback through focus groups in the development phase and inclusion of qualitative questions during the trial phase ensured community members' needs and preferences were prioritized throughout the research process. As this research was time-restricted, some CBPR methods such as establishing local community boards or

having community members generate specific research questions and topics were not implemented.

Community partnerships were built to best disseminate the intervention. The SGM youth and young adults who participated in the focus groups recommended connecting with youth-focused groups such as LGBT centers at local universities and community groups to recruit potential participants. CBPR requires a balance between the community and science needs (Israel et al., 2018).

4.3. Participants

Participants for both the development phase and efficacy trial were individuals who identify as a sexual and/or gender minority aged 17 – 26. Participants used several different terms to describe their sexual orientation and gender identity, however an individual was eligible to participate so long as their sexual orientation differs from straight/heterosexual and/or their gender identity differs from their gender assigned at birth.

In the development phase, 8 participants were recruited for the focus group. For the efficacy trial, 31 participants were recruited and randomized into the four intervention groups. See Figure 4.1 for more detail.

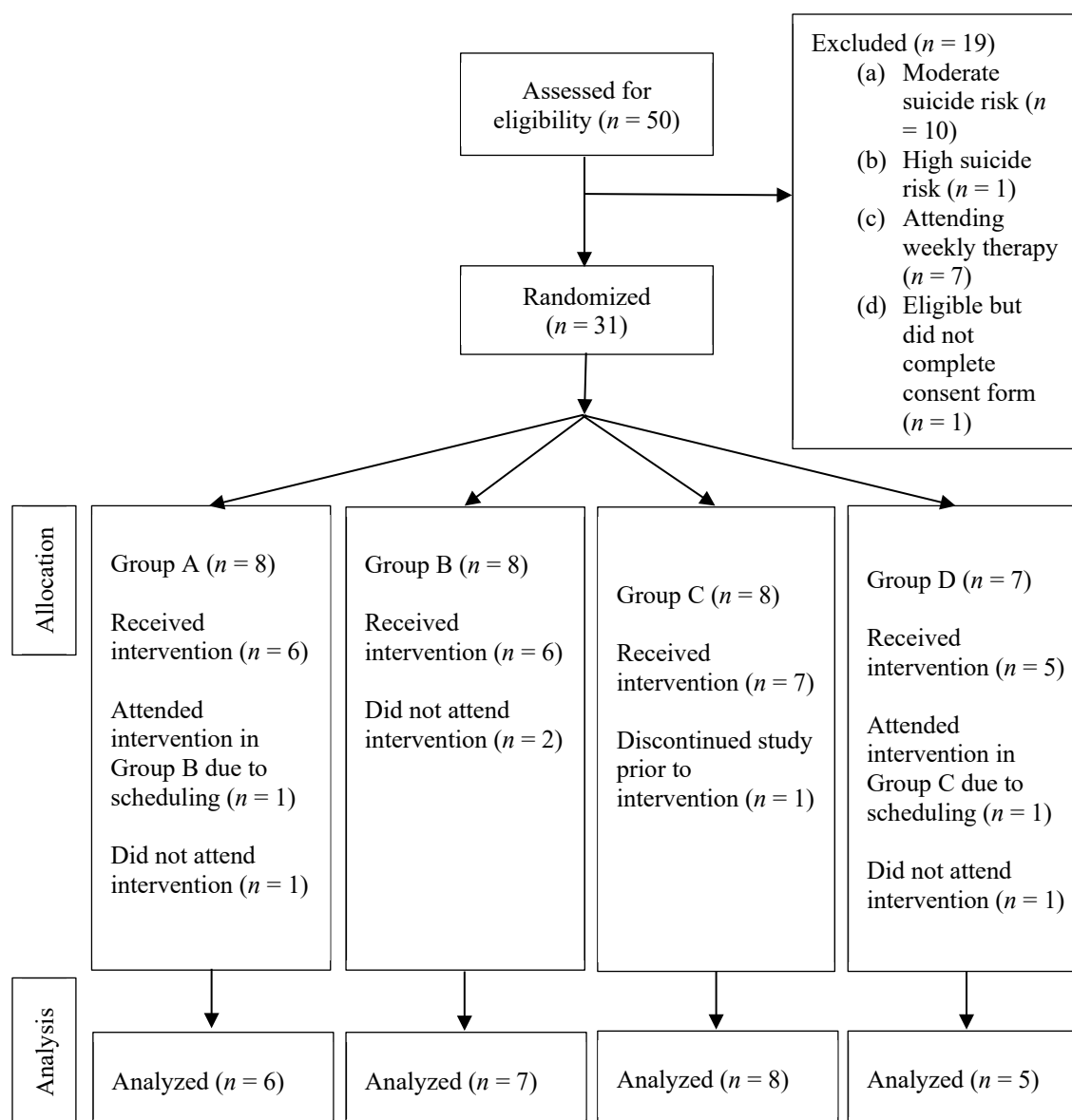


Figure 4.1. Flow Diagram Showing Enrollment and Randomization of Participants

4.3a. Screening process

Potential participants contacted the research team by phone or email. Participants who reached out over email were scheduled for a brief screening over phone to establish eligibility. Eligibility for the development phase included 1) SGM identity; 2) between the ages of 17 and 26; 3) fluency in English; 4) ability to travel to a university or community location for focus group.

Eligibility for the efficacy trial were the same as the development phase with the addition of 1) access to Internet for completing baseline and follow-up measures; 2) no immediate risk concerns including recent suicidal ideation with a plan or intent; 3) no psychotic symptoms; 4) not currently receiving frequent mental health services (defined as 4 or more therapy sessions in the past 4 weeks).

4.3b. Focus Group Sample Demographics

Eight individuals participated across two focus groups. Participant ages ranged from 19 to 25 with a mean age of 21.25 years. All focus group participants identified as transgender or gender diverse, specifically 6 (75%) as genderqueer/gender non-conforming/non-binary, 1 (12.5%) as both a trans man/FTM and genderqueer/gender non-conforming/non-binary, and 1 (12.5%) as a trans man/FTM. Regarding sexual orientation, 3 (37.5%) individuals identified as queer, 2 (25%) as bisexual, 1 (12.5%) as pansexual, and 1 (12.5%) individual as both queer and poly. The sample was predominantly White/European American (6 participants; 75%). One participant identified as black (12.5%) and another (12.5%) as biracial, Native American/American Indian/Indigenous and White/European American. Three (37.5%) participants reported their family received or qualified for public assistance when they were growing up. Three participants (37.5%) reported growing up in an urban area of a small to medium city, three (37.5%) participants in suburban areas, and 2 (25%) participants in rural areas.

4.3c. Multiple Baseline Trial Sample Demographics

Thirty-two individuals were screened eligible for the multiple baseline trial and thirty-one individuals consented. Data were excluded from five individuals who did not

participate in the intervention session or who unenrolled during the 10-week protocol (See Figure 4.1). Participant demographics for the remaining 26 individuals is presented.

Participants ranged in age from 18 to 25 with a mean age of 20.64. Five (19.2%) of the participants identified as transgender man/trans man/FTM, 2 (7.7%) as nonbinary/gender nonconforming/gender queer/agender/bigender/another gender minority, 5 (19.2%) as man/male, and 14 (53.8%) as woman/female. No participants identified as transgender women. Six (23.1%) participants reported being assigned male at birth and 20 (76.9%) as female at birth. Participants described their sexual orientation in many ways and could select multiple options. Nine (34.6%) participants identified as gay, 3 (11.5%) as lesbian, 6 (23.1%) as queer, 10 (38.5%) as bisexual, 2 (7.7%) as asexual, 2 (7.7%) as pansexual, 1 (3.8%) as pansexual and 2 (7.7%) used a write-in option which included responses of “aspec, queer, dyke, faerie” and “questioning/unsure”. Regarding race/ethnicity, 20 (76.9%) participants identified as White/European American, 1 (3.8%) as Latina/o/x or Hispanic or heritage from a Latin American country, 1 (3.8%) as Native American/American Indian/Indigenous, 1 (3.8%) as Asian/Asian American/Pacific Islander, and 1 (3.8%) as biracial/multiracial (specifically as African American/Native American/Asian/White). Two (7.7%) participants reported identifying as both Latina/o/x and White, but did not indicate identifying as biracial/multiracial. Additional demographic information and demographics by group are available in Table 4.3.

Table 4.3

Multiple Baseline Trial Participant Demographics

	Group A		Group B		Group C		Group D		Full sample	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender										
Trans man	0	0.00	2	28.57	2	25.00	1	16.67	5	19.23
Nonbinary	0	0.00	0	0.00	1	12.50	1	16.67	2	7.69
Man	2	33.33	0	0.00	0	0.00	3	50.00	5	19.23
Woman	4	66.67	5	71.43	5	62.50	1	16.67	14	53.85
Sex assigned at birth										
Male	2	33.33	0	0.00	0	0.00	4	80.00	6	23.08
Female	4	66.67	7	100.00	8	100.00	1	20.00	20	76.92
Sexual orientation¹										
Gay	3	37.50	2	28.57	1	7.14	3	50.00	9	34.62
Lesbian	2	25.00	1	14.29	0	0.00	0	0.00	3	11.54
Queer	1	12.50	0	0.00	5	35.71	0	0.00	6	23.08
Bisexual	2	25.00	3	42.86	5	35.71	0	0.00	10	38.46
Asexual	0	0.00	0	0.00	1	7.14	1	16.67	2	7.69
Pansexual	0	0.00	1	0.14	1	0.07	0	0.00	1	3.85
Straight	0	0.00	0	0.00	0	0.00	1	16.67	1	3.85
Other	0	0.00	0	0.00	1	7.14	1	16.67	2	7.69
Race/Ethnicity										
White	6	85.71	5	71.43	7	70.00	0	0.00	20	76.92
Latina/o/x	0	0.00	0	0.00	1	10.00	0	0.00	1	3.85
Native American	0	0.00	1	14.29	0	0.00	0	0.00	1	3.85
Asian/Asian American	0	0.00	0	0.00	0	0.00	1	33.33	1	3.85
Biracial/Multiracial	0	0.00	1	14.29	0	0.00	0	0.00	1	3.85
Latinx/White	0	0.00	0	0.00	0	0.00	2	0.67	2	7.69
Geographic status										
Rural	1	16.67	0	0.00	2	22.22	0	0.00	3	11.54
Small/medium city	4	66.67	3	37.50	4	44.44	3	100.00	14	53.85
Big city	0	0.00	2	25.00	1	11.11	0	0.00	3	11.54
Other	1	16.67	3	37.50	2	22.22	0	0.00	6	23.08
Employment¹										
Part-time	4	50.00	1	12.50	5	45.45	4	40.00	14	53.85
Full-time	1	12.50	0	0.00	1	9.09	1	10.00	3	11.54
Unemployed	0	0.00	1	12.50	0	0.00	0	0.00	1	3.85

Student	3	37.50	6	75.00	5	45.45	5	50.00	19	73.08
Education level										
Some college	5	83.33	5	71.43	6	75.00	3	60.00	19	73.08
Associate degree	0	0.00	1	14.29	0	0.00	1	20.00	2	7.69
Bachelor's degree	0	0.00	0	0.00	1	12.50	1	20.00	2	7.69
Some graduate school	1	16.67	1	14.29	1	12.50	0	0.00	3	11.54
Relationship Status										
Married	0	0.00	0	0.00	1	12.50	0	0.00	1	3.85
Single	4	66.67	5	71.43	3	37.50	4	80.00	16	61.54
Long-term relationship	0	0.00	1	14.29	1	12.50	0	0.00	2	7.69
Partnered	0	0.00	0	0.00	1	12.50	0	0.00	1	3.85
Dating someone	2	33.33	1	14.29	2	25.00	1	20.00	6	23.08
Financial assistance ²										
Yes	2	33.33	3	42.86	1	12.50	1	20.00	7	26.92
No	4	66.67	4	57.14	6	75.00	2	40.00	16	61.54
Unsure	0	0.00	0	0.00	1	12.50	2	40.00	3	11.54

4.4. Measures

4.4a. Screening Measures

Current suicidal ideation was assessed with the Columbia-Suicide Severity Rating Scale – Screener Recent (C-SSRS, Posner et al., 2008; The Columbia Lighthouse Project, 2016), a brief clinician administered tool to assess lifetime and past month suicidal ideation and behavior. The C-SSRS is appropriate for clinical and research settings with both adult and pediatric populations and items adopted from the C-SSRS have been used with SGM youth (Posner et al., 2011; Rhoades et al., 2018). Individuals with active suicidal ideation and some intent to act, an active suicidal ideation with specific plan and intent in the last month, or an actual attempt or interrupted attempt in the previous 3 months were excluded from the study as this indicated greater than mild risk for suicide on the C-SSRS. Appropriate safety planning and referral for services was completed with

individuals not eligible for the study based on current suicidal ideation. Eleven individuals were excluded at the screening phase based on suicide risk, as detailed in Figure 4.1.

Presence of psychotic symptoms was assessed with the Psychotic Disorders and Mood Disorder with Psychotic Features section of the Mini International Neuropsychiatric Interview version 7.0.2 (MINI; Sheehan et al., 1998). Individuals with presence of psychotic symptoms were excluded from the study and provided a referral for services. No individuals were excluded due to presence of psychotic symptoms.

4.4b. Psychological Outcomes

The following psychological outcome measures were completed at each baseline and post-intervention time-point (5 time-points every 2 weeks).

Depressive Symptoms. Participants completed the well-validated Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) to assess depressive symptoms. The PHQ-9 includes 9 items of depressive symptoms rated on a scale of 0 (not at all) to 3 (nearly every day). Higher scores indicate greater depressive symptoms. The PHQ-9 has been used in previous research with sexual minority young adults and transgender populations (Grant et al., 2014; Tucker et al., 2019). Internal reliability on the PHQ-9 was good, with Cronbach's alpha ranging from 0.80 to 0.89 across all time-points.

Anxiety Symptoms. Anxiety symptoms were measured with the Generalized Anxiety Disorder – 7 (GAD-7; Spitzer et al., 2006). The GAD-7 is a short, 7-item measure of generalized anxiety symptoms that also has good sensitivity and specificity for other anxiety disorders such as panic disorder, social anxiety disorder, and PTSD (Kroenke et al., 2007). The GAD-7 is scored similarly to the PHQ-9 and higher scores

indicate greater anxiety symptoms. The GAD-7 has been used successfully in samples of sexual minority young adults (Kaysen et al., 2014; Woodford et al., 2014). For the GAD-7, internal reliability was good to excellent (Cronbach's alpha between 0.86 and 0.91).

Social Support. Participants' level of social support was measured with the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) and the Social Support Questionnaire-Short Form (SSQ6; Sarason et al., 1987). The MSPSS is a 12-item measure with items relating to support from friends and family. The items are scored on a 1 ("Very strongly disagree") to 7 ("Very strongly agree") Likert scale. Higher scores indicate greater social support. The MSPSS is validated with youth and is frequently used with SGM samples (Liu & Mustanski, 2012; Pachankis et al., 2015; Zimet et al., 1990). The SSQ6 includes 6-items in which respondents indicate the initials of individuals who offer them a particular type of support and then provide an overall satisfaction rating of that support. Internal reliability was excellent for the MSPSS (Cronbach's alpha between 0.91 and 0.95) and excellent for the SSQ6 (Cronbach's alpha between 0.89 and 0.94).

Community Connectedness. Participants completed the Connectedness to the LGBT Community Scale (CCS; Frost & Meyer, 2012), an 8-item measure developed with a diverse sample of sexual minorities. Response options range from 1 ("Agree strongly") to 4 ("Disagree strongly"), such that lower scores indicate greater connectedness. The original CCS items inquire about New York City's LGBT community (e.g. "You are proud of NYC's LGBT community"). Items were adapted to not be locale specific, similar to methods used by Puckett and colleagues (2015a) and as suggested by Frost and Meyer in the original validation study (2012). The items were

also be adjusted to first-person to accommodate the self-report administration (e.g. “I am proud of the LGBT community”). On the CCS, internal reliability was good with Cronbach’s alpha ranging from 0.81 to 0.87.

Emotion Regulation. Emotion regulation skills were measured with the Difficulties with Emotion Regulation Scale-18 (DERS-18; Victor & Klonsky, 2016) which is a brief measure of the original Difficulties with Emotion Regulation Scale (Gratz & Roemer, 2004), a well-validated inventory of emotion regulation abilities. The DERS-18 has 6 subscales: non-acceptance of emotional responses, difficulties engaging in goal-directed behavior, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. The 18 items are scored on a 1 to 5 Likert scale based on how often each item applies to their life (e.g. “almost never [0-10%]”). The DERS was used as a measure of risk factors in Pachankis and colleagues’ randomized controlled trial of ESTEEM (Pachankis et al., 2015). Internal reliability for the total score was good, ranging from 0.81 to 0.87.

Internalized Stigma. The Internalized Transphobia subscale from the Gender Minority Stress and Resilience measure was adapted to measure internalized stigma (GMSR-IS; Testa et al., 2015). This measure was selected because it is easily adaptable for all SGM people, whereas many internalized stigma measures are most applicable to gay and bisexual men or another more specific group (Newcomb & Mustanski, 2010). The internalized transphobia subscale has 8 items rated from “strongly disagree” to “strongly agree” on a 5 point Likert scale. Higher scores indicate greater internalized stigma. Items include “I resent my gender identity (or expression)” and “I often ask myself: Why can’t my gender identity (or expression) just be normal?” These items were

modified to “I resent my SGM identity” and “I often ask myself: Why can’t my SGM identity just be normal?” Internal reliability on the adapted Internalized Transphobia subscale was excellent with Cronbach alpha scores between 0.94 and 0.97.

Stress Appraisal. The Stress Appraisal Measure for Adolescents (SAMA; Rowley et al., 2005) will be used to measure cognitive appraisal dimensions. The SAMA includes subscales for Threat, Challenge, and Resources and was developed with minority adolescents. Items are scored from 1 (“Not at all”) to 5 (“A great amount”). The Threats subscale (SAMA-T) includes 7 items (“I perceive stress as threatening”), Challenges (SAMA-C) includes 4 items (“I have the skills necessary to overcome stress”) and Resources (SAMA-R) has 3 items (“There is someone I can turn to for help”). The SAMA was used as an outcome measure in the open trial of AFFIRM with SGM youth (Craig & Austin, 2016). Internal reliability on the Threat subscale was good (Cronbach alpha scores between 0.83 and 0.93); excellent on the Challenge scale (0.88 to 0.95), and acceptable to good on the Resources scale (0.77 to 0.89).

Demographics. Participants completed a demographics questionnaire during the first online survey that included questions regarding sexual orientation, gender identity, gender assigned at birth, race/ethnicity, rural/urban status, education level, family income, and education level.

4.4c. Intervention-Specific Measures

Intervention Evaluation. A short evaluation measure was created for the study that included three items measuring participants’ perception of the intervention and open-ended questions about participants favorite and least favorite components of the intervention, what they found most helpful, and any suggested changes (available in the

Appendix C). The three items were rated on a scale of 1 to 9 and inquire about participants' perceptions of how logical the intervention is, how successful the intervention is, and how confident participants' would be recommending the intervention to a friend. These items were modeled from Borkovec & Nau (1972). Participants completed this evaluation in the post-test segment of the intervention session.

Knowledge. A brief measure was developed by the author that taps key points taught during the intervention (available in Appendix D). Specific items were generated following the development phase of the intervention. The knowledge measure includes six items and prompted participants to respond "true," "false," or "uncertain." Scores on the knowledge measure were calculated based on the number of items correctly identified as true or false. Example items include "Marginalization stress can cause difficulties with emotion regulation, social support, and cognitive processes" (true) and "When I have negative thoughts, I should just think positively" (false). Participants completed this measure in a pre-test and post-test segment of the intervention session.

Use of Intervention Skills. At each follow-up survey, participants were asked a binary question if they utilized any of the skills they learned during the intervention in the previous two weeks. If they responded yes, they were provided space to detail what skills they utilized and then asked on a scale from 1 to 5 how helpful they found the skills.

Fidelity. Fidelity was assessed by a brief checklist of the resources and techniques in each module (available in Appendix E). Each component was scored "yes" or "no" to indicate if the component was presented during the intervention. Fidelity was completed by the intervention leader at the end of each session and by an independent rater from audio recorded during the intervention.

4.5. Procedures

4.5a. *Development of Intervention*

Recruitment for Focus Groups. Participants for the focus groups were recruited through local SGM organizations, support groups, and listserves. Flyers were provided to organizations and local SGM community contacts, sent on listserves, or posted in community locations. The recruitment flyer briefly detailed the purpose of the focus group, target demographic (17 – 26-year-old SGM individuals), and contact information for the researchers if interested. Potential participants called, texted, or emailed the researchers and a brief eligibility screening was conducted (if participants first point of contact was text or email, this method was used to schedule an eligibility screening over the phone). Eligibility included 1) SGM identity; 2) between the ages of 17 and 26; 3) fluency in English; 4) ability to travel to a university or community location for focus group or intervention.

Following screening for eligibility, participants were provided a more detailed description of the focus group's purpose. Interested participants provided their availability for a focus group and two focus groups were scheduled based on participant availability.

Data Collection for Preliminary Focus Group. The focus groups were conducted in private, quiet locations on a university campus and in a SGM-friendly community space. Participants were instructed to maintain privacy and confidentiality of other focus group members, but that complete privacy cannot be guaranteed so they should share only what they are comfortable. Questions and discussion centered on the list of possible skills and resources for each module (see Appendix A). Participants

shared their opinions on the utility and appropriateness of each skill and resource. Participants also were asked for resources and techniques they have personally used to build social support, regulate their emotions, and handle minority stress. The focus groups were audio recorded and a graduate research assistant took notes throughout the focus group. Participants received \$20 for their participation. One focus group lasted 43 minutes and another lasted 65 minutes.

Data Analysis of Focus Groups. The focus group audio was transcribed and then deductive thematic analysis was used to identify patterns in the data (Braun & Clarke, 2006). Deductive thematic analysis incorporates underlying theory to help guide code development, in this instance the psychological mediation framework (Hatzenbuehler, 2009). Initial codes were generated to organize the data into basic elements and then sorted into themes based on the psychological mediation framework and themes related to structure and marketing of the intervention. These themes were reviewed and refined to best capture patterns in the data. The resulting themes and codes guided selection of the final resources and strategies incorporated in the intervention and final recruitment and marketing plan for the pilot efficacy trial. The coder for the qualitative analysis was the primary developer and facilitator of the preventive intervention. The coder is a member of the SGM community and was a young adult, sharing some identities as the target population.

4.5b. Pilot Efficacy Trial

Recruitment for Pilot Efficacy Trial. Recruitment was similar to the strategy used to recruit participants for the focus groups. Recruitment flyers were sent via relevant listservs, posted on university campuses and in community locations, and shared by SGM

organizations. Once potential participants contacted the research team, a phone call was scheduled to complete eligibility screening. Eligible individuals were provided additional information about the preventive intervention and surveys and enrolled if interested. Recruitment for the pilot efficacy trial was conducted in two waves. Participants for intervention groups A and B were recruited in fall 2019 to participate concurrently and participants for intervention groups C and D were recruited in early 2020 to participate concurrently.

Data Collection for Pilot Efficacy Trial. All participants were sent an online survey consisting of the psychological measures at each time-point (every two weeks). Participants received up to 2 reminders per time-point to complete the survey. All online surveys were hosted on Qualtrics.

Following enrollment, all participants were randomized to an intervention group. Two participants are analyzed in groups different from their randomized group due to scheduling conflicts of the intervention session. Participants attended a 2-hour intervention session which included 10 minutes to complete a pre-test knowledge questionnaire, 1.5 hours to complete the intervention, and then 20 minutes to complete the post-test knowledge questionnaire and brief intervention evaluation. Group A completed the intervention between time-points 1 and 2, Group B between time-point 2 and time-point 3, Group C between time-points 3 and 4, and Group D between time-points 4 and 5 (see Table 4.2). Groups A and B completed the pre-test and post-test knowledge questionnaire and intervention evaluation via pen and paper, while Groups C and D completed these measures via an online survey hosted by Qualtrics.

The intervention for Groups A and B occurred at a university and was delivered by an advanced doctoral student in clinical psychology. An undergraduate research assistant attended the intervention to aid with data collection and group facilitation. For Groups C and D, the intervention was delivered via a video-conferencing system. Participants utilizing the video-conferencing system were asked to utilize their video and audio, but technical or security issues led some participants to not be on camera or to utilize a chat function to communicate with the group. At the end of each intervention session, the therapist completed a fidelity measure. Additionally, each session of the intervention was audio recorded so a trained research assistant could complete the same fidelity measure for a randomized portion of the intervention occurrences. Fidelity was high, with adherence of 98.6% across all intervention sessions. Interrater reliability for fidelity was perfect with 100% agreement between the coders.

Description of Intervention. The intervention included 4 main sections: introduction and rationale, emotion regulation, cognitive processes, and social support. The introduction and rationale included psychoeducation on the minority stress model and psychological mediation framework and information regarding the development of the intervention from the focus groups. The emotion regulation component included psychoeducation on emotion regulation, a discussion of the utility of mindfulness and relaxation as an evidence-based technique to help with emotion management, and opportunities for participants to work in small groups to generate a list of distraction and coping strategies. During the cognitive processes component, the intervention leader provided psychoeducation for the connection between thoughts, emotions, and behaviors, and introduced a cognitive restructuring worksheet. The leader then assisted the group in

completing an example of cognitive restructuring using a SGM-identity specific automatic thought provided by a participant or an internalized stigma example of “There’s something wrong with me because I’m gay.” Finally, the social support component included psychoeducation regarding the impact of social support for SGM individuals, a facilitated discussion to generate a list of safe spaces and community resources, and opportunities for participants to discuss managing non-affirming spaces. The complete intervention manual is available in Appendix F. Participants were provided with a handbook to take notes during the intervention. This is available in Appendix G.

Data Analysis for Pilot Efficacy Trial. Multilevel modeling was used to examine change in outcome measures as participants shifted from baseline time-points to follow-up time-points following implementation of the intervention (Hypothesis 2). Visual inspection was used to describe the changes in means, change in slope, and latency of change of psychological measures from baseline time-points to post-intervention time-points and maintenance through follow-up time-points to examine Hypothesis 3 (Kazdin, 2003).

Open-ended questions from the intervention evaluation were analyzed with thematic coding, similar to the focus group data and completed by the same coder. The responses were thoroughly reviewed and then initial codes were generated to capture basic elements of the data. These codes were then sorted into themes that best captured patterns in the data.

CHAPTER 5 – RESULTS

5.1 Results of focus groups

Primary themes from the focus groups were Emotion Regulation Components, Cognitive Processes Components, Social Support Components, and Structure/Marketing of the Intervention. These themes fit the psychological mediation framework serving as the theoretical underpinning of the intervention. Overall participants confirmed the acceptability of the psychological mediation framework. Additionally, participants offered several recommendations for how to structure and market the intervention.

5.1.a. Emotion Regulation Components

Many participants emphasized meditation and mindfulness activities as being helpful for SGM YYA and as skills they utilize themselves. The method in which individuals practice mindfulness varied widely, with some enjoying meditation and apps, while others reported liking calming video games and needing to be somewhat active while practicing mindfulness. Additionally, participants reported a variety of activities that they engage in to distract themselves or process deep emotions. These included physical exercise, reading, journaling, and doing creative activities. Participants recommended possible components of generating a list of distracting activities and presenting multiple options for engaging in mindfulness and relaxing activities.

5.1.b. Cognitive Processes Components

The primary skill participants recommended for cognitive processes was cognitive restructuring. Several participants identified learning this skill in previous therapy and noted the utility for SGM YYA, particularly to deconstruct stigma. There was mixed endorsement of the use of worksheets for cognitive restructuring versus

utilizing apps and other technology. One participant recommended creating a list of affirmations as beneficial to cope with negative thoughts.

5.1.c. Social Support Components.

A variety of subthemes emerged when participants discussed resources and skills for improving social support. Many participants shared spaces and resources in the local community they have utilized. Participants expressed it is helpful to learn about resources from others that have been vetted by other SGM YYA. For example, one participant noted “I like learning about different places people go that are LGBT centered or friendly so I think that’s helpful because I’m not from [city].” Other topics of discussion identified for the social support segment of the intervention included Connecting Online Safely, Lack of Support within the LGBTQA+ Community, Dealing with Unsupportive Others, and Healthy Relationships.

5.1.d. Structure and Marketing

Participants offered feedback on how to market the intervention to potential participants, how to structure and prioritize the three components of the psychological mediation framework, and what sorts of instruction tools would be useful. Participants confirmed the importance of providing an introduction and rationale for the intervention prior to sharing resources and skills. One participant remarked “I think if you just started spewing techniques, I’d be like ‘how can I use this?’”

Regarding instruction tools and organization of the group, participants cautioned against extensive small group work prior to establishing trust within the group. Two participants advised beginning the intervention with small group work to create a list of distracting activities as this task does not require sharing of emotions or deep

conversation. Additionally, participants were mixed on the use of worksheets. For example, one participant reported positive experiences when using worksheets for cognitive restructuring in therapy, while another noted that using an app or technology is more feasible in real life.

A primary subtheme was Creating a Safe, Authentic, and Individualized Environment. Participants identified mindfulness as an example where one skill or resource may work for some while it does not for others. They encouraged presentation of many options to intervention attendees. Additionally, participants identified breaking down barriers between the facilitator and attendees as important to create an authentic experience and to limit use of jargon. Several participants recommended beginning the intervention with an expectation that everyone be affirming and respectful of the attendees varied experiences and points of view.

Finally, participants expressed varying opinions on how to market the intervention. One focus group recommended avoiding language like “coping with stress” in recruitment materials and suggested positive terminology like “wellness.” Another focus group overwhelmingly endorsed the use of terms like “coping with stress” and “mental health” because it would register with SGM YYA as applicable to them (e.g. “Oh I’m stressed all the time, I’ll go do that.” Participants also recommended not mentioning the group aspect of the workshop on recruitment flyers as this may make SGM YYA nervous and apprehensive, but instead waiting until interested individuals contact the facilitator so their questions about the group format can be answered easily. The study and intervention was marketed as the “Project Rise workshop” in order to limit mental health terminology like ‘intervention.’

5.2 Results of Pilot Efficacy Trial

5.2.a. Randomization Efficacy

One-way between-groups ANOVAs were used to identify any differences across intervention groups at baseline and ensure randomization was successful. There were no significant differences among the groups on any outcome variables (all $ps > .05$).

5.2.b. Multilevel Modeling Analyses

A multilevel modeling (MLM) approach (measures nested within participants) was used to examine changes on all outcome measures as time-points shifted from baseline to follow-up using HLM8 software (Bryk & Raudenbush, 1987; Raudenbush & Bryk, 2002). MLM has been recommended as an analytic strategy for multiple baseline designs and can account for missing data points and interdependence common in repeated measures (Peugh, 2010; Rindskopf & Ferron, 2014). Scores on each outcome measure were assessed with 4 different models to explore each time-point individually. Models consisted of (1) an intercept; (2) a dummy variable for time-point (coded such that '0' was centered on the time-point of interest); (3) a dummy variable for phase (coded as 0 for baseline and 1 for follow-up); and (4) an interaction term accounting for time-point and phase (e.g. Shahar et al., 2017). All variables were entered into the model uncentered as '0' was meaningful. Variables were entered iteratively and as fixed, unless chi-square analyses determined that random effects of a predictor led to a better model fit. Estimates are reported with robust standard errors. The following model tested if the outcome measure changed significantly for participants moving from baseline to follow-up at the tested time-point (e.g. Group A at time-point 2, Group B at time-point 3, Group C at time-point 4, and Group D at time-point 5). A significant Wald's t-test for the Phase main

effect would indicate the effect of the intervention for the Group of interest at the specified time-point. Report of significant predictor findings are available in Table 5.1.

Level-1 Model

$$OutcomeMeasure_{ti} = \pi_{0i} + \pi_{1i}*(Phase_{ti}) + \pi_{2i}*(Timepoint_{ti}) + \pi_{3i}*(PhaseByTimepointInteraction_{ti}) + e_{ti}$$

Level-2 Model

$$\pi_{0i} = \beta_{00} + r_{0i}$$

$$\pi_{1i} = \beta_{10}$$

$$\pi_{2i} = \beta_{20}$$

$$\pi_{3i} = \beta_{30} + r_{3i}$$

Table 5.1.

Significant Findings from Multilevel Modeling Analyses

	Fixed Effect	Coeff.	SE	t-ratio	df	p-value
DERS-18 2nd time-point	Intercept $\pi_0 \beta_{00}$	38.28	1.72	22.28	25	< 0.001
	Phase slope, $\pi_1 \beta_{10}$	-0.87	1.15	-0.75	76	0.46
	Time slope, $\pi_2 \beta_{20}$	-1.23	0.59	-2.08	25	0.05
	Time by Phase interaction, $\pi_3 \beta_{30}$	0.23	0.63	0.37	76	0.71
DERS-18 3rd time-point	Intercept $\pi_0 \beta_{00}$	37.05	1.68	22.00	25	< 0.001
	Phase slope, $\pi_1 \beta_{10}$	-0.63	1.14	-0.56	76	0.58
	Time slope, $\pi_2 \beta_{20}$	-1.23	0.59	-2.08	25	0.05
	Time by Phase interaction, $\pi_3 \beta_{30}$	0.23	0.63	0.37	76	0.71
DERS-18 4th time-point	Intercept $\pi_0 \beta_{00}$	35.83	1.85	19.37	25	< 0.001
	Phase slope, $\pi_1 \beta_{10}$	-0.40	1.44	-0.28	76	0.78
	Time slope, $\pi_2 \beta_{20}$	-1.23	0.59	-2.08	25	0.05

	Time by Phase interaction, $\pi_1 \beta_{10}$	0.23	0.63	0.37	76	0.71
DERS-18 5th time-point	Intercept $\pi_0 \beta_{00}$	34.60	2.17	15.96	25	< 0.001
	Phase slope, $\pi_1 \beta_{10}$	-0.17	1.90	-0.09	76	0.93
	Time slope, $\pi_2 \beta_{20}$	-1.23	0.59	-2.08	25	0.05
	Time by Phase interaction, $\pi_1 \beta_{10}$	0.23	0.63	0.37	76	0.71
GMSR-IS 2nd time-point	Intercept $\pi_0 \beta_{00}$	7.60	1.53	4.98	25	< 0.001
	Phase slope, $\pi_1 \beta_{10}$	1.92	0.79	2.42	76	0.02
	Time slope, $\pi_2 \beta_{20}$	0.07	0.28	0.27	25	0.79
	Time by Phase interaction, $\pi_1 \beta_{10}$	-0.84	0.36	-2.31	76	0.02
GMSR-IS 4th time-point	Intercept $\pi_0 \beta_{00}$	7.75	1.78	4.37	25	< 0.001
	Phase slope, $\pi_1 \beta_{10}$	0.24	0.48	0.51	76	0.61
	Time slope, $\pi_2 \beta_{20}$	0.07	0.28	0.27	25	0.79
	Time by Phase interaction, $\pi_1 \beta_{10}$	-0.84	0.36	-2.31	76	0.02
GMSR-IS 5th time-point	Intercept $\pi_0 \beta_{00}$	7.82	1.95	4.02	25	<0.001
	Phase slope, $\pi_1 \beta_{10}$	-0.60	0.66	-0.91	76	0.37
	Time slope, $\pi_2 \beta_{20}$	0.07	0.28	0.27	25	0.79
	Time by Phase interaction, $\pi_1 \beta_{10}$	-0.84	0.36	-2.31	76	0.02

Note: Bolded p values are significant; All Time variables include random effects

Intraclass correlations (ICC) and design effect sizes were calculated for all outcome measures to confirm MLM as an appropriate analysis method and describe variance. ICCs ranged from 0.52 (anxiety) to 0.93 (internalized stigma), indicating that at least 52% of the total variance in the intercept only models was due to differences between individuals and the remaining variance was attributable to differences between time-points between individuals. All ICC's are available in Table 5.2. Design effect sizes

were calculated from ICCs and average cluster size. All design effect sizes exceeded 2.0, indicating MLM is appropriate to account for the violation of interdependence (Peugh, 2010). Design effect sizes are available in Table 5.2.

Table 5.2

Intraclass Correlations and Design Effect Sizes for All Outcome Measures

	Intraclass correlation	Design effect size
PHQ-9	0.66	3.65
GAD-7	0.52	3.08
MSPSS	0.86	4.43
SSQ6	0.79	4.14
DERS-18	0.75	3.99
GMSR-IS	0.93	4.71
SAMA-T	0.69	3.76
SAMA-C	0.71	3.81
SAMA-R	0.60	3.39
CCS	0.72	3.87

Emotion Regulation. MLM analyses indicated that for all models with DERS-18 as the outcome variable, there was a significant time main effect of time indicating that emotion regulation scores vary across time, all $p < .05$. Details of these tests are available in Table 5.1. However, there were no main effects for phase nor significant interactions, indicating that emotion regulation scores did not vary significantly on average as groups moved from baseline to follow-up.

Internalized Stigma. For the model examining Group A's move from baseline to follow-up, there was a significant interaction, $t(76) = -2.31, p = 0.02$, indicating that internalized stigma scores varied based on delivery of the intervention. Additionally, there was a significant main effect for Phase, $t(76) = 2.42, p = 0.02$, such that Group A

participants reported an increase in internalized stigma of 1.92 units on average following implementation of the intervention, contrary to Hypothesis 2. There were also significant interactions in the model examining time-point 4, $t(76) = -2.31, p = 0.02$, and at time-point 5, $t(76) = -2.31, p = 0.02$, but no significant main effects for phase, all p 's $> .05$. There were no significant main effects or interactions in the model for time-point 3, all p 's $> .05$.

Non-significant MLM Findings. The time-point (2nd, 3rd, 4th, or 5th) by phase (baseline or follow-up) interaction term, phase variable, and time-point variable were non-significant in the models for the following outcome measures: PHQ-9, GAD-7, MSPSS, SSQ6, GMSR-IS, SAMA-T, SAMA-R, SAMA-C, and CCS. The intercept main effects for all analyses were significant, all p 's < 0.05 , indicating that depression, anxiety, perception of social support, social support satisfaction, stress appraisal, and LGBT community connectedness scores varied randomly across participants, but the aspect of time and phase did not significantly impact scores. These results are contrary to Hypothesis 2.

5.2.c. Visual Inspection Analyses

Visual inspection of group mean trajectories on outcome measures was used to identify trends and patterns across the multiple baseline and follow-up time-points. Multiple baseline graphs showing group mean trajectories over time provided in Figures 5.1 – 5.10. Group means and standard deviations at each time-point are presented in Tables 5.3 – 5.6. Additionally, individual participant trajectories within groups were scanned to identify potential outliers and to further probe significant MLM findings.

Table 5.3

Means and Standard Deviations for Group A at Each Time-Point

	1st time-point	2nd time-point	3rd time-point	4th time-point	5th time-point
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
PHQ-9	6.33 (3.98)	4.83 (3.25)	5.83 (4.79)	5.17 (2.31)	4.00 (3.63)
GAD-7	5.33 (2.66)	5.33 (4.63)	3.67 (1.51)	2.83 (0.98)	2.83 (2.64)
MSPSS	5.22 (1.12)	5.38 (1.13)	5.53 (1.33)	5.49 (1.38)	6.04 (1.10)
DERS-18	40.67 (12.36)	36.42 (13.00)	34.67 (10.33)	34.83 (10.17)	33.25 (9.15)
GMSR-IS	4.17 (6.11)	8.67 (9.20)	6.83 (8.21)	8.33 (8.98)	6.50 (9.07)
SAMA-T	12.83 (4.92)	10.00 (4.24)	9.67 (3.44)	8.83 (6.49)	9.17 (7.14)
SAMA-C	10.83 (2.93)	11.33 (4.50)	11.50 (4.32)	12.33 (2.66)	13.17 (3.66)
SAMA-R	8.67 (2.07)	9.17 (2.79)	9.50 (2.59)	8.67 (2.66)	10.33 (1.63)
CCS	15.83 (3.66)	16.33 (4.41)	16.67 (3.33)	16.00 (3.46)	15.00 (5.10)
SSQ6	4.14 (0.81)	4.03 (0.90)	3.89 (1.10)	4.31 (0.80)	4.33 (0.78)

Note: n=6 for all time-points and measures; PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-9; MSPSS = Multidimensional Scale of Perceived Social Support; DERS-18 = Difficulties with Emotion Regulation Scale-18; GMSR-IS = Internalized Stigma subscale of Gender Minority Stress and Resilience Scale; SAMA-T = Stress Appraisal Measure for Adolescents Threat subscale; SAMA-C = Stress Appraisal Measure for Adolescents Challenge subscale; SAMA-R = Stress Appraisal for Measure for Adolescents Resource subscale; CCS = Connectedness to the LGBT Community Scale; SSQS = Social Support Questionnaire-Satisfaction

Table 5.4

Means and Standard Deviations for Group B at Each Time-Point

	1st time- point	2nd time- point	3rd time- point	4th time- point	5th time- point
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
PHQ-9	10.00 (7.12)	7.86 (4.63)	5.14 (5.78)	6.57 (2.76)	4.00 (2.19)
GAD-7	9.43 (4.65)	7.00 (3.56)	8.29 (6.80)	7.71 (3.73)	6.00 (3.06)
MSPSS	5.79 (0.94)	5.93 (0.80)	5.93 (0.50)	5.89 (0.50)	6.11 (0.73)
DERS-18	40.14 (10.54)	34.86 (8.85)	36.50 (8.94)	36.00 (7.59)	33.21(7.17)
GMSR-IS	4.86 (8.15)	5.43 (8.68)	6.14 (9.99)	5.29 (9.74)	4.86 (8.33)
SAMA-T	16.86 (6.67)	15.57 (7.68)	15.86 (8.45)	13.86 (7.69)	11.86 (7.47)
SAMA-C	10.71 (4.23)	11.57 (4.47)	13.67 (1.97)	13.29 (2.93)	13.43 (2.64)
SAMA-R	9.71 (1.60)	8.86 (3.44)	10.86 (1.35)	10.14 (1.35)	10.29 (1.70)
CCS	15.57 (4.76)	15.14 (4.34)	14.29 (4.35)	14.86 (4.02)	14.29 (3.86)
SSQS	4.36 (0.85)	4.50 (0.99)	4.21 (0.64)	4.38 (0.85)	4.29 (0.88)

Note: n=7 for all time-points and measures except 5th time-point PHQ-9 (n=6) and 2nd time-point SSQS (n=6); PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-9; MSPSS = Multidimensional Scale of Perceived Social Support; DERS-18 = Difficulties with Emotion Regulation Scale-18; GMSR-IS = Internalized Stigma subscale of Gender Minority Stress and Resilience Scale; SAMA-T = Stress Appraisal Measure for Adolescents Threat subscale; SAMA-C = Stress Appraisal Measure for Adolescents Challenge subscale; SAMA-R = Stress Appraisal for Measure for Adolescents Resource subscale; CCS = Connectedness to the LGBT Community Scale; SSQS = Social Support Questionnaire-Satisfaction

Table 5.5

Means and Standard Deviations for Group C at Each Time-Point

	1st time- point	2nd time- point	3rd time- point	4th time- point	5th time- point
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
PHQ-9	5.63 (5.32)	6.13 (4.97)	6.00 (3.96)	6.00 (4.90)	5.00 (5.53)
GAD-7	6.13 (5.87)	6.13 (5.06)	6.00 (3.93)	5.38 (4.93)	5.13 (5.06)
MSPSS	5.63 (0.58)	5.92 (0.52)	5.80 (0.67)	5.83 (0.78)	5.61 (1.03)
DERS-18	39.06 (9.19)	37.44 (9.59)	39.00 (8.98)	37.50 (7.76)	36.00 (10.95)
GMSR-IS	10.25 (8.46)	7.88 (7.92)	8.63 (9.35)	7.38 (8.21)	7.50 (8.47)
SAMA-T	13.38 (6.26)	13.50 (4.17)	14.38 (5.50)	14.75 (6.30)	11.88 (7.38)
SAMA-C	12.38 (1.77)	12.38 (2.77)	11.63 (2.92)	12.63 (2.33)	12.38 (3.58)
SAMA-R	10.50 (1.07)	10.63 (0.74)	9.88 (1.89)	10.38 (2.39)	9.38 (2.88)
CCS	13.86 (3.25)	14.75 (3.88)	14.88 (3.64)	14.38 (3.25)	14.50 (4.50)
SSQS	4.40 (0.57)	4.29 (0.70)	4.52 (0.39)	4.48 (0.63)	4.31 (0.55)

Note: n=8 for all time-points and measures; PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-9; MSPSS = Multidimensional Scale of Perceived Social Support; DERS-18 = Difficulties with Emotion Regulation Scale-18; GMSR-IS = Internalized Stigma subscale of Gender Minority Stress and Resilience Scale; SAMA-T = Stress Appraisal Measure for Adolescents Threat subscale; SAMA-C = Stress Appraisal Measure for Adolescents Challenge subscale; SAMA-R = Stress Appraisal for Measure for Adolescents Resource subscale; CCS = Connectedness to the LGBT Community Scale; SSQS = Social Support Questionnaire-Satisfaction

Table 5.6

Means and Standard Deviations for Group D at Each Time-Point

	1st time-point	2nd time-point	3rd time-point	4th time-point	5th time-point
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
PHQ-9	6.40 (5.73)	6.60 (7.06)	7.60 (8.08)	7.20 (6.61)	8.20 (6.69)
GAD-7	5.00 (3.08)	4.20 (3.11)	5.80 (3.90)	5.60 (3.78)	4.20 (4.09)
MSPSS	4.73 (1.38)	4.70 (1.55)	4.82 (1.41)	4.87 (1.44)	4.83 (1.42)
DERS-18	37.10 (12.03)	38.20 (14.89)	37.00 (11.52)	33.20 (10.03)	34.10 (9.99)
GMSR-IS	10.80 (7.05)	10.80 (7.56)	13.00 (8.69)	12.60 (8.91)	13.40 (10.78)
SAMA-T	14.00 (3.08)	12.00 (4.30)	12.80 (7.01)	11.80 (5.36)	9.00 (5.70)
SAMA-C	10.20 (4.27)	10.20 (4.32)	9.40 (5.50)	10.00 (4.06)	10.00 (4.42)
SAMA-R	9.60 (1.82)	7.00 (3.54)	8.20 (3.03)	7.80 (2.68)	8.00 (2.74)
CCS	16.60 (2.88)	17.80 (3.49)	16.60 (3.78)	16.80 (4.15)	15.60 (4.22)
SSQS	3.83 (0.96)	3.53 (1.01)	3.77 (0.94)	3.63 (0.90)	3.83 (0.85)

Note: $n=5$ for all time-points and measures; PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-9; MSPSS = Multidimensional Scale of Perceived Social Support; DERS-18 = Difficulties with Emotion Regulation Scale-18; GMSR-IS = Internalized Stigma subscale of Gender Minority Stress and Resilience Scale; SAMA-T = Stress Appraisal Measure for Adolescents Threat subscale; SAMA-C = Stress Appraisal Measure for Adolescents Challenge subscale; SAMA-R = Stress Appraisal for Measure for Adolescents Resource subscale; CCS = Connectedness to the LGBT Community Scale; SSQS = Social Support Questionnaire-Satisfaction

Depression. On the PHQ-9 (possible score range of 0 to 27), Group A's mean decreased from time-point 1 ($M = 6.33$) to time-point 2 (4.83), as expected with implementation of the intervention, and ended at $M = 4.00$ at time-point 5. Group B showed a decline in baseline from time-point 1 ($M = 10.00$) to time-point 2 ($M = 7.86$), prior to intervention, and continued to decline at time-point 3 ($M = 5.14$). The slope of the decrease between time-point 2 and 3 was slightly steeper than the initial decline in baseline time-points. This change appears driven by one participant whose time-point 1

score was 14 points higher than the next highest response and showed an individual trajectory decline from time-point 1 to time-point 3, at which the participants' responses appeared in line with the rest of Group B. In Group C, there was no change in mean following introduction of intervention ($M = 6$ at time-points 3 and 4) and continued to show limited change throughout follow-up. There was a slight elevation in Group D means from time-point 4 ($M = 7.2$) to time-point 5 ($M = 8.2$), but slopes of Group C and D are minimal.

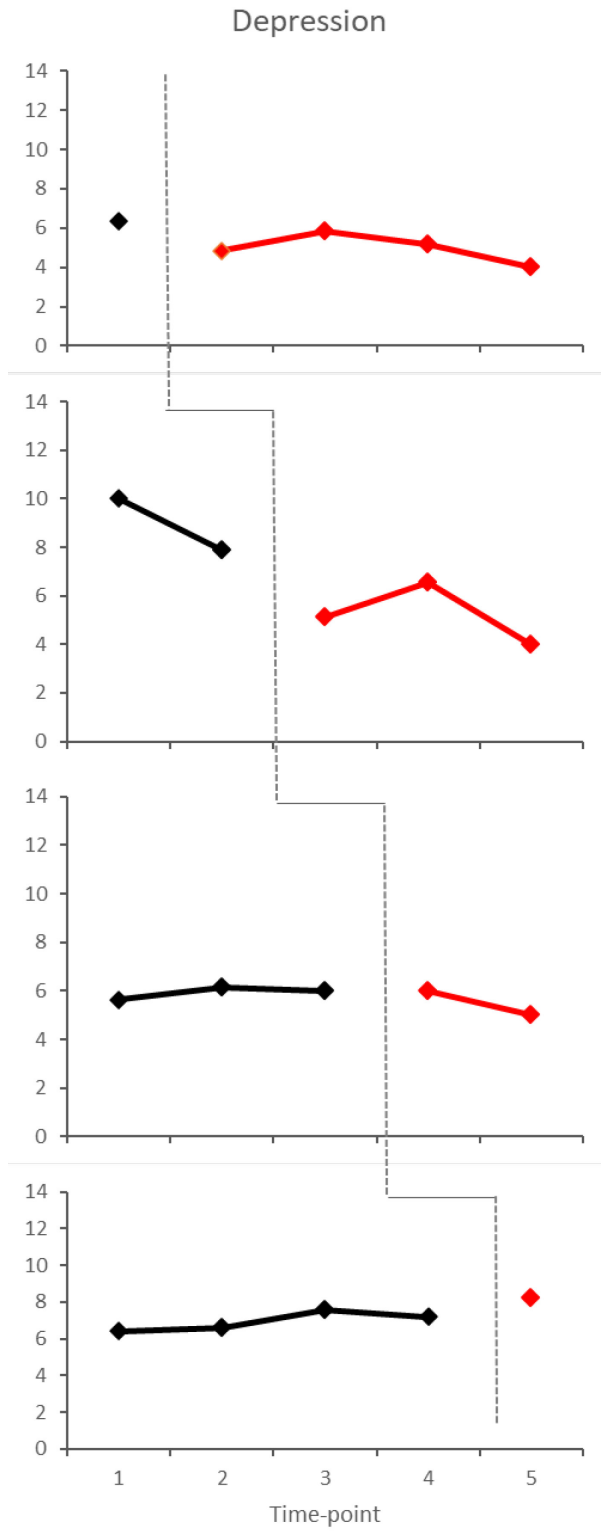


Figure 5.1. Group Mean Trajectories of PHQ-9 Scores.

Anxiety. On the GAD-7 (possible score range of 0 to 21), Group A's trajectory was stable at time-point 1 ($M = 5.33$) and 2 ($M = 5.33$) and began a gradual decline from time-point 2 to time-point 3 ($M = 3.67$) that continued throughout follow-up. Like depression scores, Group B showed a decline from time-point 1 ($M = 9.42$) to time-point 2 ($M = 7.00$), prior to implementation of the intervention. There was a slight increase in the shift from baseline to follow-up at time-point 3 ($M = 8.29$), then a return to a minimal decline across follow-up. Groups C and D were relatively stable across time on report of anxiety symptoms.

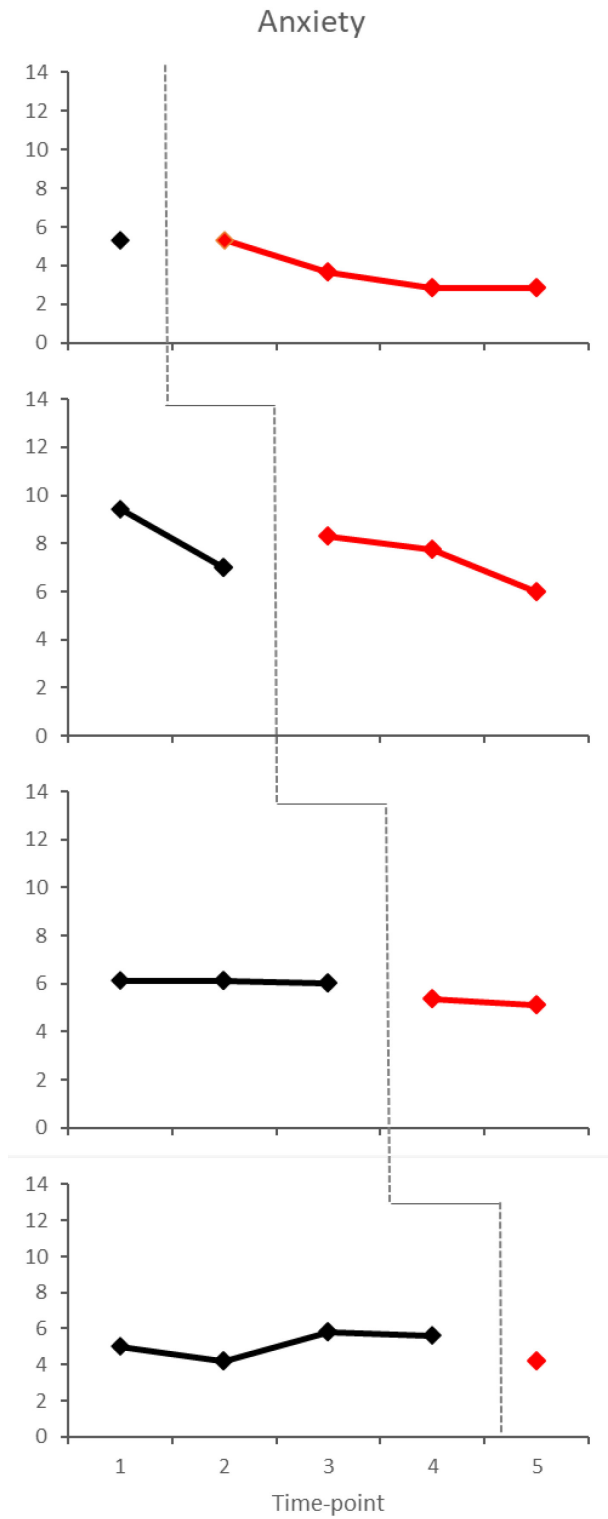


Figure 5.2. Group Mean Trajectories of GAD-7 Scores.

Social Support. Social support was examined with the MSPSS (possible score range of 1 to 7) and the SSQ6 (possible score range of 1 to 6). Across all groups, the mean trajectories on social support measures appeared very stable with little slope. The maximum within-group variation in mean scores on the MSPSS was 1.59 and 1.66 on the SSQ6. Means of perceived social support and satisfaction with social support for Groups A, B, and C were relatively high, meaning there was little room for improvement.

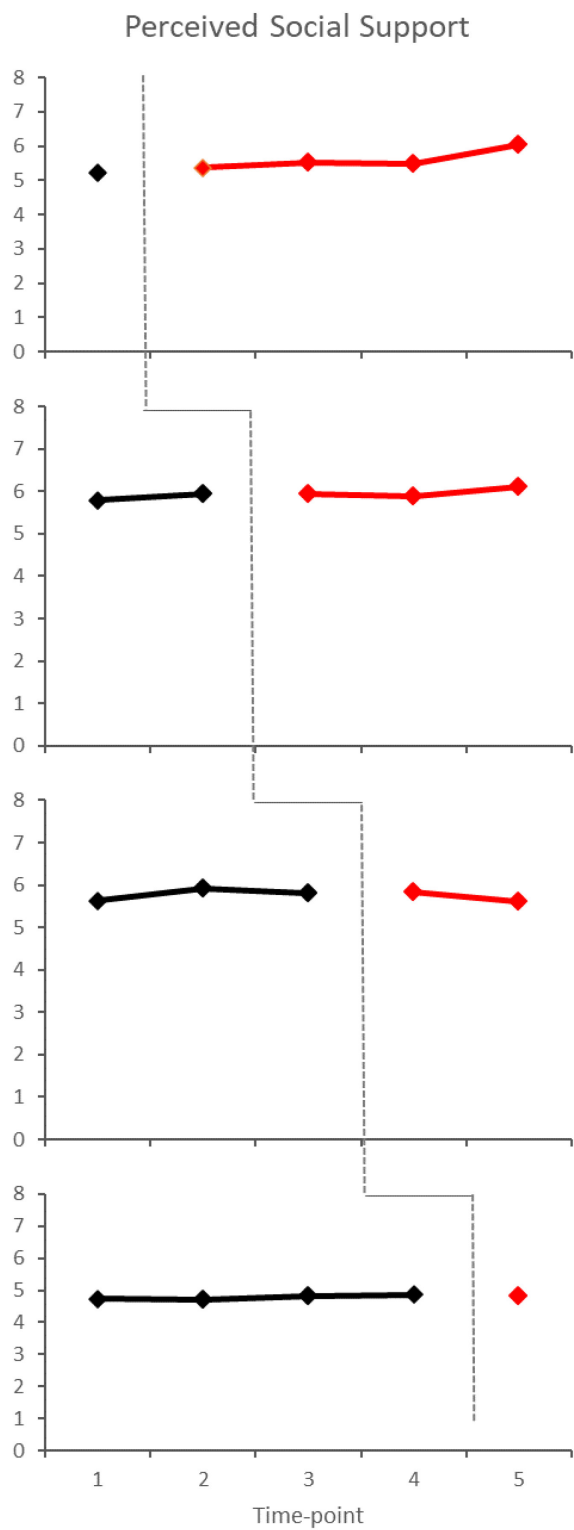


Figure 5.3. Group Mean Trajectories of MSPSS Scores.

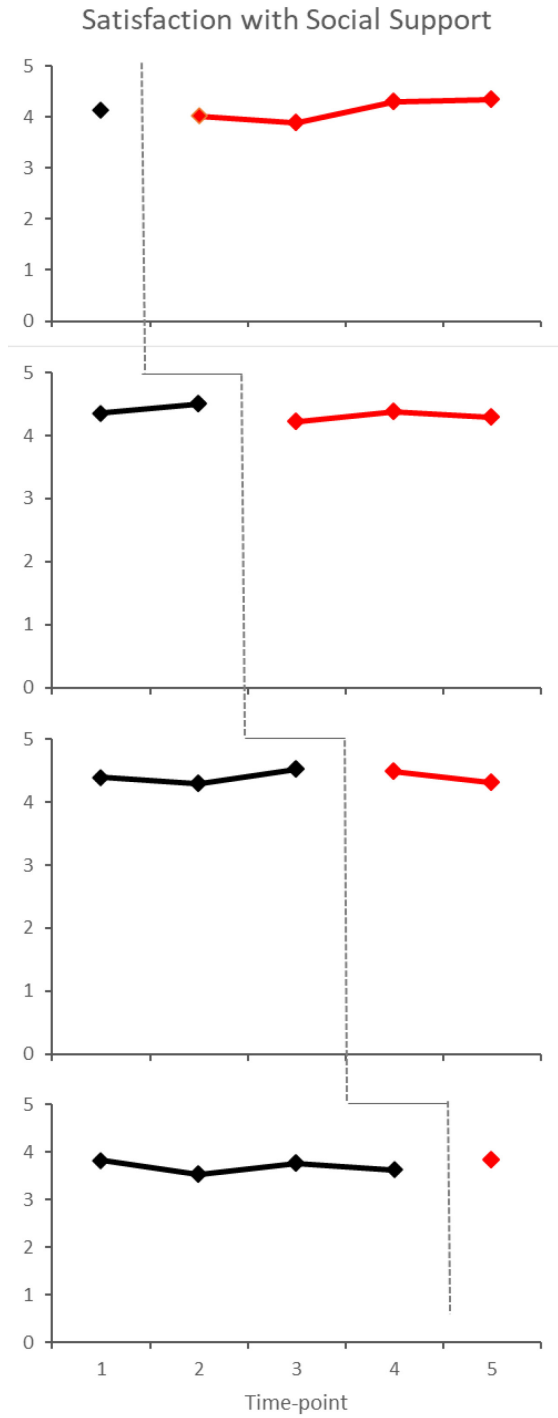


Figure 5.4. Group Mean Trajectories of SSQ6 Scores

Community Connectedness. Connectedness to the LGBT Community was measured with the CCS (possible score range of 1 to 32). Much like the social support measures, there was very little variation in mean scores across time. This trend was seen in individual participant trajectories as well. The maximum within-group variation on mean scores at different time-points was a change of 2.2 points. Mean scores for all groups at all time-points ranged between 13.63 and 17.80, with lower scores indicating greater community connectedness.

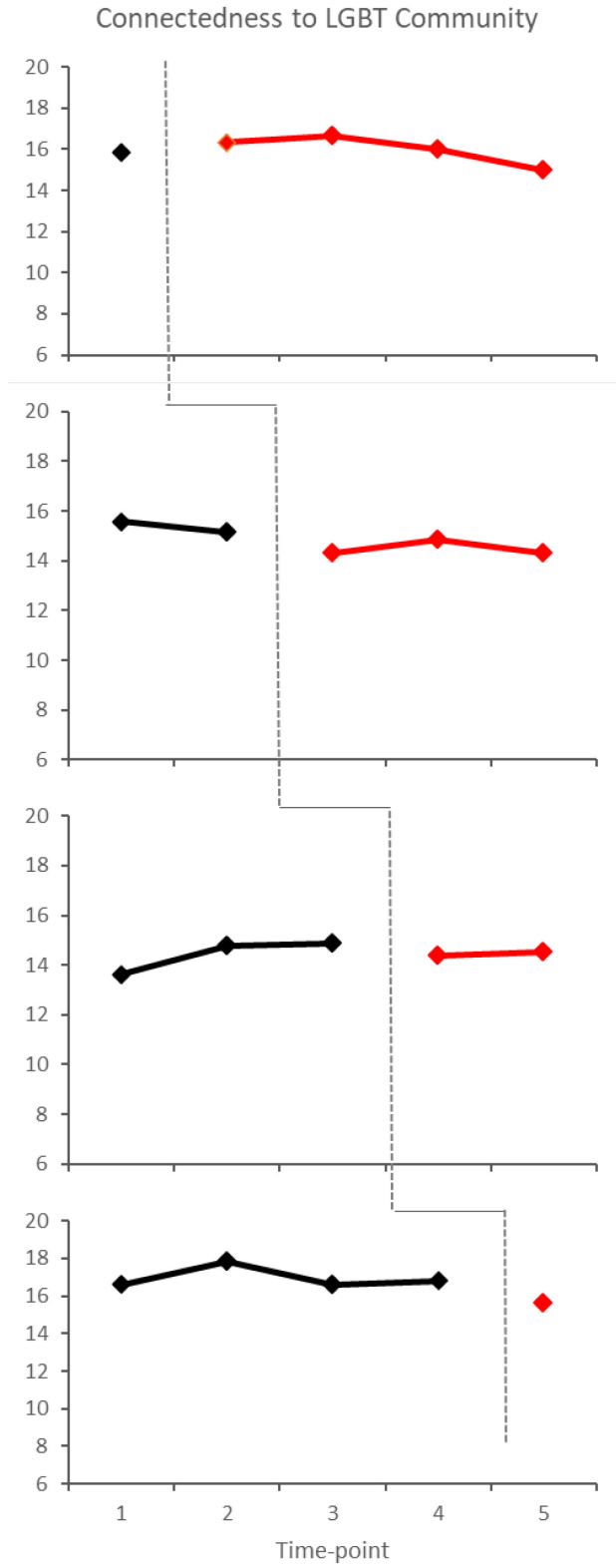


Figure 5.5. Group Mean Trajectories of CCS Scores

Emotion Regulation. On the DERS-18 (possible score range of 18 to 90; higher scores indicate more difficulty with emotion regulation), the mean trajectory of Group A showed a slight decline from baseline time-point 1 ($M = 40.67$) to follow-up time-point 2 ($M = 36.42$) following implementation of the intervention. Group A means had a slower rate of decline through follow-up ($M = 33.25$ at time-point 5). Group B showed a steep decline between baseline time-points 1 ($M = 40.14$) and 2 ($M = 34.86$). At time-point 3 following the intervention, Group B slightly increased in mean emotion regulation difficulties ($M = 36.5$) then returned to a slight decline through time-point 5 ($M = 33.21$). As Group B means were similar at time-point 2 in baseline and time-point 5, it is unlikely that the slight decline in follow-up on the DERS-18 was due to the intervention. Group D similarly decreased across baseline and showed a slight elevation in follow-up. Group C appeared to have minimal slope in baseline and then a slight decline in follow-up, however mean scores only decreased from 39.00 at time-point 3 to 36.00 at time-point 5.

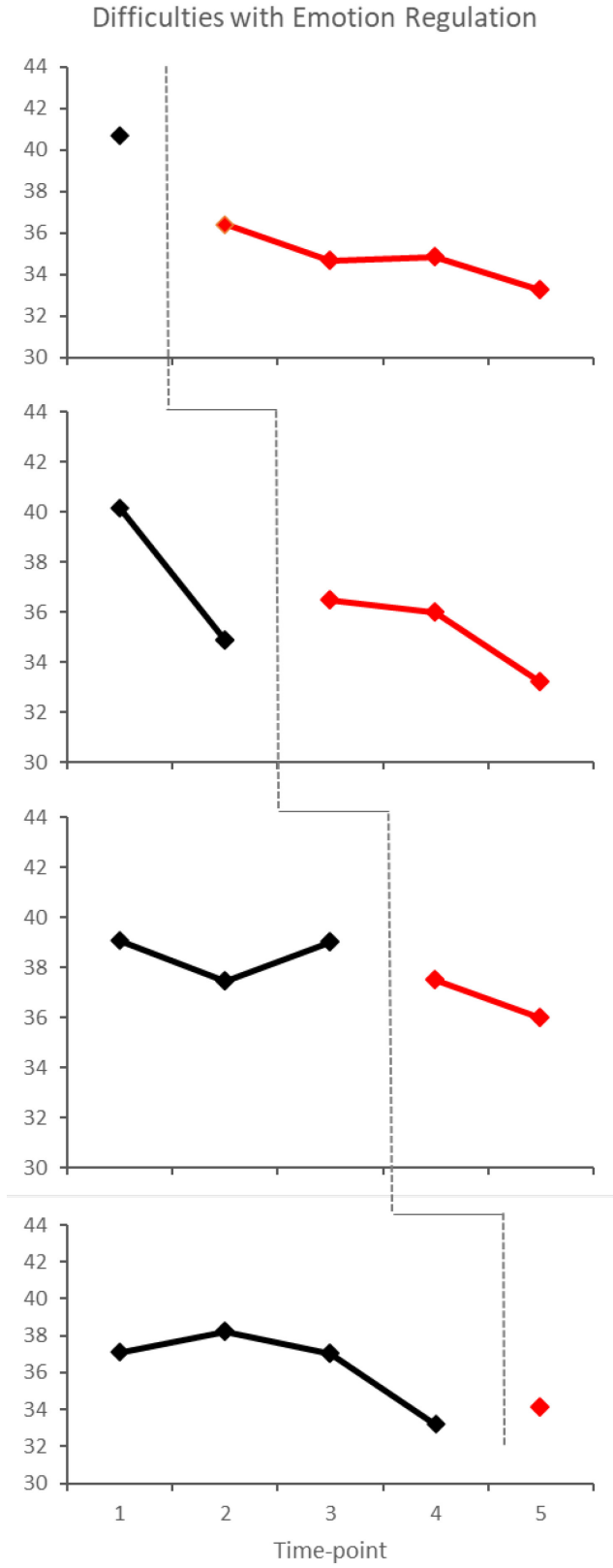


Figure 5.6. Group Mean Trajectories of DERS-18 Scores

Internalized Stigma. The adapted internalized stigma measure on the GMSR has a range of 0 to 32. Group A appeared to show an increase in internalized stigma from baseline ($M = 4.17$) to follow-up time-point 2 ($M = 8.67$), however as the possible range of scores on the GMSR is 0 to 32, though the increase was significant in MLM analyses, this change is unlikely to be clinically significant as scores are still low. Additionally, this significant MLM finding is likely driven by two participants with substantially elevated internalized stigma scores compared to the remaining Group A participants. Group B similarly had a range of mean scores from 4.86 (time-points 1 and 5) to 6.14 (time-point 3) and negligible slope, showing low internalized stigma and little room for possible improvement. Group C showed minimal change surrounding implementation of the intervention between time-point 3 ($M = 8.63$) and time-point 4 ($M = 7.38$) and Group D demonstrated a slight increase in internalized stigma over time ($M = 10.80$ at time-point 1 and $M = 13.40$ at time-point 5 following intervention).

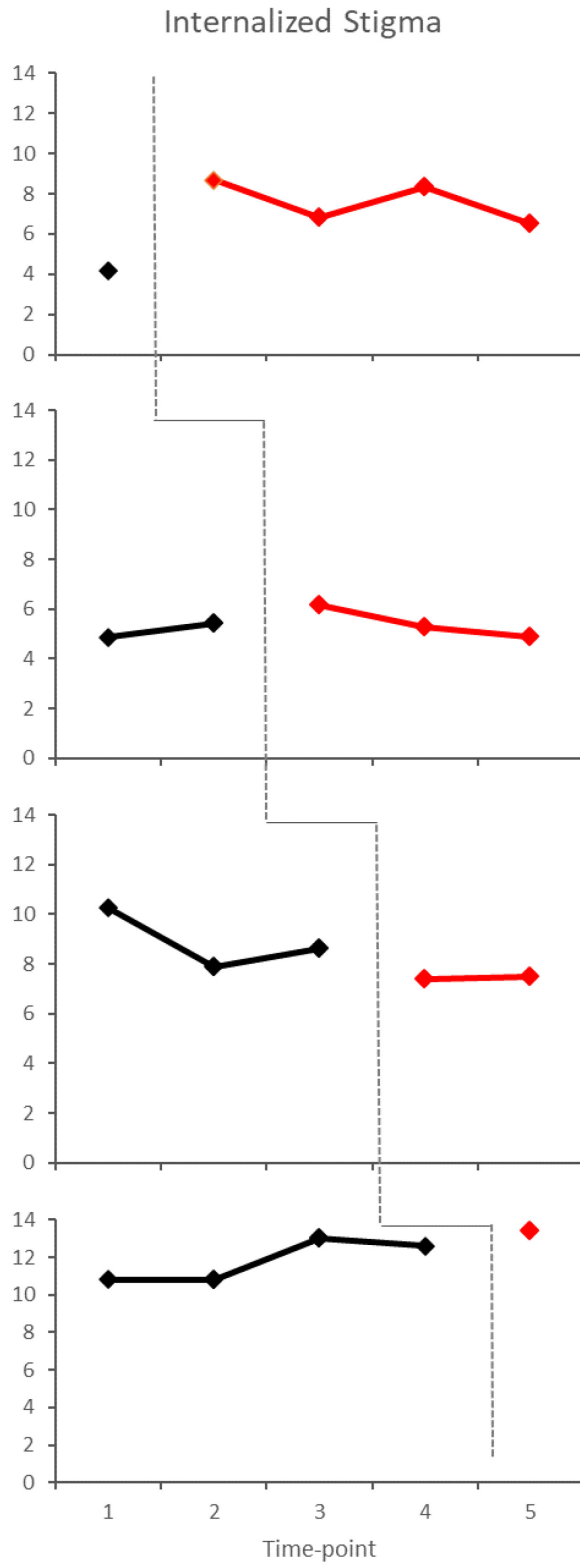


Figure 5.7. Group Mean Trajectories of GMSR-IS Scores

Stress Appraisal. Participants completed the SAMA which has three subscales measuring appraisal of stress as threat (SAMA-T; score range 0 to 28), appraisal of stress as a challenge (SAMA-C; score range 0 to 20), and resources needed to handle stress (SAMA-R; score range 0 to 12). Across all groups there was a trend of declining scores on the SAMA-T following implementation of the intervention. Group A began time-point 1 with a mean of 12.83 and decrease to a mean of 10.00 at time-point 2 following the intervention. Group A's follow-up trajectory was relatively stable. Group B had a stable baseline and showed little decline immediately following implementation of the intervention but demonstrated a decline later in follow-up from time-point 3 ($M = 15.86$) through time-point 5 ($M = 11.86$). Similarly, Group C had a relatively stable baseline and did not immediately decrease in scores from the shift from baseline to follow-up but showed a decrease from time-point 4 ($M = 14.75$) to time-point 5 ($M = 11.88$). Group D had a slight downward slope in baseline from time-point 1 ($M = 14.00$) to time-point 4 ($M = 11.80$) but showed a steeper rate of decline in the shift from baseline at time-point 4 to follow-up at time-point 5 ($M = 9.00$).

An increase in scores on the SAMA-C would indicate positive effect of the intervention. Group A showed a delayed increase in mean SAMA-C scores from baseline time-point 1 ($M = 10.83$) through time-point 5 ($M = 13.17$), with a steeper rate of change between time-points 3 and 5 compared to the shift from baseline to follow-up at time-point 2 ($M = 11.33$). Group B had a slight elevation during baseline ($M = 10.71$ at time-point 1), but a more substantial increase in the shift from end of baseline at time-point 2 ($M = 11.57$) to the beginning of follow-up at time-point 3 ($M = 13.67$). This trend in Group B may be due to the two participants with lowest SAMA-C scores at baseline

time-points increased their scores at time-point 3 to match other Group B participants whose responses were relatively high and stable across time. Groups C and D means on the SAMA-C were relatively stable across time with a range of 11.63 to 12.37 for Group C and 9.40 to 10.20 for Group D.

Similar to Group C and D on the SAMA-C, the trajectories of means on the SAMA-R for all groups was relatively stable. This was consistent with visual inspection of individual trajectories with mostly showed limited change across time. Ranges of scores for all groups were in the middle range of possible SAMA-C scores. Group A means ranged from 8.67 to 10.33, Group B from 8.86 to 10.29, Group C from 9.37 to 10.63, and Group D from 7.00 to 9.60.

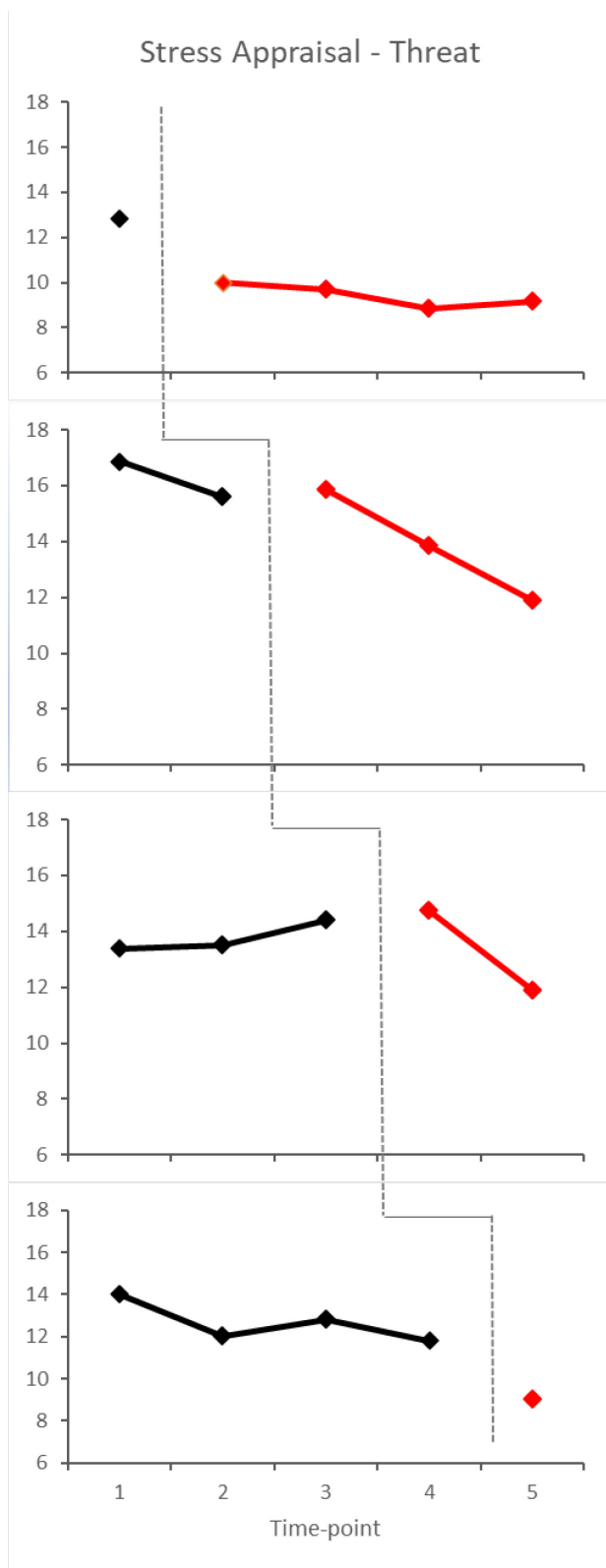


Figure 5.8. Group Mean Trajectories of SAMA-T Scores

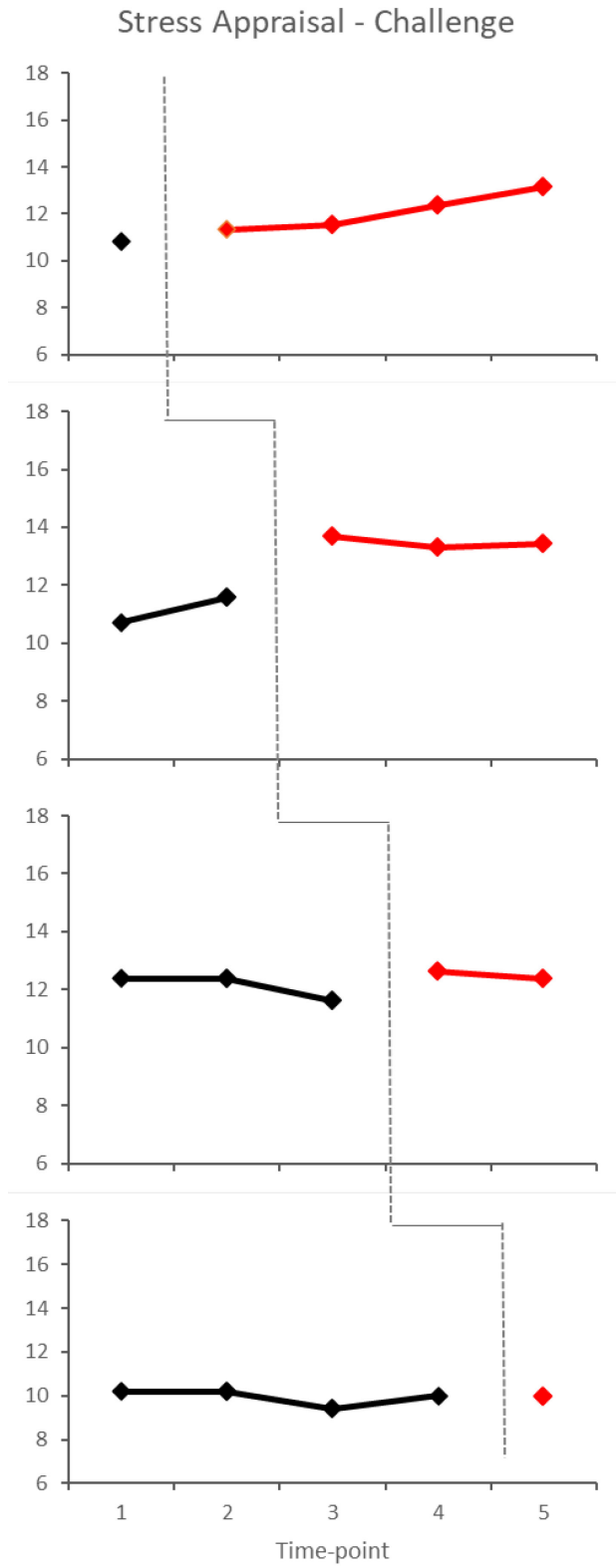


Figure 5.9. Group Mean Trajectories of SAMA-C Scores

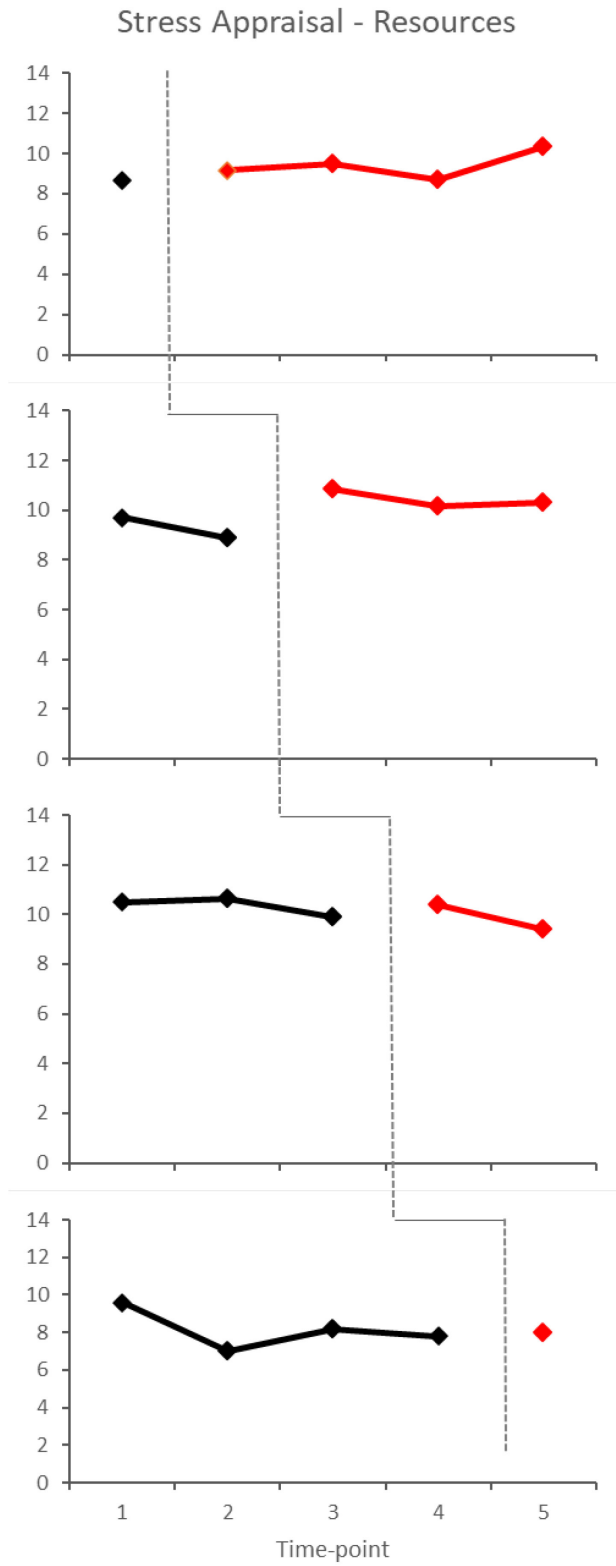


Figure 5.10. Group Mean Trajectories of SAMA-R Scores

5.2.d. Participants' Evaluation of Intervention.

Credibility/expectancy. Participants rated how logical they found the intervention, how successful they believe the intervention was at promoting psychological well-being, and how confident they would be recommending the intervention to a similarly aged SGM friend on scales of 1 to 9. Participants provided a mean rating of 8.36 ($SD = .952$) for how logical the workshop was, a mean rating of 7.64 ($SD = 1.15$) for success of the intervention, and a mean rating of 8.00 ($SD = 1.44$) to indicate their confidence recommending the workshop. These scores indicate high credibility and expectancy of intervention effects, consistent with Hypothesis 4.

One-way ANOVAs were used to examine differences in credibility/expectancy ratings based on intervention group. There were no significant differences on logic, success, and confidence ratings between the four intervention groups (all p 's > .05). However, there were significant differences based on intervention delivery style. Participants who attended intervention in-person prior to the COVID-19 era (groups A and B) reported higher ratings of logic ($M = 8.77$; $SD = 0.60$) than participants who completed the intervention virtually due to COVID-19 (groups C and D; $M = 7.92$; $SD = 1.08$), $F(1) = 6.057$, $p = 0.02$. Similarly, participants who attended the intervention in session rated the intervention as more successful ($M = 8.07$; $SD = 0.95$) than participants who attended virtually ($M = 7.17$; $SD = 1.19$), $F(1) = 4.47$, $p = 0.05$. There was no significant difference in confidence in the workshop based on intervention delivery style.

Qualitative Responses. Participants also offered qualitative responses to describe what aspects of the intervention they found most helpful and what aspects they would change. These qualitative responses were analyzed using thematic coding. For the most

helpful aspects, participants primarily responded with specific activities completed during the intervention, predominantly the cognitive restructuring example and generating a list of affirming/safe spaces and resources in the local community. However, several participants noted that connecting with other SGM individuals and community building was a helpful and appreciated component of the intervention. Participants also mentioned finding the mindfulness exercises, generating a list of distracting/pleasant activities, mention of technology resources, and psychoeducation of the minority stress model as helpful.

For recommended changes to the intervention, participant responses formed three themes: changes to structure of intervention, changes to content of intervention, and no changes recommended. Recommendations for changes to the structure of the intervention primarily consisted of calls for more discussion, larger group sizes, and more introduction to other participants or ice-breaker activities. Regarding changes to content of the intervention, a few participants requested more time to practice cognitive restructuring. Additionally, one participant requested more safe spaces be identified outside of a university context and another participant requested more focus on TGD identities as his TGD identity is a greater stressor than his sexual minority identity. Finally, several participants recommended no changes be made to the intervention.

5.2.e. Knowledge

Participants completed a knowledge questionnaire containing 6 true-false items at pre-test and post-test surrounding delivery of the intervention. One participant did not complete the post-test measures due to leaving the intervention session. At pre-test, the mean percentage correct for all participants was 85.33% ($SD = 12.10$) and ranged from

66.67% correct to 100.00% correct. At post-test, the mean percentage correct was 96.67% ($SD = 6.80$) with a range of 83.33% to 100.00%. This improvement in knowledge from pre-test to post-test was significant, $t(24) = -4.93, p < .0001$, in support of Hypothesis 1.

5.2.f. Use of Skills from Intervention.

On follow-up time-points, participants were asked about their use of skills and resources discussed in the intervention. Of 67 completed follow-up time-points, participants reported utilizing skills and resources from the intervention in the previous week 64.20% of the time. Within those 43 survey responses from participants who reported using skills and resources, participants rated the helpfulness of the skills and their confidence to employ the skills on a scale from 1 to 5 ('very unhelpful' to 'very helpful' and 'very unconfident' to 'very confident'). The mean rating of helpfulness was 4.40 ($SD = 0.50$) and the mean rating of confidence was 4.40 ($SD = 0.58$), indicating relatively high report of helpfulness and confidence in the skills and resources learned during the intervention consistent with Hypothesis 4. Participants were also asked if they had experienced a discriminatory or marginalizing event in the previous two weeks. A planned chi-square analysis examining use of skills and experience of stigma could not be completed as one cell had a minimum expected cell count less than 5. However, of the eight follow-up time-points in which a participant reported having a marginalizing or discriminatory experience based on their SGM identity, participants reported using skills from the workshop 75% of the time.

Participants were asked to briefly describe what skills and resources they utilized. These responses were analyzed using thematic coding and mapped on to the three

primary modules of the intervention regarding emotion regulation, cognitive processes, and social support. Participants overwhelmingly reported using mindfulness and relaxation strategies compared to other techniques discussed in the intervention. Participants reported a variety of mindfulness techniques such as using meditation or playing a mindful video game. Several participants also reported using distracting activities from the list generated during the intervention. Several participants also reported using cognitive restructuring. Finally, some participants reported seeking social support or accessing affirming resources, including scheduling a therapy session with an affirming provider.

While most qualitative responses simply mentioned which skills were implemented (matching the prompting question), some responses indicated further benefit of the intervention. For example, one participant responded, “The workshop also helped me get up the courage to come out to some of my friends from my church, which I had been wanting to do for a long time.” Additionally, responses indicated extension of intervention skills outside of SGM-specific domains, such as one participant reporting the use of cognitive restructuring to cope with a stressful situation at work.

CHAPTER 6 – DISCUSSION

6.1 Intervention Development and Effects

In a mixed methods study design, a minority stress prevention intervention was developed and then pilot tested in a multiple baseline design trial. The intervention content was formulated based on focus groups with SGM youth and young adults and theoretically driven based on the psychological mediation framework (Hatzenbuehler, 2009). Participants in the focus group offered support for the psychological mediation

framework to shape the content and encouraged that all three mediators – emotion regulation, cognitive processes, and social support – be addressed in the intervention. The structure of the intervention stemmed from focus group recommendations including using a mix of small group and whole group discussion and marketing the intervention as skill building and focused on mental health. Skills taught in the intervention that are also utilized in therapy, like cognitive restructuring, were well-received.

In the multiple baseline design trial, participants completed measures of negative affect (depression and anxiety), emotion regulation, social support, stress appraisal, internalized stigma, and community connectedness every two weeks. MLM analyses were used to examine changes in outcome measures as each group shifted from baseline to follow-up time-points after completing the intervention. There were no significant changes in any outcome variables identified in MLM analyses apart from an increase in internalized stigma for Group A following implementation of the intervention, all contrary to Hypothesis 2. The internalized stigma finding appears driven by two participants with elevated scores compared to their fellow group members, but the mean internalized stigma score following the increase at time-point 2 remained relatively low. Despite nonsignificant MLM findings, visual inspection analyses revealed some promising trends. For example, Groups A and B mean depression scores decreased following implementation of the intervention and Groups A and C improved in emotion regulation. Additionally, all groups reduced their appraisal of stress as a threat following implementation of the intervention and most improved their appraisal of stress as a challenge.

There are several possible explanations for limited improvement on variables of interest. First, there could be a problem of dosing. The intervention was only 90 minutes and just one contact. Other preventive interventions designed for SGM youth and young adults are meant to be brief and have shown effectiveness in short-term follow-ups. For example, KIU! (Mustanski et al., 2013) required two hours and demonstrated significant gains from pre-test to post-test 2 weeks after intervention delivery. Specifically for KIU!, effect sizes were small on distal measures like internalized homophobia and moderate on a primary outcome target of contraception knowledge. However, with only 90 minutes of contact time, visual inspection analyses showed some change on emotion regulation and stress appraisal, two of the directly targeted mechanisms. The modules in the intervention included skills for improving emotion regulation, such as mindfulness and distraction techniques, and reducing problematic cognitive processes via cognitive restructuring, a type of reappraisal. Domains like anxiety and community connectedness may have been too distal to see quick change following the 90-minute intervention. Though intervention effects from only a 90-minute dose are likely to be small, changing the ability to cope, an underlying construct, may be clinically significant change even though there was not a significant reduction in symptoms (Kazdin, 2001). Additionally, the 10-week duration of the protocol may not be enough time for changes in the mechanisms to produce change in the symptoms.

One confounding variable that may have impacted intervention effects was the COVID-19 pandemic that occurred during data collection for Groups C and D. COVID-19 caused many individuals to quarantine at home, led to massive unemployment, and required students to leave school and return home. All these changes are predicted to

cause significant mental health burden (Torales et al., 2020) and may have disproportionately impacted SGM youth and young adults who lost access to social support on college campuses and returned to unaffirming households. COVID-19 could explain that the visual analysis trend in Groups A and B that showed reduction in depression scores following implementation of the intervention was not present in Groups C and D. There were no significant group differences on any outcome measures at baseline nor at time-point 5, though COVID-19 may have altered how participants in Groups C and D could implement skills learned in the intervention.

Finally, given the small effect sizes anticipated from an intervention with a small dose, there may not have been enough power to detect all possible changes with only 26 participants. Planned recruitment of 40 participants would have closely met a priori sample size recommendations, however several screened individuals were not eligible for the study and several participants were lost due to attrition or did not attend the intervention session. Larger sample sizes in future trials may lead to detection of intervention effects.

Beyond outcome measures completed at the biweekly time-points, participants completed a measure of knowledge both pre and post intervention as well as a measure of credibility/expectancy and qualitative open-ended questions about their opinions of the intervention. Overall, participants rated the intervention as logical and successful and would recommend the intervention to an SGM friend around their age. There were group differences in credibility/expectancy scores, however, based on intervention delivery style. Participants who attend the intervention in-person (Groups A and B) rated the intervention as more logical and successful than participants who attended the

intervention virtually (Groups C and D). COVID-19 required the intervention to be delivered via videoconferencing in spring 2020, both due to institutional restrictions on in-person data collection and feasibility for participants, many of whom left their college residences and moved home.

The virtual nature of the intervention may have led to reductions in credibility/expectancy. Video-conferencing and technical restrictions could have limited social interactions and potential for community building among participants. For example, some participants did not have access to a camera so other participants were unable to read their nonverbal cues and some participants had privacy concerns as they had returned to non-affirming households. In one intervention session, one participant was using telephone audio and no video and another participant used the chat feature to type responses because he was fearful of his family members hearing him discuss SGM issues. The intervention facilitator read the typed text aloud so the participant on the phone heard all the discussion, however this cumbersome process could impact participants' perceptions of the intervention. There is a growing trend of online interventions for SGMYYA (e.g. Pachankis et al., 2020b) and tele-mental health reduces several barriers to care for marginalized communities and are as effective as traditional mental health services (Ralston et al., 2019), but ongoing virtual implementation of interventions to SGMYYA must consider access to resources and confidentiality to ensure participant engagement.

In order to elevate participants' voices and refine the intervention to be more culturally-responsive, qualitative responses to open-ended questions about helpful aspects of the intervention and aspects to change were analyzed and participants were asked at

follow-up time-points what, if any, intervention skills they had used. Participants offered many positive reports in their qualitative responses, including some who stated they would not change anything about the intervention. In the post-intervention evaluation form, participants identified cognitive restructuring as the most helpful skill and further validated the utility of the psychological mediation framework as underlying theory for the intervention. Participants also expressed value of the intervention beyond learning skills, but also as a way to connect with community. Participants reported using skills and resources they learned in the intervention at more than half of the follow-up time-points (64.2%). While it could not be tested for significance, there was a trend that participants who reported experiencing stigma used skills from the intervention at higher rates – 75%. This is a promising trend suggesting that the resources and skills from the intervention may be particularly applicable in the face of marginalization stressors.

Regarding what specific skills were implemented, interestingly, participants reported using mindfulness and relaxation skills most often, which differs from what participants most often identified in the immediate post-intervention evaluation as the most helpful skill learned. It could be that mindfulness and relaxation skills were most convenient to implement in participants' daily lives. Cognitive restructuring, on the other hand, can require use of an app or written worksheets to practice. Participants rated the skills they implemented between somewhat helpful and very helpful and had a similar level of confidence in their ability to use the skills. Implementing participants' recommended changes to the structure and content of the intervention is likely to increase the number of participants who implement skills into their daily lives.

6.2 Refinement of Intervention and Future Directions

While significant tests show limited change on outcome measures, visual analysis trends and participants' qualitative reports offer substantial support for the acceptability and feasibility of the preventive intervention. Further, the development of the intervention appropriately addressed tenets of prevention framework. Qualitative findings and visual analysis trends reflect the theory-driven formulation stemming from the psychological mediation framework. Additionally, the intervention appears largely successful at being culturally responsive as participants reported they would recommend the intervention to another friend and the community-building aspect of the intervention was a highlight for participants. Refinement of the intervention based on participants' recommendations, such as including more participants in each workshop and providing more practice with cognitive restructuring, will only increase the appropriateness for the target population. Regarding timing, enrolled participants appear to have been appropriately in the secondary prevention category as the mean baseline scores for depression and anxiety indicate mild report of symptoms. However, many SGM individuals were excluded from the multiple baseline trial due to suicide risk. A substantial portion of SGM YYA may exceed the exclusion criteria, however for the current sample, the timing of a prevention approach was appropriate given their risk due to SGM identities prior to dysfunction (Coie, 1993). Finally, prevention frameworks recommend efficacy and effectiveness trials. The multiple baseline trial offers a first step at establishing effectiveness of the preventive intervention. Future evaluations should utilize larger samples and more controlled experimental designs to identify significant intervention effects.

As is expected with the early development of a new intervention, some refinement is needed to the preventive intervention. Based on participant feedback, the intervention should be extended at least to 2 hours to accommodate additional practice and material. Participants requested time for icebreakers or more introductory activities. This should improve group cohesiveness and allow participants more time to become comfortable. Increasing the homogeneity of intervention participants may also help participants feel comfortable sharing their experiences. A few participants noted they would have preferred more individuals with their shared gender identity in their group, for example. More participants should also be enrolled in each group. Based on participant and intervention leader opinions, groups of about 10 individuals is feasible and would improve small group activities. The core components of the intervention were well-validated in the current study. However, additional practice was requested by participants. Specifically, future iterations of the intervention should include practice of a mindfulness skill, such as guided meditation. Additionally, participants should be granted time following the group practice of cognitive restructuring to individually complete a cognitive restructuring worksheet with the opportunity to ask the intervention leader questions. Finally, the intervention should be implemented in-person when available, but can successfully be completed virtually as long as participant privacy and technology concerns are addressed.

Following refinement and additional tests of effectiveness, the intervention can be delivered with relative ease in a variety of contexts. The single-session aspect means the intervention can be delivered to a group without need for follow-up. Culturally-responsive prevention interventions can successfully be delivered in community spaces

(Castro et al., 2004). To target the youth and young adult age range, this intervention is appropriate for late high school students as well as college-aged individuals. The intervention could be delivered at meetings of groups like high school GSA's or university organizations focused on SGM issues. Intervention leaders can also partner with non-school focused SGM organizations to reach SGM YYA not currently enrolled in classes, as was done during recruitment of the multiple baseline trial. The marketing of the intervention as "promoting positive mental health" yielded several contacts in the multiple baseline trial and would be appropriate to use in partnerships with SGM organizations. Based on the number of individuals who were excluded from the multiple baseline trial due to heightened suicide risk or current therapy attendance, future community implementations of the intervention should be open to SGM YYA regardless of service usage and risk level. As the resources and skills utilized in the intervention are evidence based and drawn from mental health interventions, the preventive intervention is likely to aid individuals regardless of their current symptomology. However, appropriate risk management is needed. The intervention facilitator should be trained in suicide risk assessment and management and all participants should be provided a list of SGM-affirming mental health resources and therapists at the conclusion of the intervention. Expanding the target population of the intervention to all SGM YYA will lead to easier implementation in community settings and greater impact.

6.3 Limitations

Results of the multiple baseline trial and focus groups should be considered in light of several limitations. First, a concurrent multiple baseline approach was only utilized between Groups A and B and then Groups C and D. The trial would have greater

experimental control if all participants began baseline at the same time. Recruitment led to the two-phase approach of data collection for Groups A and B in fall 2019 and Groups C and D in early spring 2020.

Another factor of the phased recruitment was introduction of COVID-19 during data collection for Groups C and D. COVID-19 was declared a global pandemic by the World Health Organization in early March 2020, at the same time data collection began. Guidance from the University of Nebraska-Lincoln halted in-person data collection, necessitating a shift from in-person delivery of the intervention to delivery via videoconferencing. These methodological changes between Groups A and B and Groups C and D reduced experimental control and prompting possibility of greater exposure to stress for participants in Group C and D. Though means on outcome measures at time-point 5 did not differ across groups, it is anticipated that the virtual delivery of the intervention led to differences in credibility and expectancy ratings.

Further limitations relate to sample size and demographics. In the focus groups, all participants identified as gender minority individuals. Cisgender sexual minorities' experiences differ from gender minorities' experiences, including in rates of mental health disparities (Su et al., 2016). The GM participants in the focus groups may have offered recommendations for the intervention development that differ from cisgender SM individuals, however credibility and expectancy scores for the intervention were high amongst cisgender SM participants in the trial. Additionally, the small sample size in the multiple baseline trial is a limitation. Recruitment goals planned to reach the sample size recommendation from a power analysis, however delayed recruitment and attrition led to a smaller sample size than needed. This may have led to issues of power in the MLM

analyses, however the multiple baseline design permitted visual analysis techniques, meant for small N designs, to be employed.

6.4 Conclusion

Utilizing mixed methods, the current study developed and piloted a brief minority stress preventive intervention for SGM YYA targeting mediators of mental health disparities. Stemming from focus groups, a 90-minute intervention was developed and implemented in a multiple baseline design trial with 26 participants. Significance testing showed limited improvement on target outcomes including emotion regulation, stress appraisal, social support, depression, and anxiety, however visual analysis identified trends in reduction of difficulties with emotion regulation and improvement in stress appraisal following implementation of the intervention. The intervention was well-received by participants and is a promising brief intervention to provide SGM YYA skills and resources to cope with stigma and stress.

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APPENDIX A

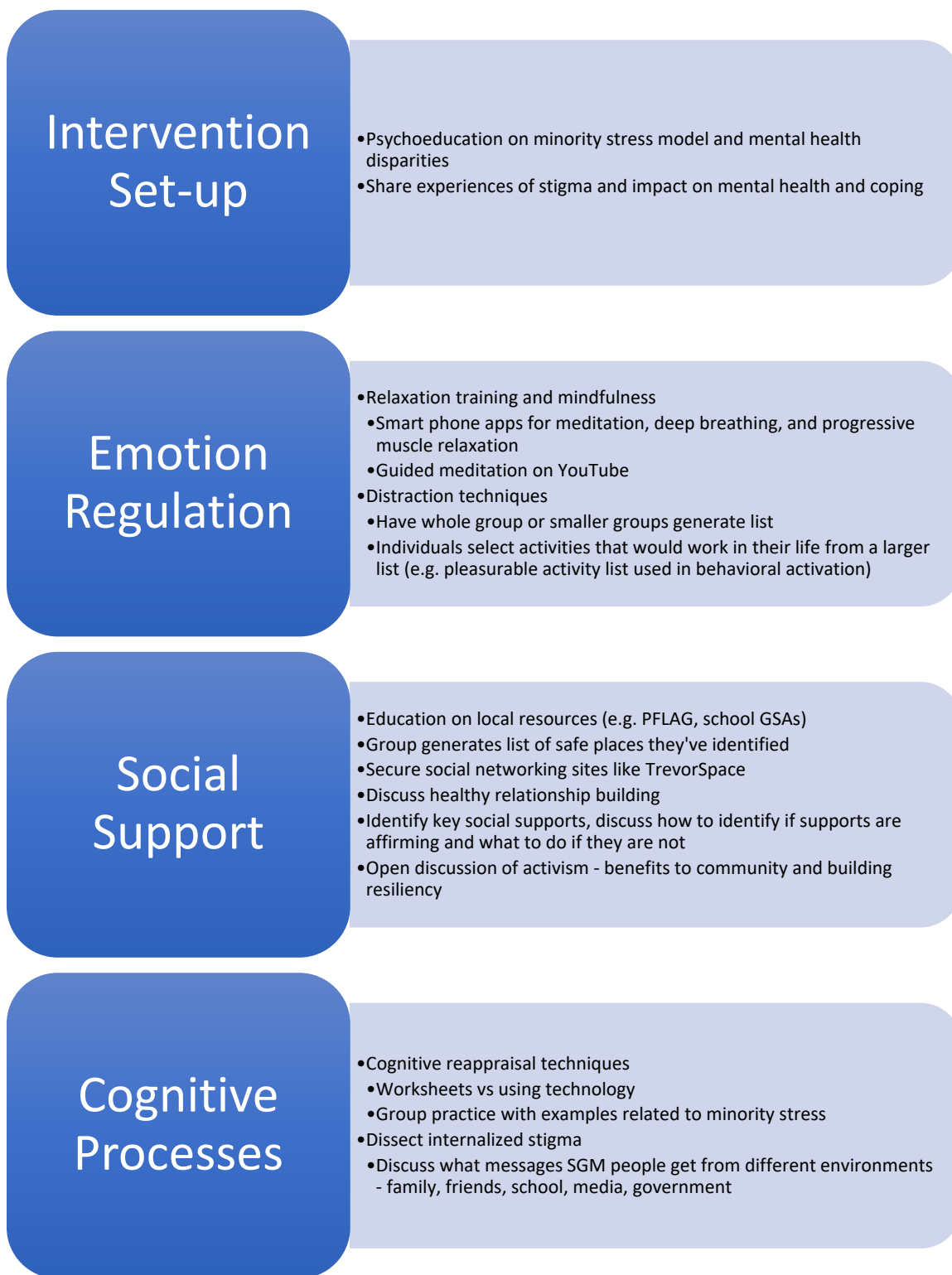
Focus Group Protocol

This list is not meant to be exhaustive. The focus group will have a loose structure and participants will be allowed to guide the conversation.

- What type of coping skills and resources do you use in the face of minority stress?
- What resources and skills do you think are important for SGM youth and young adults to have?
- How do you think a prevention or wellness group should operate? How should the group be marketed?
- What ways should information be presented?
- Have you used any of the skills or resources on the list of potential components of the modules?
- What skills or resources on the list seem most helpful? Least helpful?
- What skills or resources would you want to learn about in a prevention or wellness group?

APPENDIX B

Possible Intervention Modules for Focus Group Participants



APPENDIX C

Workshop Evaluation Form

Participant ID# _____

Date _____

Please answer the following questions about your opinions of the Project Rise workshop.

How logical does the Project Rise workshop seem to you?

1	2	3	4	5	6	7	8	9
Not at all logical			Somewhat logical			Very logical		

How successful do you think this workshop is in promoting psychological well-being?

1	2	3	4	5	6	7	8	9
Not at all successful			Somewhat successful			Very successful		

How confident would you be in recommending this workshop to a LGBTQ friend around your age?

1	2	3	4	5	6	7	8	9
Not at all confident			Somewhat confident			Very confident		

What aspects of the workshop did you find most helpful?

What aspects of the workshop would you change?

APPENDIX D

Knowledge Questionnaire

Participant ID# _____

Date _____

Please circle: **Pre-test** **Post-test**

Here are some topics that will be/were discussed in the workshop. Please circle if you think the statement is true, false, or if you are unsure.

T = True U = Unsure F = False

Marginalization stress can cause difficulties with emotion regulation, social support, and cognitive processes.	T	U	F
There is only one right way to do mindfulness activities.	T	U	F
Doing enjoyable activities is a way to distract myself from overwhelming situations.	T	U	F
When I have negative thoughts, I should just think positively.	T	U	F
Cognitive restructuring involves examining my thoughts and generating an adaptive response.	T	U	F
Finding social support is an important component of psychological well-being	T	U	F

APPENDIX E

Fidelity Measure

Group Number _____

Rater initials _____

Psychoeducation of marginalization stress model and psychological mediation	Y	N
Leader introduces emotion regulation module	Y	N
Facilitated discussion about different approaches of mindfulness/relaxation	Y	N
Small groups generate distraction and coping strategies	Y	N
Leader introduces cognitive processes module	Y	N
Group completes cognitive restructuring sheet with marginalization stress example	Y	N
Leader introduces social support module	Y	N
Group generates list of safe spaces and community resources	Y	N
Group discusses managing non-affirming spaces	Y	N

APPENDIX F

Intervention Manual

1. Workshop Introduction and Rationale (15 minutes)
 - a. All participants introduce themselves with first name and pronouns.
 - b. Leader reminds participants that confidentiality cannot be guaranteed as the workshop is a group, so participants should only share what they feel comfortable disclosing. Participants encouraged to keep personal information others share confidential within the group.
 - c. Leader introduces marginalization stress model and psychological mediation framework as rationale for workshop segments and skills
 - i. Use chart to demonstrate how proximal and distal stressors lead to mental health disparities via emotion regulation, interpersonal difficulties, and cognitive processes as mediators
 - ii. Explain that purpose of workshop is not therapy or intervention, but rather skill building to provide participants strategies to use in the face of marginalization and stress, which hopefully contributes to the prevention of symptoms
 - d. Leader reviews how focus groups with target population led to the selection of skills and resources so that the workshop is community-informed
 - e. Participants offered time to ask questions related to the rationale and design of the workshop
2. Emotion Regulation (25 minutes total)
 - a. Leader provides brief overview of emotion regulation as a concept (e.g. “Emotion regulation refers to how we control our emotions in response to different situations. This may include trying to suppress our emotions or avoiding a situation if the emotions feel too overwhelming to handle or changing behavior to accommodate the experience of our emotions, like venting to a friend.”)
 - b. Mindfulness/relaxation (10 minutes)
 - i. Leader introduces mindfulness and relaxation as an evidence-based technique to help with the management of emotions. (e.g. The goal of mindfulness is to increase awareness of our internal and external experiences in a non-judgmental manner. For example, during meditation you may work to clear your mind, but as you have thoughts you notice that your mind has wandered, which is perfectly okay, and then try to center your mind again.”)
 1. Emphasize that there are several approaches to mindfulness and relaxation strategies that will vary in their appropriateness and success for each person (e.g. “There are several ways people practice mindfulness or use relaxation strategies. Today we’ll talk about many different options so you can find one that works best for you.”)

- ii. Group turns to mindfulness/relaxation page of handbook. Leader conducts a facilitated discussion about different approaches to mindfulness and relaxation including meditation, muscle relaxation, mindfulness apps, mindful walking/eating, and mindful video games.
 - c. Distraction and coping strategies (15 minutes)
 - i. Leader introduces distraction techniques as another emotion regulation strategy (e.g. “Sometimes our emotions are so overwhelming and cause such negative thoughts that we need to distract ourselves from the situation and engage in a pleasant or restorative activity”)
 - ii. Group turns to distraction page of handbook. Leader breaks participants into 2 groups to generate possible distraction activities and share strategies they use (5 minutes)
 - iii. After 5 minutes in small groups, participants share their lists with the larger group and leader compiles a master list. Leader encourages participants to record entire list in their handbook.
- 3. Cognitive processes (25 minutes)
 - a. Leader provides brief overview of connection between thoughts and emotions/behaviors (e.g. “When we find ourselves in a situation – whether it’s positive or negative – we all have thoughts that arise which influence our emotions and behaviors. Sometimes in stressful situations or based on previous experiences we have distressing thoughts or worries: ‘My parents are going to cut me off if they find out about my identity’; ‘I can never come out at work because I’ll be fired’; ‘Being gay must mean there is something wrong with me.’ These types of thoughts can be difficult to manage and spiral into distressing emotions. One strategy we can use to explore these thoughts is called cognitive restructuring. It can also help with emotion regulation.”)
 - b. Leader introduces cognitive restructuring worksheet (e.g. “Cognitive restructuring helps us identify these distressing and unhelpful thoughts, identify the underpinning of those thoughts, and examine if the thought is rational or if there is an alternative explanation. We are not just ‘finding the opposite or positive’ of the thought, because sometimes, particularly in experiences of marginalization or stigma, these distressing thoughts are rational and adaptive to keep us safe. Instead, cognitive restructuring just helps us examine the thought in an unbiased way that can lead to a more adaptive judgment of the situation.”)
 - i. Review components of worksheet in handbook
 - 1. Identifying the thought, evidence for, evidence against, adaptive response
 - c. Leader inquires if any participants have a recent negative thought tied to their identity that they want to use as an example to practice with the worksheet. If no participant volunteers, use an internalized stigma example of “There’s something wrong with me because I’m gay”

- i. Engage whole group in generating evidence for and evidence against the thought then generating an adaptive response.
 - d. Leader refers participants to online link that has copies of the worksheet as well as smart-phone apps that can be used for cognitive restructuring
 - i. Emphasize app-based approaches as discrete and useful on-the-go as an alternative to paper worksheets
- 4. Social Support (25 minutes)
 - a. Leader provides overview of importance of social support (e.g. “We can all probably attest to the importance of social support, particularly finding support for our identities, and also know how difficult it can be to find affirming spaces and people.”)
 - b. Identifying resources and safe spaces (15 minutes)
 - i. Leader introduces resource and safe space list in handbook (e.g. “One of the benefits of all gathering today is we can share what resources we’ve found in the community. We’ve listed out a few resources to get us started.”)
 - ii. Leader facilitates whole group discussion of safe spaces and community resources including social spaces, affirming places to work, activist groups, and online spaces. Leader maintains a master list and encourages participants to record resources in their handbook.
 - c. Managing non-affirming spaces (10 minutes)
 - i. Leader introduces topic of keeping oneself safe and navigating non-affirming spaces (e.g. “Even with all these great resources, we still find ourselves in non-affirming spaces and exposed to marginalization. Let’s finish the workshop by talking about how to navigate unsafe social situations”)
 - 1. Facilitate discussion and emphasize possible adaptations to maintain safety such as how to recognize the validity of online spaces, maintaining privacy, navigating toxic people from within the community, and combating internalized stigma that may contribute to staying in unhealthy relationships.

APPENDIX G

Intervention Handbook for Participants

PROJECT RISE

Resources and Skills
for Promoting
Positive Mental
Health

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What's the deal with marginalization stress?

LGBTQ people tend to have higher rates of psychological distress, through no fault of their own, compared to cisgender/heterosexual people.

Research shows that exposure to marginalization and discrimination and the internalization of stigma lead to difficulties with emotion regulation, accessing social support, and cognitive processes. These then lead to an increase in psychological distress and high rates of mental health problems.

Luckily, LGBTQ people are highly resilient. We'll talk today about strategies to manage stress, persist, and thrive.

Mindfulness and Relaxation

Meditation

- Headspace – app available for Apple and Android that offers guided meditation of varying lengths and for different goals

Progressive muscle relaxation

- Systematic method of tensing and relaxing muscles
- Search “progressive muscle relaxation” in YouTube for several different scripts

Mindful activities

- Most activities can be done ‘mindfully’ by bringing nonjudgmental attention to your environment
- Try mindful walking or mindful eating as an alternative to seated meditation

Relaxing video games

- Some people need to be engaged in a task when trying to zone out

Find a simple game that is relaxing to focus on

Cognitive Restructuring

Thought:

Evidence for the thought:

Evidence against the thought:

Adaptive response:

Thought:
Evidence for the thought:
Evidence against the thought:
Adaptive response:

Additional copies of this table are available at <http://bit.ly/2Tu5vIB>. "CBT Thought Diary" also offers a convenient method to do cognitive restructuring on your phone.

Notes