UNIVERSITY OF CALIFORNIA SAN DIEGO

SAN DIEGO STATE UNIVERSITY

The Effect of Patient Navigation for PrEP-related Health Care on Mental Health among Latinx Sexual Minority Men: Mediation through Social Support

A dissertation submitted in partial satisfaction of the requirements
for the degree Doctor of Philosophy

in

Clinical Psychology

by

John Patrick Brady

Committee in charge:

University of California San Diego

Professor Jessica Montoya
Professor David Moore

San Diego State University

Professor Aaron Blashill, Chair
Professor Scott Roesch
Professor Kristen Wells

2023

The Dissertation of John Patrick Brady is approved, and it is acceptable in quality and form for publication on microfilm and electronically.

_____

_____

_____

_____

_____
Chair

University of California San Diego

San Diego State University

2023

DEDICATION

To my parents, always.

TABLE OF CONTENTS

LIST OF TABLES

VITA

2012 Bachelor of Arts in Psychology, Spanish, and Pre-Architecture, Case Western Reserve University

2017 Master of Science in Psychology, DePaul University

2023 Doctor of Philosophy in Clinical Psychology, San Diego State University/University of California San Diego

ABSTRACT OF THE DISSERTATION

The Effect of Patient Navigation for PrEP-related Health Care on Mental Health among Latinx Sexual Minority Men: Mediation through Social Support

by

John Patrick Brady

Doctor of Philosophy in Clinical Psychology

University of California San Diego, 2023

San Diego State University, 2023

Professor Aaron J. Blashill, Chair

Rationale: Sexual minority men (SMM; e.g., men who identify as gay/bisexual and/or report same-gender attraction/sexual behavior) are disproportionately affected by internalizing disorders and symptoms (e.g., anxiety and depressive disorders/symptoms) in comparison to their heterosexual male peers. Hispanic/Latinx SMM may be especially burdened by internalizing disorders/symptoms due to decreased access to culturally competent health care, stigma surrounding mental disorders, and stress from within the SMM community. Patient

navigation (PN) is a partnership-based, individualized intervention that focuses on decreasing barriers to health care. Patient navigation for pre-exposure prophylaxis (PrEP)—a medication taken to prevent HIV infection—could reduce internalizing symptoms of anxiety and depression among Hispanic/Latinx SMM by providing social support.

Design: This study used secondary data analysis to examine the impact of PN on internalizing symptom outcomes through six-month follow-up (6MFU) among a sample of Hispanic/Latinx SMM between the ages of 18 and 29 years (N = 57). Data analyzed were from a randomized controlled trial investigating the efficacy of a PN intervention (versus usual care) to assist Hispanic/Latinx SMM at high risk for HIV infection with accessing PrEP. Hispanic/Latinx SMM peer patient navigators were utilized to provide culturally competent care and decrease social stigma. Usual care consisted of written information about PrEP, sexual health and HIV prevention services, and how to access care. It was hypothesized that the PN condition would be associated with decreased internalizing symptoms and that the effect would be mediated by two social support constructs at three-month follow-up: emotional support and informational support. Data were analyzed using two analytic approaches: 1) cross-lagged panel models, and 2) latent difference scores.

Results: The PN condition was not associated with a significant decrease in internalizing symptoms at 6MFU and the effect was not mediated through social support.

Conclusion: Results may be related to the floor effect of internalizing symptoms at baseline, analyses that assumed changes in social support were occurring within the first three months of the study, and variability in the frequency of using PN services. Future studies would benefit from gathering data at additional time points and selecting participants with higher internalizing symptoms and/or lower social support.

INTRODUCTION

Anxiety and Depression among Sexual Minority Men

Sexual minority men (SMM; e.g., men who identify as gay/bisexual men and/or report same-gender attraction/sexual behavior) are disproportionately affected by anxiety, depression, and other mental health disorders and symptoms (Brennan et al., 2010; Dürrbaum & Sattler, 2019; Meyer et al., 2003; Pakula & Sahoveler, 2013; Plöderl & Tremblay, 2015). In comparison to heterosexual men, SMM are more likely to experience a mental health disorder in their lifetime (Meyer et al., 2003; Plöderl & Tremblay, 2015), 2.5-3 times as likely to report an anxiety disorder (e.g., generalized anxiety disorder, social anxiety disorder), and 2.5-3.5 times as likely to report a mood disorder (e.g., major depressive disorder, bipolar disorder; Brennan et al., 2010; Meyer et al., 2003; Pakula & Shoveler, 2013). The increased prevalence of internalizing disorders and their symptoms (i.e., anxiety and depressive disorders and symptoms) among SMM creates increased disease burden (Bromberg et al., 2021; Lépine & Briley, 2011), economic burden (Greenberg et al., 2015), and decreased quality of life (Pereira et al., 2020). Among SMM, internalizing disorders and symptoms are also associated with comorbid physical and mental health issues, such as substance use, cardiovascular death, and increased risk of suicide (Lee et al., 2017; Lépin & Briley, 2011; Prestage et al., 2018). Given the high prevalence of mental health issues among SMM, it is important that this population has access to effective and culturally competent treatment.

However, SMM often have increased barriers to health care in comparison to heterosexual men, which could prevent SMM from receiving treatment for anxiety and depression (Alvy et al., 2011; Buchmueller & Carpenter, 2010; Dahlhamer et al., 2016). Sexual minority men's decreased access to health care is due to multiple factors, including lower rates of

insurance coverage (Alvy et al., 2011; Buchmueller & Carpenter, 2010) and a higher probability of reported difficulty in finding a provider in comparison to heterosexual men (Dahlhamer et al., 2016). In addition to these barriers to health care, SMM also report experiences of stigma and discrimination when receiving health services (Lee et al., 2017), which could deter SMM from seeking further physical and mental health treatment. These factors may contribute to the higher probability of unmet medical needs (Buchmueller & Carpenter, 2010) and higher probability of delaying medical care (Dahlhamer et al., 2016) among SMM in comparison to heterosexual men. Access to health care is important for several health outcomes and recent health care visits mediate the differences between SMM and heterosexual men for smoking and depression outcomes (Alvy et al., 2011). Minority stress theory and intraminority stress theory can help explain why these mental health disparities exist.

Minority Stress Theory and Mental Health among Sexual Minority Men

Minority stress theory can be used to partially explain the increased prevalence of internalizing disorders and symptoms among SMM (Brooks, 1981; Goldberg & Smith, 2011; Meyer, 2003; Newcomb & Mustanski, 2010). Minority stress theory posits that health outcomes are a function of environmental circumstances (e.g., socioeconomic status), minority status (e.g., sexual orientation, race/ethnicity), and minority identity (i.e., personal identification with one's minority label, such as gay or queer; Brooks, 1981; Meyer, 2003). Environmental circumstances can lead to general life stressors, such as the loss of a job or relationship difficulties with a significant other. A person's minority status is often considered to overlap their environmental circumstances, as they are innately intertwined. For example, a sexual minority man who recently lost his job (general environmental stressor) may have decreased access to mental health

services for treatment of his social anxiety that was exacerbated by experiences of prejudice (Meyer, 2003).

Due to sexual minority men's minority status and how they choose to identify with their minority status (i.e., minority identity), they experience both proximal and distal minority stress processes that can affect physical and mental health. Distal minority stress processes are objective events and processes, such as experiences of discrimination and violence due to minority status (e.g., being gay; Meyer, 2003). Proximal minority stress processes are inherently subjective because they involve an individual's self-perceptions and how they identify (e.g., identifying as gay) and include expectations of rejection (due to a minority identity), identity concealment, and internalized homonegativity (i.e., the process of sexual minority people internalizing negative societal messages about gender and sex as part of their self-image; Meyer, 2003). Environmental circumstances, minority status, and minority identity can lead to general life stressors and proximal and distal minority stress processes; in turn, the general, proximal, and distal stressors can then negatively impact mental health.

Minority stress experiences are associated with a variety of negative physical and mental health outcomes among SMM, including anxiety and depressive disorders (Goldberg & Smith, 2011; Newcomb & Mustanski, 2010), sexual behavior with a high risk of human immunodeficiency virus (HIV) infection (Hatzenbuehler et al., 2008; Pachankis et al., 2015), and substance use (Goldbach et al., 2014; Hatzenbuehler et al., 2008). However, these stressors can be mitigated through community and individual coping and social support (Meyer, 2003). In addition, the effect of proximal stressors on mental health can be moderated by characteristics of minority identity, such as its prominence and integration into one's overall view of the self. For example, a Hispanic/Latinx sexual minority man may be less affected by a racist verbal attack if

he does not strongly identify with his race/ethnicity. Minority stress theory (Brooks, 1981; Meyer, 2003) can help explain disparities in internalizing disorders and symptoms due to how SMM interact with the environment; intraminority stress theory is a complementary theory that examines how stress from within the SMM community can also affect mental health outcomes.

Intraminority Stress Theory and Mental Health among Sexual Minority Men

Intraminority stress theory states that SMM's mental health may be influenced by competitive, status-based stressors from within the SMM community (Pachankis et al., 2020). Sexual minority male culture often emphasizes masculinity, wealth, and attractiveness, which become sources of comparative, status-based stress (Pachankis et al., 2020). Intraminority stress theory is an important complement to minority stress theory, as research suggests that minority stress examined through the minority stress framework may not fully account for observed mental health disparities among SMM (Pachankis et al., 2020).

Intraminority stress theory is based on the foundations of three theories: intrasex competition theory (Buss, 1988; Pachankis et al., 2020), sexual field theory (Green, 2013; Pachankis et al., 2020), and the theory of precarious manhood (Pachankis et al., 2020; Vandello et al., 2008). Intrasex competition theory is an evolutionary theory of mate selection that states that men with high status accrue additional sexual benefits, which leaves men with lower status at greater risk for social exclusion, stress, and mental health symptoms (Pachankis et al., 2020). In SMM culture, high status is associated with wealth, attractiveness, and masculinity (Pachankis et al., 2020). Men who have less money, are considered less attractive, or are more feminine may have greater social exclusion and increased symptoms of mental disorders (Pachankis et al., 2020). Sexual field theory suggests that competitive stress among SMM may be derived from sharing the same gender as their desired partners (Green, 2013; Pachankis et al., 2020).

Evaluating potential sexual or romantic partners' social and sexual capital facilitates comparative evaluation of one's own capital (Pachankis et al., 2020). The competitive stress caused by self-comparisons can then infuse social and sexual interactions between SMM, potentially increasing mental health symptoms (Pachankis et al., 2020). The theory of precarious manhood suggests that masculinity is seen as an unstable, precarious trait that requires continual social proof and validation (Vandello et al., 2008). SMM, due to social perception as being less masculine than their heterosexual peers (Wong et al., 1999), may have an even more precarious masculinity compared to heterosexual men. As a result, they may strongly defend their own masculine status in their social and sexual interactions (e.g., being interpersonally aggressive), possibly even at the cost of their mental health (Pachankis et al., 2020; Vandello et al., 2008). Intraminority stress theory combines the tenets of intrasex competition theory, sexual field theory, and the theory of precarious manhood to create a unified framework to explain the effects of minority stress derived from interactions with other SMM on mental health.

Within the framework of intraminority stress theory, SMM with low sexual and social capital have negative effects on their wellbeing. Individuals who may be perceived as having low sexual status (racial/ethnic minority SMM, older SMM, SMM with less money) may then experience increased stress from within the SMM community, impacting social support, self-esteem, and condom use negotiation (Green, 2008). In line with this hypothesis, SMM who stated they had a Hispanic identity, low income, or low educational attainment reported more SMM community stress than their respective comparison groups (Pachankis et al., 2020). Intraminority and minority stress theories together suggest that sexual and ethnic minority populations, such as Hispanic/Latinx SMM, may experience stressors both from outside their

cultural communities as well as unique stressors from within these communities that can cause disproportionate increases in internalizing disorders.

Mental Health and Health Care Access among Hispanic/Latinx Populations

Hispanic/Latinx people generally have similar or higher rates of anxiety and depressive disorders and symptoms in comparison to non-Hispanic White individuals (NCHS, 2020; Rodriquez et al., 2018; SAMHSA, 2020). However, as the largest ethnic minority population in the US, it can be challenging to summarize health results across such a diverse population (PRC, 2020). Rates of depression, for example, have been found to vary significantly among Latinx/Hispanic immigrants to the US depending on their country of origin (Adame et al., 2021; Wassertheil-Smoller et al., 2014). Acculturation may also play a factor, as psychiatric and substance use disorders are associated with greater acculturation to US culture (Adame et al., 2021; Ortega et al., 2000). In addition, Hispanic/Latinx individuals who are immigrants may experience migration stressors, such as documentation status and discrimination, which are positively associated with anxiety and depressive disorders and symptoms (Potochnick & Perreira, 2011). Despite these mental health disparities, Hispanic/Latinx individuals often have less access to culturally competent health care.

Hispanic/Latinx individuals have decreased access to health care compared to non-Hispanic White individuals (Henry et al., 2020). Only 34% of Hispanic/Latinx adults living with a mental disorder receive treatment each year compared to 45% of the general US population (NAMI, 2020). This is partially because Hispanic/Latinx Americans are less likely to have health insurance compared to their non-Hispanic White peers (20% uninsured vs. 7.8% for nonelderly population in 2019) and are more likely to be living in poverty (15.7% vs. 7.3% in 2019; Artiga et al., 2021; United States Census Bureau, 2020). Some Hispanic/Latinx people also experience

language barriers when interacting with physical and mental health care providers and a portion of the population may also have concerns about accessing health services while undocumented (NAMI, 2020). A lack of cultural competence among providers is an additional barrier to treatment, as terminology used by Hispanic/Latinx individuals may not align with providers' definitions. For example, someone who is Hispanic/Latinx may describe symptoms as an *ataque de nervios*, which is a syndrome among people of Hispanic/Latinx descent characterized by intense emotional upset and acute anxiety, anger, or grief (APA, 2013). Thus, a provider who is not culturally competent may not understand a patient's symptoms or know that Hispanic/Latinx individuals are more likely to express emotional distress through somatic symptoms (Dunlop et al., 2020). In addition to decreased access to health care due to insurance coverage, poverty, language barriers, and potential differences in terminology used to describe symptoms, Hispanic/Latinx individuals also experience cultural barriers to health care.

Cultural stigma surrounding mental health disorders can prevent Hispanic/Latinx people from seeking treatment or exacerbate symptoms (Jimenez et al., 2012; Jimenez et al., 2013). Mental health is often considered a private concern in Hispanic/Latinx culture and talking about it publicly can be taboo (Jimenez et al., 2013; NAMI, 2020). Particularly among older Hispanic/Latinx people, discussing mental health could be considered shameful to one's family (Jimenez et al., 2013). Some Hispanic/Latinx people also partially attribute mental health issues to religious causes (e.g., sinful parental behavior, lack of prayer), which can create additional stigma for those seeking treatment (Caplan, 2019). In addition to the barriers experienced by the general Hispanic/Latinx population, SMM who are Hispanic/Latinx may face additional challenges and mental health issues at the intersection of their minoritized identities.

Research findings about the rate of mental disorders among Hispanic/Latinx SMM in comparison to Hispanic/Latinx heterosexuals and the general SMM population are mixed. The double jeopardy hypothesis (Ferrero & Farmer, 1996), which states that the detrimental health effects of discrimination are multiplicative for individuals with multiple minority identities, suggests that Hispanic/Latinx SMM may experience more mental disorder symptoms than heterosexual Hispanic/Latinx people or non-Hispanic White SMM. Some findings have not been replicated, but preliminary results suggest Hispanic/Latinx SMM have a higher prevalence of depressive symptoms (Díaz et al., 2001; Rhodes et al., 2013; Sun et al., 2016) in comparison to the general US population and are more likely to report a recent suicide attempt in comparison to Hispanic/Latinx heterosexual men (Cochran et al., 2007). However, some results have found that Hispanic/Latinx SMM have similar or lower prevalence of psychiatric disorders in comparison to the general—primarily White—sexual minority population in the US (Cochran et al., 2007; Rodriguez-Seijas et al., 2019). Depressive symptoms among Hispanic/Latinx SMM are positively correlated with perceived ethnic/racial discrimination and sexual discrimination (Sun et al., 2016). In sum, there are currently mixed results on whether Hispanic/Latinx SMM have elevated rates of mental health disorders in comparison to White SMM; unique cultural values of Hispanic/Latinx culture may increase—or protect against—minority stress.

Hispanic/Latinx cultural values on gender may increase minority stress, which could lead to negative mental and behavioral health effects (Brady et al., 2019; Fragoso & Kashubeck, 2000; Rivera et al., 2021). *Machismo,* a multidimensional construct of masculinity, is comprised of characteristics associated with healthy and unhealthy behaviors. *Machismo* is characterized by dominance, aggression, and hypermasculinity but also chivalry, familial ties, and emotional connectedness (Arciniega et al., 2008). Traditional *machismo*, one aspect of machismo, is

characterized by the previously mentioned dominance, aggression, and hypermasculinity (Arciniega et al., 2008) and is associated with increased odds of anabolic steroid misuse among Hispanic/Latinx SMM and decreased pre-exposure prophylaxis (PrEP, a suite of medications used to prevent HIV) awareness, use, and adherence (Brady et al., 2019; Rivera et al., 2021). Characteristics of traditional *machismo* are also associated with higher levels of depression among Mexican American men (Fragoso & Kashubeck, 2000) as well as the feeling of being disconnected from the Latinx community among Hispanic/Latinx SMM who immigrated to the US (Gray et al., 2015). Cultural gender values may also affect interpersonal relationships, as sexual minority men and women have reported additional minority stress from family members policing their appearance and behavior to be more in line with traditional masculinity and femininity (Noyola et al., 2020). However, Hispanic/Latinx culture also contains protective mental health aspects, such as religiosity—which is sometimes associated with decreased suicide risk and collectivistic values that foster social support (Hovey, 1999; Noyola et al., 2020; Valdivieso-Mora et al., 2016).

The Effect of Social Support on Mental Health and Related Mechanisms

Social support is an important factor in mental health outcomes and represents the amount of support a person both perceives having and receives from others (Harandi et al., 2017). Social support provides physical and psychological benefits for people undergoing stressful physical and psychosocial events (Brummett et al., 2005) and is moderately associated with decreased anxiety and depressive symptoms (Cole et al., 2017; Harandi et al., 2017; Meshi & Ellithorpe, 2021) and improved mental health (Harandi et al., 2017). Social support is also associated with recovery from mental health problems (Wang et al., 2018) and greater social support predicts better mental health outcomes in prospective studies (Landstedt et al., 2016;

Beauregard et al., 2011). Social support at age thirty longitudinally predicted internalizing symptoms (anxiety, depressive) over a decade later (Landstedt et al., 2016). Social support also mediated the association between one's level of "outness" regarding their sexual identity and decreased depressive outcomes in a cross-sectional study (Chang et al., 2021). Considering the importance of social support in decreasing internalizing symptoms, it is important to examine the theoretical mechanisms for these decreases.

There are several proposed mechanisms for how social support decreases mental disorder etiology, symptoms, and recovery, including both environmental and biological components (Ozbay et al., 2007; Price-Robertson et al., 2017; Wethington & Kessler, 1986). The biopsychosocial model states that an individual's psychological, biological, and sociological contexts overlap and influence one's overall health (Engel, 1997). Thus, the social context of a person's life can have significant impact on their mental health (Beauregard et al., 2011; Landstedt et al., 2016; Price-Robertson et al., 2017). Social support may assist in recovering from mental illness since recovery from mental disorders has been described as an inherently relational process (Price-Robertson et al., 2017). Recovery does not solely focus on cessation of symptoms, but also reintegration into a social community (Price-Robertson et al., 2017). Social support also buffers the effects of stress when people believe their social network is available to aid them if needed (Wethington & Kessler, 1986). This is attributed to two components: 1) that perceived social support from a social network is positively associated with direct aid provided by a social network and 2) that perceived social support may cause someone to reevaluate or modify their appraisal of a current stressful situation (Wethington & Kessler, 1986). Social support may even create psychological resilience in people by modifying psychobiological factors. Social support may moderate the genetic risk for depression in children (Kaufman et al.,

2006; Ozbay et al., 2007). In addition, it may dampen the effect of the hypothalamic-pituitary-adrenocortical system (extensively involved in stress response and resilience) and reduce stress-induced cortisol release (Ozbay et al., 2007). In addition to these environmental and biological processes, social support may also modify access to treatment.

Social support may also facilitate access to medical and mental health treatment (Graziano & Elbogen, 2017; Lam & Rosenheck, 1999; Maulik et al., 2009), which could reduce mental disorder symptoms. Although the association between social support and utilization of mental health services is mixed (Graziano & Elbogen, 2017; Have et al., 2002; Lam & Rosenheck, 1999; Maulik et al., 2009), this is likely because many relevant studies are cross-sectional and do not assess causality. Social support likely buffers the effect of stress on mental health outcomes, since greater social support is predictive of fewer mental health symptoms in the future (Landstedt et al., 2016; Beauregard et al., 2011); as a result, greater social support may decrease or prevent mental disorder symptoms to the point where mental health services are not needed. In contrast, social support is also associated with the belief that one does not have to solve one's own problems, which is positively associated with receiving mental health care (Graziano & Elbogen, 2017). Social support is positively associated with both beneficial treatment outcomes and access to care but may differ among different cultural groups.

Social Support among Hispanic/Latinx Sexual Minority Men

Hispanic/Latinx SMM may have different social support networks due to the intersection of their minoritized identities in comparison to their heterosexual Hispanic/Latinx and non-Hispanic White SMM peers (Gilbert & Rhodes, 2014; Ibañez et al., 2009). As a population with multiple minority identities, Hispanic/Latinx SMM may experience multiple sources of minority bias, which is associated with less perceived social support (Mitchell et al., 2020). As discussed

previously, Hispanic/Latinx SMM report more SMM community stress than non-Hispanic SMM (Pachankis et al., 2020), which can be partially attributed to racism within the sexual minority community. Almost 60% of Hispanic/Latinx SMM reported experiencing racism in gay clubs and relationships (Ibañez et al., 2009), which could lead to Hispanic/Latinx SMM feeling that they have less social support from the sexual minority community. However, a study by Gray and colleagues (2015) found that Hispanic/Latinx SMM also frequently report feeling a sense of connection to the LGBT community and broadly describe it as welcoming. Social support for Hispanic/Latinx SMM in the SMM community varies, as Hispanic/Latinx SMM report experiences of both racism and support.

Hispanic/Latinx cultural values regarding family and community often emphasize emotional and instrumental support (forms of social support), solidarity with the family unit, obligations to one's family, and harmonious relationships between individuals (Noyola et al., 2020; Valdivieso-Mora et al., 2016). Due to these values, social support may be particularly emphasized among Hispanic/Latinx SMM; in a study of Latino sexual minority men and women, increased social support was associated with decreased depression when controlling for gender and whether participants were born in the US (Zea et al., 1999). However, while Hispanic/Latinx culture may broadly emphasize and increase social and familial support, some Hispanic/Latinx sexual minority individuals report that their sexual identities can cause additional minority stress from their Hispanic communities (Gilbert & Rhodes, 2014). Overall, Hispanic/Latinx and SMM communities seem to provide both a sense of connectedness and social support but also serve as potential sources for minority stress.

HIV, PrEP, and Sexual Risk Behavior among Hispanic/Latinx Sexual Minority Men

Hispanic/Latinx SMM are a population that is disproportionately affected by HIV in comparison to heterosexual Hispanic/Latinx men and non-Hispanic White SMM (CDC, 2020; Hess et al., 2017). Although Hispanic/Latinx SMM make up a small proportion of the US population (approximately 1% or less), they accounted for 21% of all new HIV diagnoses in the US in 2018 (CDC, 2020). Higher rates of HIV infection among this population can be attributed to socioeconomic factors, such as lower income and access to education, as well as language barriers, homophobia, and racial discrimination—which contributes to socioeconomic disparities (CDC, 2020). In comparison to White SMM, Hispanic/Latinx SMM are approximately three times as likely to be infected with HIV during their lifetime (Hess et al., 2017). Despite significantly higher rates of HIV among Hispanic/Latinx SMM compared to non-Hispanic White SMM, uptake of PrEP is low (Pulsipher et al., 2016).

Hispanic/Latinx SMM are less likely to use PrEP in comparison to non-Hispanic White SMM (Pulsipher et al., 2016); PrEP is a preventative oral medication that can reduce the risk of HIV infection by up to 99% when taken daily (Anderson et al., 2012). This disparity in PrEP use may partially be because Hispanic/Latinx SMM are less aware of the existence of PrEP in comparison to non-Hispanic Black and non-Hispanic White SMM (Davey et al., 2016; Pulsipher et al., 2016; Strauss et al., 2017). However, Hispanic/Latinx SMM report more willingness to use PrEP in comparison to non-Hispanic White SMM (Pulsipher et al., 2016), suggesting that barriers to PrEP use exist for this population. Syndemic theory (Singer, 1994; Singer et al., 2006) posits that multiple epidemics within a minority community reinforce each other and compound existing problems in a multiplicative fashion. The syndemic framework examines the intersection of social, physical, cultural, and other health factors that could exacerbate the risk of

disease (e.g., race/ethnicity, poverty, unstable housing, anxiety and depressive disorders). Several studies have found that having more syndemic factors increases the odds of sexual risk behavior, HIV seroconversion, and decreased engagement across the PrEP cascade (Blashill et al., 2020; Parsons et al., 2017; Singer, 1994; Singer, 2009; Stall et al., 2003). In line with minority stress theory, minority stress—particularly the proximal minority stress process of internalized homonegativity—is also associated with decreased PrEP continuum progression (Meanley et al., 2020). PrEP patient navigation is one way that health providers and researchers are attempting to decrease the PrEP disparity among Hispanic/Latinx SMM.

Patient Navigation Terms

Patient navigation is a partnership-based, individualized intervention that focuses on decreasing barriers to facilitate patients receiving a defined episode of recommended health care (Kelly et al., 2019; Wells et al., 2008). Timely access to services and fostering autonomy through education, informational support, and emotional support are emphasized (American Medical Association, 2015; Kelly et al., 2019; Luke et al., 2018). Patient navigation is similar to other intervention models, such as health education, case management, and care navigation, because they have some overlapping job responsibilities. However, these terms often have slightly varying definitions and emphases, depending on the field of study, and are therefore not interchangeable models of care (Kelly et al., 2019). Patient navigation often includes multiple services that can vary depending on the training of the provider; for example, social workers who are navigators are likely to provide referrals while nurse navigators are likely to provide basic navigation (Wells et al., 2018). Different perspectives exist on what model of patient navigation provides the best service: 1) service provided by non-clinical navigators, who provide knowledge and insight into the culture of the patients (e.g., culturally knowledgeable peer navigators) 2)

service by clinical providers who are trained in navigation, screening, and treatment referrals (e.g., nurse navigators); 3) an interdisciplinary team of non-clinical and clinical providers (Wells et al., 2018). A scoping review by Kelly and colleagues (2019) found emerging categories of services provided by patient navigators, including: advocacy and care coordination, community engagement, psychosocial support, education, navigation of services, and reduction of barriers. Patient navigation services vary according to setting, population, and intervention goal, but patient navigation has been used to help patients navigate a variety of health needs, including cancer early detection and treatment and PrEP navigation.

Emotional Support, Informational Support, and Mechanisms for Improved Mental Health

Patient navigation could help reduce symptoms of anxiety and depression by providing social support. Patient navigation has been found to decrease distress and increase quality of life among cancer patients (Bell et al., 2020; Fillion et al., 2009). Informational and emotional support are two categories of social support (Bjørlykhaug et al., 2021; Kelly et al., 2019) that may reduce internalizing symptoms. Informational support includes providing advice and gathering and sharing information or resources; emotional support involves listening, empathy, close relationships, feeling loved and cared for, and interpersonal support (Bjørlykhaug et al., 2021; Cutrona & Suhr, 1992; Kelly et al., 2019). Helping to decrease barriers to mental health access by providing informational support could decrease symptoms of anxiety and depression. This informational support could come in the form of referrals to mental health providers, information about community services, referral to substance use treatment programs, and peer support groups (Wells et al., 2018). Information support could also be more indirect; for example, in a PrEP navigation study, helping participants access PrEP through informational support could decrease sexual anxiety, which could then decrease overall anxiety and stress

(Quinn et al., 2020; Whitfield et al., 2019). In addition, as mentioned previously, social support is associated with greater utilization of health care services in some studies (Graziano & Elbogen, 2017; Lam & Rosenheck, 1999; Maulik et al., 2009). Patient navigation that provides informational support about health care may also increase utilization of health care resources due to current disparities in coverage (Artiga et al., 2021). In addition to the multiple benefits of informational support, emotional support may also benefit individuals through different mechanisms.

Emotional support is an emphasized component of patient navigation that could decrease internalizing symptoms through the common factors theory (Laska et al., 2014). Common factors theory states that there are shared characteristics between effective therapeutic treatments, which make up the majority of what makes a treatment effective. Research supports this theory, finding that common factors are found to account for a substantial amount of variance when examining mental health treatment outcomes, suggesting that these shared common factors are relatively important for successful treatment (Asay & Lambert, 1999; Wompold, 2015). Some of these common factors are considered to be a strong therapeutic alliance, shared goals, positive regard and affirmation, and an alliance between the patient and provider (Laska et al., 2014). Some of these common factors likely exist within patient navigation, as navigators often aim to provide emotional and psychosocial support (Kelly et al., 2019). Other related factors such as building a trusting relationship, showing care, and showing respect are characteristics that are seen in the navigator-patient relationship (Kelly et al., 2019; Phillips et al., 2014). Given the informational and emotional support provided through patient navigation, patient navigation may decrease symptoms of anxiety and depression even when it is not the goal of the navigation to facilitate access to mental health services (Bell et al., 2020; Fillion et al., 2009).

Overview of the Study

Hispanic/Latinx SMM are disproportionately burdened by internalizing disorders and symptoms due to the high prevalence of these disorders in these minoritized populations and decreased access to culturally competent mental health services (Artiga et al., 2021; Díaz et al., 2001; Henry et al., 2020; Rhodes et al., 2013; Sun et al., 2016). Minority stress from within and outside of the Hispanic/Latinx and sexual minority communities is associated with these disparities and may cause decreased social support (Brady et al., 2019; Fragoso & Kashubeck, 2000; Gilbert & Rhodes, 2014; Ibañez et al., 2009; Rivera et al., 2021). Minority stress theory states that social support could mitigate the effects of minority stress on mental health outcomes (Brooks, 1981; Meyer, 2003). Patient navigation may be able to decrease internalizing symptoms through social support in the form of informational support (providing advice, sharing information or resources) and emotional support. Given the lack of access to mental health care and PrEP among Hispanic/Latinx SMM (Artiga et al., 2021; Henry et al., 2020), peer patient navigation for PrEP uptake and adherence among this population could simultaneously address internalizing symptoms and the increased rate of HIV infection. A reduction of internalizing symptoms would suggest that PrEP patient navigation could be a culturally-relevant and resourceful method of diminishing the impact of mental health disparities among this population. Peer patient navigation provided by Hispanic/Latinx SMM makes the intervention scalable and helps further increase social support and connectedness by providing culturally competent care. Having peer navigators may be particularly important for Hispanic/Latinx SMM given experiences of prejudice or ostracization from Hispanic/Latinx and sexual minority cultural groups (Brady et al., 2019; Fragoso & Kashubeck, 2000; Gilbert & Rhodes, 2014; Ibañez et al., 2009; Rivera et al., 2021).

In this study I used secondary data analysis to examine if peer patient navigation for PrEP uptake and adherence affects internalizing symptom outcomes among Hispanic/Latinx SMM through longitudinal mediation. The mediators were two types of social support—emotional support and informational support—which are emphasized components of patient navigation. I hypothesized that participants assigned to the patient navigation condition for PrEP vs. usual care would demonstrate decreased internalizing symptoms at six-month follow-up through both informational and emotional support. Data were analyzed using two analytic approaches: 1) cross-lagged panel models and 2) latent difference scores, which allowed for analysis of internalizing symptom outcomes both within and between participants.

METHOD

Parent Study Design & Participants

Data for this study were collected from a parent study titled, "Developing a Patient Navigation Intervention for PrEP Continuum of Care among Young Latino MSM" (MSM, i.e., men who have sex with men; Blashill et al., 2021). The parent study conducted a pilot randomized controlled trial of a patient navigation intervention along the PrEP continuum of care among Hispanic/Latinx sexual minority men. The study was performed in collaboration with Family Health Centers of San Diego (FHCSD), a federally qualified health center. The pilot examined the preliminary impact of the patient navigation intervention (PN) across the PrEP cascade on 7 PrEP cascade-related outcomes: scheduled and attended PrEP consultation; PrEP prescription received; PrEP prescription filled; PrEP initiated; self-reported PrEP adherence; and PrEP follow-up medical appointment attended. The patient navigation (PN) condition was compared to a usual care (UC) condition to assess feasibility, acceptability, and preliminary impact. Potential participants were telephone screened for inclusion by a member of the research team who also provided details about the study. Eligible participants that completed a baseline session were randomized using the Randomizer for Clinical Trial computer application, which implemented a blocked randomization sequence (in blocks of four participants) to balance randomization across the two arms of the study. Randomization was not stratified.

Participants were scheduled to meet with a member of the research team for data collection at their baseline session, a 3-month follow-up session (3MFU), and a 6-month follow-up session (6MFU). Surveys were administered to participants at all three time points using Qualtrics, an online survey platform. Meetings with the patient navigator—either virtual or in person—could occur for participants in the PN condition outside of the baseline, 3MFU, and

6MFU sessions. At the 6-month follow-up a qualitative, semi-structured key informant interview was also administered to participants in the PN condition.

The study enrolled 57 of a planned 60 participants, 28 of which were randomized to PN and the remaining 29 were randomized to UC. A total of 54 participants were retained through 6-month follow-up. Inclusion criteria for enrollment were: 1) age 18 to 29 years; 2) identifies as male; 3) identifies as gay/bisexual or reports having sex with men in past 12 months; 4) identifies as Latino/Hispanic; 5) self-reports being HIV-uninfected; 6) resides in San Diego County, California; 7) speaks English or Spanish; 8) is willing and able to provide informed consent; 9) is willing to receive PrEP-related health care at FHCSD; and 10) reports at least one HIV risk factor as informed by CDC guidelines. SMM were considered at elevated risk for HIV if they reported one of the following: 1) an HIV-infected sexual partner; 2) diagnosis of a bacterial STI within the past 12 months; 3) engaging in condomless anal sex with a non-monogamous partner in the past 12 months; 4) engaging in commercial sex work in the past 12 months; 5) injection of illicit drugs and sharing of injection equipment in the past 12 months; or 6) engaging in drug treatment for injection drug use in the past 12 months. Individuals were excluded if they self-reported being HIV-infected.

After randomization, PN participants were assigned a patient navigator who worked with them throughout the duration of the study. Hispanic/Latinx SMM peer patient navigators were utilized to provide culturally competent care and decrease social stigma. Both peer navigators identified as members of the LGBTQ+ community and had experience with HIV prevention/research; one navigator had completed college and the other was currently enrolled in college. Patient navigators had access to daily supervisors through FHCSD and had weekly supervision provided by two clinical psychologists (variably in person/through Zoom). Patient

navigators were employed by FHCSD, which was their center of operations, although services rendered were administered through multiple modalities (e.g., in person, virtual, text messages, email) based on participant preferences. Outside of the baseline session, frequency of peer navigation sessions with the patient navigators was patient-centered and based on the desired services of the participants. However, the patient navigators reached out to participants throughout the duration of the study; PNs would generally reach out to participants via email or text every two weeks if no other services or meetings were discussed. Patient navigators provided information about community services, such as referrals to mental health providers, support groups, substance use treatment, and more.

Services provided by navigators focused on four main topics: 1) overcoming community, health system, social, and individual barriers to accessing PrEP-related healthcare; 2) increasing each patient's knowledge, attitudes, and self-efficacy for initiating and adhering to PrEP; 3) improving communication between the patient and healthcare team through appointment scheduling and reminders; and 4) HIV sexual risk reduction counseling. The patient navigators were trained to administer intervention modules, which were developed during a previous phase of the study. Navigators were initially trained on intervention administration and fidelity in 2-3 training sessions led by supervisors, along with significant practice of module content. Seven modules were produced for the study: 1) an introductory module (e.g., participant privacy and confidentiality, referrals, contact information); 2) HIV and risk reduction; 3) Introduction to PrEP; 4) PrEP efficacy; 5) PrEP side effects; 6) PrEP adherence; and 7) Decision support. PrEP, STI treatment, and HIV-prevention healthcare were available to participants at low or no cost due to the community partnership with FHCSD.

The UC condition included the provisions of written information and referrals to services. Participants randomized to the UC condition were given the CDC's 2-page PrEP Information Sheet in the participant's preferred language (either English or Spanish). The 2-page booklet included the following information: 1) overview of PrEP; 2) eligibility for PrEP; 3) efficacy of PrEP; 4) safety of PrEP; and 5) obtaining, initiating, and adhering to PrEP. Similar to the PN condition, PrEP, STI treatment, and HIV-prevention healthcare were available to participants at low or no cost through FHCSD. Referrals to relevant services were also provided to participants.

Measures

***Demographics*.** Participant demographics were collected and included age, sexual orientation, race/ethnicity, relationship status, country of origin, primary language, citizenship status, education, employment, income, insurance coverage, housing status, and history of incarceration.

***Internalizing symptoms*.** Internalizing symptoms were assessed using the 21-item version of the Depression Anxiety Stress Scales (DASS-21; Lovibond, 2018; Siamak & Bahram, 2007). The DASS-21 is a self-report measures that assesses negative emotional states over the past week and includes three scales: depression, anxiety, and stress. Each of the three scales is comprised of 7 items that assess the frequency and severity of symptoms. Each item is scored on a Likert-type scale of 0 (*Did not apply to me at all*) to 3 (*Applied to me very much, or most of the time*). The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia (Lovibond, 2018). An example item from the depression scale is, "I couldn't seem to experience any positive feeling at all." The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious effect. An example item from the anxiety scale is, "I felt I was close to panic." The stress scale assesses difficulty relaxing, nervous arousal, and being easily

upset/agitated, irritable/over-reactive, and impatient. An example item from the stress scale is "I found it hard to wind down." The scale has well-established reliability and validity (Antony et al., 1998; Norton, 2007; Siamak & Bahram, 2007). Subscales are found to have moderate to moderately high positive associations with similar measures of anxiety and depression (Antony et al., 1998). Individual subscales are found to have high internal consistency: depression subscale Cronbach α = .83-.94; anxiety subscale α = .78-.87; stress subscale α = .87-.91 (Antony et al., 1998; Norton, 2007), including among Hispanic/Latinx individuals (depression α = .83; anxiety α = .79; stress α = .84; Norton, 2007) and sexual minority men (depression α = .95; anxiety α = .85; stress α = .89; Heywood & Lyons, 2016). However, several studies examining the factor structure of the DASS-21 have found that the model of best fit includes a global measure of negative affect/psychological distress that includes all 21 items (Henry & Crawford, 2005; Szabó, 2010). No theory-based differences among depression, anxiety, and stress outcomes—as measured by the DASS-21—were hypothesized for this study. As a result of its better fit and the lack of theoretical reasoning to hypothesize differences, the global sum score of the DASS-21 that includes all 21 items was used.

Emotional support and informational support. The Patient-Reported Outcomes Measurement Information System (PROMIS) measures were created as part of an initiative to create centralized, rigorously tested measures for patient outcomes (Cella et al., 2010). The PROMIS contains measures of social support, two of which are the Emotional Support 8a survey and the Informational Support 8a survey. The Emotional Support 8a survey assesses emotional support over the last month through 8 items. The items responses are on a scale of 1 (*Never*) to 5 (*Always*) with higher scores indicating more emotional support. An example item from the Emotional Support 8a survey is, "I have someone who understands my problems."

The Informational Support 8a survey assesses perceived availability of helpful information or advice through 8 items. The item responses are on a scale of 1 (*Never*) to 5 (*Always*) with higher scores indicating more informational support. An example item from the Informational Support 8a survey is, "I have someone to turn to for suggestions about how to deal with a problem." Both the Informational Support 8a and Emotional Support 8a measures are scored using item-level calibrations within the HealthMeasures Scoring Service, which automatically calculates scores based on responses to each item for each participant (PROMIS, 2015; PROMIS, 2020). This method, called "response pattern scoring," is particularly useful when there is missing data. Response pattern scoring calculates T-scores, with a T-score of 50 being the average for the general U.S. population (SD = 10).

Both the Emotional Support 8a and Informational Support 8a surveys have demonstrated adequate reliability (Cella et al., 2010). The PROMIS measures were created through a comprehensive process that included: systematic literature searches by experts in the field, focus groups and thematic analyses, item-review process, and psychometric testing (PROMIS, 2021). Assessment of the PROMIS measures' reliability and validity has focused primarily on what the PROMIS team consider outcome variables (e.g., social role functioning at work and school) rather that what they have considered process variables (e.g., social support; Castel et al., 2008). As a result, less analysis of the reliability and validity of the Emotional Support 8a and Informational Support 8a surveys has been conducted. However, the 4-item version of the PROMIS Emotional Support scale has shown high internal reliability (Greenberg et al., 2020; Shensa et al., 2020), and the reliability and precision among short forms within a domain are considered highly similar (PROMIS, 2016).

Statistical Analyses

Two forms of analysis were performed, a cross-lagged panel model (CLPM) and a latent difference score model (LDS). These analyses were chosen as complements to examine the proportion of variance accounted for in the outcome (i.e., internalizing symptoms) both between and within participants. CLPM is designed to assess change in interindividual standing on the variables in the model (i.e., informational support, emotional support, and internalizing symptoms). Within CLPM, an outcome variable in the mediation process is influenced by itself at previous time points (autoregression) as well as the mediating and independent effects via cross-lagged effects (O'Laughlin et al., 2018). As a result, CLPM is used primarily to assess interindividual variation. In contrast, LDS models focus on intraindividual change and individual differences in that within-individual change (Selig & Preacher, 2009), so they were used to assess intraindividual variation.

A cross-lagged panel analysis was conducted examining the effect of patient navigation on internalizing symptoms (summed DASS-21 scores) mediated by emotional support and informational support. The cross-lagged panel model analysis was conducted in Mplus Version 7.4 (Muthén & Muthén, 2012). Full information maximum likelihood estimation—to fit models directly to the raw data—was used to deal with missing data (Orth et al., 2021). This process creates less biased and more reliable results in comparison to listwise deletion (Orth et al., 2021; Schafer & Graham, 2002; Widaman, 2010). For the cross-lagged panel model, I used 20 random sets of starting values, which is useful when estimating and comparing complex models (Orth et al., 2021). The full model included condition assignment (i.e., patient navigation or usual care) as the independent variable, both mediator variables (i.e., emotional support and informational support), and internalizing symptoms (DASS-21 sum score) as the dependent variable. Overall

model fit of the CLPM was assessed by the comparative fit index (CFI), Tucker-Lewis index (TLI), and the root-mean-square error of approximation (RMSEA; Hu & Bentler, 1999; MacCallum & Austin, 2000). Good fit is indicated by values greater than or equal to .90 for CFI and TLI, and less than or equal to .08 for RMSEA. Two mediated effects were tested: 1) the effect of baseline condition assignment on internalizing symptoms at 6MFU mediated by emotional support at 3MFU (baseline condition → 3MFU emotional support → 6MFU internalizing symptoms); and 2) the effect of baseline condition assignment on internalizing symptoms at 6MFU mediated by informational support at 3MFU (baseline condition → 3MFU informational support → 6MFU internalizing symptoms). Each mediated effect provided two path coefficients and their associated standard errors, which were used to formally test the effects using the asymmetric confidence interval in Mplus (Tofighi & MacKinnon, 2011). Confidence intervals that did not contain the value 0 were considered statistically significant mediated effects.

Latent difference score mediation was also employed to assess the mechanism of change of patient navigation on internalizing symptoms using Mplus Version 7.4 (Muthén & Muthén, 2012). Condition assignment (i.e., patient navigation or usual care) was input as the independent variable, the mediator variables (i.e., emotional support, informational support) were modeled as the latent difference score of changes from baseline to 3-month follow-up. The dependent variable, internalizing symptoms, was modeled as a latent difference score of changes from 3-month follow-up to 6-month follow-up. This sequential process modeling of effects is necessary for assessing a temporal mechanism of change. Overall model fit of the LDS model was assessed with various fit indices: the chi-square/degrees of freedom test, the comparative fit index (CFI), the root-mean square error of approximation (RMSEA), and the Tucker-Lewis index (TLI). The

CFI and TLI were used because they are relatively unaffected by the sample size (Floyd et al., 1995). The RMSEA provides an index of residual variance and the chi-square/degrees of freedom test is a well-established measure of fit. The overall model was considered to have adequate fit if the following cutoff values were met: CFI and TLI above 0.90, RMSEA less than 0.08, and a chi-square/degrees of freedom ratio below 3.0 (Hu & Bentler, 1999). Two indirect effects were tested. Latent variables were created with latent difference scores from baseline to 3MFU for mediators (i.e., emotional support and informational support) and from 3MFU to 6MFU for the dependent variable (i.e., internalizing symptoms). The two tested mediated effects were: 1) the effect of baseline condition assignment on internalizing symptoms (i.e., the change in internalizing symptoms from 3MFU to 6MFU) mediated by emotional support (i.e., the change in emotional support from baseline to 3MFU); and 2) the effect of baseline condition assignment on internalizing symptoms (i.e., the change in internalizing symptoms from 3MFU to 6MFU) mediated by informational support (i.e., the change in informational support from baseline to 3MFU). All mediators were entered into the model simultaneously. Standardized regression coefficients and 95% confidence intervals were reported.

Covariates were considered for all models but were not selected for inclusion. Although multiple pieces of demographic information were collected (e.g., age, race, relationship status), no demographics were selected as covariates due to a lack of theoretical reasoning for expected differences. It is not hypothesized that age, race, or other demographic factors would confound the effect of patient navigation on mental health outcomes through social support. Contamination items were also considered as covariates but were not selected. Contamination items included participants reporting received information about PrEP or HIV/PrEP-related health care since the previous visit. However, attempting to include these items as covariates would not make sense as

referrals to outside health services are part of both conditions. Receiving HIV-related health care from another source could confound PrEP-related outcomes but would likely not have an effect on the social support received from the patient navigators.

Statistical Assumptions of Models

Cross-lagged panel model analyses make several statistical assumptions about the data analyzed. Cross-lagged panel models assume that individuals fluctuate around a common mean for each variable over time (Mund & Nestler, 2019). Thus, the models do not consider that the mean of a variable across time is higher for some individuals. Consequently, if stable between-person differences exist, they are included in the estimated autoregressive and cross-lagged paths, which potentially conflates the within-person and between-person effects (Mund & Nestler, 2019). CLPM also do not capture the mean structure of involved variables and therefore should not be used to assess for mean-level changes in a construct across time, such as in growth models (Mund & Nestler, 2019). Instead, CLPM is focused more on between-person differences, such as the change in the rank-ordering in individuals on a construct over time (O'Laughlin et al., 2018). Finally, differences between two consecutive time points in a CLPM are not meant to be used to predict further changes later in time (Mund & Nestler, 2019).

Cross-lagged panel models are historically considered to have construct stability across time (Hamaker et al., 2015). This is because cross-lagged panel models control for construct stability through the inclusion of autoregressive variables in their models. More recent studies have suggested that inclusion of the autoregressive variable might not be enough to account for constructs that have a trait-like or time-invariant nature (Hamaker et al., 2015) or criticized other underlying assumptions about the model (Mund & Nestler, 2019). However, CLPM are still frequently used to examine causality in longitudinal correlational studies (Hamaker et al., 2015).

In addition, both CLPM and LDS models are also meant to treat mediation as a temporal process. Therefore, these approaches allow an independent variable to be modeled temporally preceding the purported mediator(s), which are themselves modeled temporally preceding the dependent variable.

LDS has a set of its own statistical assumptions. In contrast to CLPM—and other autoregressive models—that focuses on changes in covariance over time, LDS modeling focuses on mean changes over time in addition to covariance (Cáncer et al., 2021). Thus, LDS was selected to complement the CLPM analyses. Within LDS, individual scores at any point in time are thought to be comprised of a true score and an error component (O'Laughlin et al., 2018). Change is conceptualized as the latent difference between true scores. Thus, LDS makes assumptions about the error component of observed scores (O'Laughlin et al., 2018). Error is assumed: to be random; have a mean of 0 with non-zero variance; constantly vary over time; and be unrelated to other variables in the model (O'Laughlin et al., 2018).

RESULTS

Participants

Data were collected from 57 participants, but two participants were removed from analyses because they only had baseline data (i.e., no 3MFU or 6MFU data were collected), for a total sample of 55 participants. Of these 55 participants, one participant was missing all three-month data (but had six-month data), one participant was missing six-month data (but had three-month data), and two participants were missing items on the emotional support or informational support measures but met established criteria for valid scoring (PROMIS, 2015; PROMIS, 2020). All participants completed written measures in English. Participants were between the ages of 19 and 30 years (*M* age = 25.4, *SD* = 2.76), and all participants except one identified as Hispanic/Latino/Chicano; the remaining participant was a citizen of Mexico who identified as multiracial. Additional information on demographic characteristics can be found in Table 2.

Examination of Means and Correlations for Analyzed Variables

Means and standard deviations for participants' measure scores across all time points can be found in Table 1. As previously mentioned, the model of best fit for the DASS-21 includes a global measure of negative affect/psychological distress that includes all 21 items (Henry & Crawford, 2005; Szabó, 2010); thus, the total score is used to assess internalizing symptoms in this study. However, no qualitative descriptors exist for total score values (e.g., ranges of values that are considered "low" internalizing symptoms). Thus, the mean subscale values for depression, anxiety, and stress will be examined here to describe the data. On the depression subscale, participants were within the lowest value range ("normal") for all three time points in the UC condition; in the PN condition, participants were in the normal range for baseline and 6MFU but within the "mild" range for 3MFU. On both the anxiety and stress subscales,

participants were in the “normal” range for both UC and PN conditions across all three time points. In sum, participants were primarily within the “normal” range across both conditions for all three time points except for PN participants at 3MFU, who were in the “mild” range for depression. These results suggest a low level of internalizing symptoms among patients throughout the study. Participants’ scores for emotional support and informational support were within one standard deviation above the mean across all time points.

Bivariate and point-biserial correlations of analyzed variables were analyzed (Table 3). Condition assignment was not significantly correlated with measures of emotional support, informational support, or internalizing symptoms at any time point. Notably, emotional support was significantly, positively correlated with informational support at each time point (Baseline r = .92; 3MFU r = .90; 6MFU r = .90). Emotional support was significantly, negatively correlated with internalizing symptoms at each time point (i.e., increased emotional support was correlated with decreased internalizing symptoms). Informational support was significantly, negatively correlated with internalizing symptoms only at the 3MFU time point.

Mediation Analyses

Latent difference score model (LDS)

The overall latent difference score model was not a good fit for the data ($\chi2$ [7] = 23.74, p < .001, RMSEA = .21, CFI = .92, TLI = .82, $\chi2/df$ = 3.39). It did not meet the described cutoff values for TLI (> .9), RMSEA (< .08), and the $\chi2/df$ ratio (< 3). No significant main effect was found for baseline condition assignment on the change in internalizing symptoms from three-month follow-up (β = −.56, [95% CI: -3.16, 2.04], SE = 1.58, t = -.35, p = .72). The sum of the indirect effects of emotional support and informational support between the effects of condition assignment on internalizing symptoms was not statistically significant (β

= .42, [95% CI: -.39, 1.24], SE = .50, t = .86, p = .39). The change in emotional support did not significantly mediate the effect of condition assignment on the change in internalizing symptoms from three-month follow-up to six-month follow-up (β = .01, [95% CI: -.70, .71], SE = .43, t = 0.01, p = .99); in addition, the change in informational support did not significantly mediate the effect of condition assignment on the change in internalizing symptoms from three-month follow-up to six-month follow-up (β = .42, [95% CI: -.54, 1.38], SE = .58, t = 0.71, p = .48). Due to the use of a combination of continuous and categorical variables in the model, unstandardized regression coefficients were used. Due to the high correlation between informational support and emotional support, the LDS model was also run separately with both mediators; the analyses remained non-significant.

Cross-lagged panel model (CLPM)

The overall cross-lagged panel model was not a good fit for the data ($\chi 2$ [13] = 56.47, p < .001, RMSEA = .25, CFI = .81, TLI = .68, $\chi 2$/df = 4.34). It did not meet the described cutoff values for CFI (> .9), TLI (> .9), RMSEA (< .08), and the $\chi 2$/df ratio (< 3). The sum of the indirect effects of emotional support and informational support between the effects of condition assignment on internalizing symptoms was not statistically significant (β = .43 [95% CI: -.04, .89], SE = .28, t = 1.52, p = .13). Emotional support at three-month follow-up did not significantly mediate the effect of condition assignment on internalizing symptoms at six-month follow-up (β = .21 [95% CI: -.51, .92], SE = .44, t = .48, p = .63); in addition, informational support at three-month follow-up did not significantly mediate the effect of condition assignment on internalizing symptoms at six-month follow-up (β = .22 [95% CI: -.60, 1.04], SE = .50, t = .44, p = .66. Due to the use of a combination of continuous and categorical variables in the model, unstandardized regression coefficients were used. Due to the high correlation between

informational support and emotional support, the CLPM model was also run separately with both mediators; the analyses remained non-significant.

Table 1. Means and standard deviations for measures at baseline, 3-month follow-up, and 6-month follow-up

Measure	Total Sample	Usual Care	Patient Navigation
	M (SD)		
DASS-21[a]			
Total Sum			
Baseline	22.20 (16.02)	21.36 (16.04)	23.04 (16.28)
3-Month Follow-Up	23.96 (20.70)	19.64 (16.00)	28.80 (24.38)
6-Month Follow-Up	23.48 (16.26)	21.26 (15.82)	25.76 (16.70)
Depression Subscale			
Baseline	6.69 (6.49)	5.64 (5.79)	7.78 (7.09)
3-Month Follow-Up	7.85 (9.40)	5.36 (6.33)	10.54 (11.39)
6-Month Follow-Up	7.44 (6.35)	6.07 (5.37)	8.92 (7.07)
Anxiety Subscale			
Baseline	5.31 (5.21)	4.71 (5.20)	5.93 (5.25)
3-Month Follow-Up	5.15 (5.10)	4.29 (4.41)	6.08 (5.70)
6-Month Follow-Up	4.98 (5.00)	4.52 (5.59)	5.46 (4.37)
Stress Subscale			
Baseline	10.18 (6.78)	11.00 (7.57)	9.33 (5.87)
3-Month Follow-Up	10.75 (7.96)	10.00 (7.03)	11.60 (8.96)
6-Month Follow-Up	10.96 (7.47)	10.57 (7.28)	11.38 (7.79)
PROMIS Emotional Support[b]			
Baseline	52.86 (9.72)	54.30 (8.73)	51.36 (10.61)
3-Month Follow-Up	54.89 (9.96)	56.10 (9.73)	53.69 (10.55)
6-Month Follow-Up	55.39 (9.49)	54.86 (9.85)	55.92 (9.27)
PROMIS Informational Support[b]			
Baseline	57.16 (10.11)	58.39 (9.54)	55.88 (10.70)
3-Month Follow-Up	58.55 (10.67)	60.43 (10.21)	56.67 (10.97)
6-Month Follow-Up	58.82 (10.69)	57.98 (11.80)	59.67 (9.59)

[a]DASS-21 values shown are doubled for score interpretation, per guidelines
[b]Values are T-scores

Table 2. Sample demographic characteristics

Demographic Variables	N	Percentage
Racial/Ethnic Background[a] (*n* = 47)		
Asian/Asian American/Pacific Islander	1	1.8
African American/Black	1	1.8
Caucasian/White	19	34.5
Native American/American Indian/Alaskan Native	6	10.9
Multiracial	20	36.4
Other[b]	20	36.4
Sex Assigned at Birth		
Male	55	100
Female	0	0
Gender Identity		
Male	49	89.1
Female	0	0
Transgender	1	1.8
Non-binary	5	9.1
Sexual Orientation		
Heterosexual	0	0
Gay or Lesbian	40	72.7
Bisexual	11	20.0
Other[c]	4	7.3
Gender/Sex of Sexual Partners within Past 12 Months		
I have not had sex	1	1.8
Men only	49	89.1
Women only	0	0
Both men and women	5	9.1
Sexual Attraction		
Only attracted to females	0	0
Mostly attracted to females	1	1.8
Equally attracted to females and males	5	9.1
Mostly attracted to males	18	32.7
Only attracted to males	31	56.4
Not sure	0	0
Relationship Status[a]		
Single	31	56.4
Legally Married	3	5.5
Civil Unionized	0	0
In a Monogamous Relationship	10	18.2
Sexually Active with More than One Person	27	49.1
Other	6	10.9
Country of Origin		
United States	43	78.2
Mexico	6	10.9
Other	6	10.9
Citizenship Status		
US Citizen	45	81.8
Citizen other than US	5	9.1
Prefer not to Answer	1	0

Table 2. Sample demographic characteristics, continued

Demographic Variables	N	Percentage
No School	0	0
Less than High School	0	0
High School or GED	5	9.1
Some College	14	25.5
Technical or Trade School	0	0
College Degree	24	43.6
Some Graduate Work (No Degree to Date)	5	9.1
Graduate/Professional Degree	7	12.7
Employment[a]		
Employed full-time (30+ hrs/week)	32	58.2
Employed part-time (<30 hrs/week)	11	20.0
Unemployed	9	16.4
Disabled	1	1.8
Retired	0	0
Student	11	20.0
Annual Income Before Taxes		
$0	5	9.1
<$6,000	4	7.3
$6,000-11,999	8	14.5
$12,000-17,999	6	10.9
$18,000-23,999	4	7.3
$24,000-29,999	4	7.3
$30,000-59,999	19	34.5
$60,000-99,999	5	9.1
$100,000 or more	0	0
Health Insurance Coverage[a]		
No Health Insurance	5	9.1
Private Insurance or HMO	25	45.5
Medicaid	1	1.8
Medicare	1	1.8
Medi-cal	0	0
Tricare/Champus	3	5.5
Veterans Administration coverage	2	3.6
I have insurance but I am not sure what type it is	10	18.2
Other[d]	3	5.5
Unstable Housing in the past 3 Months		
Yes	3	5.5
No	52	94.5
Lifetime History of Being in the Correctional System		
Yes	7	12.7
No	48	87.3

[a]Mark all that apply

[b]"Aztech (Native) & Spanish," "Guatemalan," "Mixed race," two "Latino", four "Mexican", two "Mexican American," eight that did not respond to the question but had previously identified as Hispanic/Latino/Chicano (as did the other participants)

[c]"Bi curious gay," "queer," two "pansexual"

[d]"Blue Shield," "Molina," "Through parents work"

Table 3. Bivariate and point-biserial correlations of analyzed variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Treatment condition[◊]	—									
2. Emotional Support (Baseline)	-.15	—								
3. Emotional Support (3MFU)	-.12	.69**	—							
4. Emotional Support (6MFU)	.06	.03	.16	—						
5. Informational Support (Baseline)	-.13	.92**	.70**	-.03	—					
6. Informational Support (3MFU)	-.18	.61**	.90**	.22	.64**	—				
7. Informational Support (6MFU)	.08	.01	.13	.90**	-.03	.25	—			
8. DASS-21 Sum (Baseline)	.05	-.29*	-.30*	-.13	-.21	-.28*	-.09	—		
9. DASS-21 Sum (3MFU)	.22	-.12	-.28*	-.40**	-.04	-.29*	-.36**	.55**	—	
10. DASS-21 Sum (6MFU)	.14	-.33*	-.23	-.28*	-.15	-.21	-.27	.59**	.61**	—

[◊]Usual Care condition was coded as 1 and Patient Navigation condition was coded as 2
*Correlation is significant at the $p < .05$ level
**Correlation is significant at the $p < .01$ level

DISCUSSION

The current study examined the effect of condition assignment (patient navigation, usual care) on internalizing symptoms at six-month follow-up (6MFU; summed DASS-21 scores) mediated by two measures of social support (emotional support, informational support). Two models were created—a latent difference score model (LDS) and a cross-lagged panel model (CLPM)—to analyze the potential mechanism of change. It was hypothesized that the effect of condition assignment on internalizing symptoms would be significantly mediated by both informational support and emotional support. Two mediated effects were tested within the CLPM: 1) the effect of condition assignment on internalizing symptoms at six-month follow-up mediated by emotional support at three-month follow-up (3MFU); and 2) the effect of condition assignment on internalizing symptoms at six-month follow-up mediated by informational support at three-month follow-up. Neither emotional support at three-month follow-up nor informational support at three-month follow-up significantly mediated the effect of condition assignment on internalizing symptoms at six-month follow-up.

Two indirect effects were also tested within the LDS model; latent variables were created with latent difference scores from baseline to 3MFU for mediators (i.e., emotional support and informational support) and from 3MFU to 6MFU for the dependent variable (i.e., internalizing symptoms). The two tested mediated effects were: 1) the effect of condition assignment on the change in internalizing symptoms mediated by the change in emotional support; and 2) the effect of condition assignment on the change in internalizing symptoms mediated by the change in informational support. Neither the change in emotional support nor the change in informational support significantly mediated the effect of condition assignment on the change in internalizing symptoms from three-month follow-up to six-month follow-up. In contrast to the stated

hypothesis, the results from both model analyses found that informational support and emotional support did not significantly mediate the effects of condition assignment on internalizing symptoms.

Hispanic/Latinx SMM participants in this study reported low internalizing symptoms (i.e., summed anxiety, depression, stress) across all time points. In fact, only PN participants at 3-month follow-up had any internalizing symptoms outside of the "normal" range (i.e., depression in the "mild" range before returning to the normal range for 6-month follow-up). The participants' low internalizing symptoms are notable given SMM and people with HIV risk behaviors have been found in prior research to have higher rates of mental disorders and symptoms (Brennan et al., 2010; Dürrbaum & Sattler, 2019; Fang et al., 2019; Meyer et al., 2003; Pakula & Sahoveler, 2013; Plöderl & Tremblay, 2015). Inclusion criteria for the parent study required participants to report at least one HIV risk factor as defined by the CDC—and HIV infection often occurs within the context of structural and psychosocial stressors, which are also associated with mental health issues (Dickey et al., 1999; Wang et al., 2017). However, HIV risk and infection can occur even outside of populations with high psychosocial and structural stressors—and people with multiple stressors are not always found to be at greater risk for HIV infection. A study by Scheer and colleagues (2021) found that participants with no examined syndemic indicators of HIV risk (i.e., alcohol misuse, polydrug use) were more likely to report HIV risk behaviors compared to participants who endorsed alcohol misuse. Thus, although HIV-risk behavior tends to occur more often in SMM who endorse structural and psychosocial stressors, this is not always true.

Participants' above average levels of social support (i.e., informational support and emotional support, within approximately 1 SD above the mean at all time points) may have

mitigated the effects of internalizing symptoms through community and individual coping and social support (Meyer, 2003). Higher informational support at baseline may suggest that participants were able to obtain information on health care before the intervention if they needed it. Social support may also facilitate access to medical and mental health treatment (Graziano & Elbogen, 2017; Lam & Rosenheck, 1999; Maulik et al., 2009) and increase utilization of these treatments (Graziano & Elbogen, 2017; Lam & Rosenheck, 1999; Maulik et al., 2009), which is associated with decreased internalizing symptoms. Therefore, the above average level of social support—both informational support and emotional support—may have mitigated internalizing symptoms.

Participants' above-average social support throughout the study is notable because social support is generally negatively associated with HIV risk behavior among SMM and participants were required to have at least one HIV risk factor for inclusion in the parent study (Qiao et al., 2014). Among Hispanic/Latinx SMM, a large social support network is associated with lower odds of condomless anal sex (CAS; Kapadia et al., 2013; Qiao et al., 2014). However, when broken down further by other factors, the link between social support and HIV risk behaviors among SMM is less clear. For example, one study found that among Hispanic/Latinx SMM, social support was negatively related to HIV risk behaviors for HIV-positive participants but positively related to risk for HIV-negative participants (Forney & Miller, 2012; Qiao et al., 2014). In addition, some studies have not found a significant association between social support and sexual risk behaviors (Barrera, 1980; Procidano & Heller, 1983) or have found a positive association (Siegel et al., 1989). One reason that social support can be positively associated with HIV risk behavior is that individuals may demonstrate behaviors in line with the cultural attitudes of those who are socially supporting them (Qiao et al., 2014; Rhodes et al., 2005;

Schnarrs et al., 2021). If participants from the current study were receiving support from friends who endorsed or promoted HIV risk behaviors—such as CAS or injection of illicit drugs—then participants may be more likely to engage in those behaviors as well. Variability between studies in the association between social support and HIV risk factors may also be related to differences in how social support is measured (Qiao et al., 2014), such as whether objective social support (e.g., someone driving you to a doctor's appointment) or perceived social support (e.g., do you believe someone would drive you to a doctor's appointment) is being measured.

Although participants in this sample reported HIV risk factors at baseline, they also reported above-average social support, various demographic factors generally associated with lower HIV risk (e.g., higher education, insurance coverage), and low internalizing symptoms. However, this discrepancy could partially be explained by how HIV risk was assessed in the parent study. How HIV risk factors or behaviors are defined frequently varies by study (Qiao et al., 2014). HIV risk factors in the parent study were assessed over the past 12 months and participants only needed to endorse one risk factor to be included. Because the degree of HIV risk was not assessed (i.e., assessing how many factors were endorsed and how frequently HIV risk behaviors were engaged in), participants may vary significantly on their level of HIV risk. For example, participants in the current study could range from someone having an HIV-positive partner (who is undetectable and therefore cannot transmit the HIV virus) to someone who endorses all the CDC HIV risk factors multiple times over the past 12 months (e.g., illicit injection drug use, non-monogamous CAS, a bacterial STI, etc.). In addition, 12 months is a relatively large window to use when assessing HIV risk. From a preventive health perspective, a larger time frame for assessment is often used to capture infrequent but higher risk behaviors. Thus, although participants in the current study needed to have a CDC-defined HIV risk factor,

the relatively large time frame for assessment and binary assessment of HIV risk makes it challenging to determine their levels of relative risk—and how that risk may relate to social support.

Several studies have examined latent profiles or latent classes of sexual risk behavior and related psychosocial factors among SMM. However, there seems to be little overlap between the psychosocial variables assessed in this study and those found in other latent class analysis (LCA)/latent profile analysis (LPA) studies. Sexual risk profiles generally differed across studies based on the level of sexual risk behavior and studies often had a profile/class with minimal HIV risk (Dangerfield, 2021; Shrader et al., 2023; Smith et al., 2019; Wilkinson et al., 2017). Some profiles also differ based on number of sexual partners, participation in group sex activities, and substance use during sex, among other factors (Dangerfield, 2021; Shrader et al., 2023; Smith et al., 2019; Wilkinson et al., 2017). Given the relatively broad inclusion criteria for HIV risk discussed above, it is possible that participants in this study may have generally been assigned to one of the lower risk classes/profiles found in some studies, explaining the relatively low report of psychosocial stressors.

Examining statistical characteristics of our data can provide additional information on the results of this study. The measures of internalizing symptoms (DASS-21) and social support (Emotional Support 8a, Informational Support 8a) had low variability over time. Low variability is associated with higher statistical power, but very low variability would suggest stagnation or regression to the mean (Minitab, 2011). However, by using the DASS-21 total sum score instead of the subscale scores, the total range for score responses and variability was increased. There may have also been a floor effect for DASS-21 scores because participants started the study within the “normal” range for depression, anxiety, and stress. When starting at lower values, it

would be less probable to see a significant decrease in these values throughout the study—because the values cannot go below zero. However, values were not so low that there was no room for a score decrease; the mean total sum on the DASS-21 across all time points was 11.1 out of 63 (22.2 out of 126 if doubled for scoring). In addition, social support values closer to the normative sample mean at baseline would enable potentially greater shifts in support over the course of the study. Future studies could also use a clinical sample or a sample of Hispanic/Latinx participants that meet a threshold for internalizing symptoms. Baseline internalizing symptoms within the "normal" range for anxiety, depression, and stress across the study likely caused a floor effect, positively skewing the data.

In this study it is possible that social support did not mediate the effect of patient navigation on internalizing symptoms because the mediated treatment effect is only significant among people with low social support. People with very low social support may have significant decreases in internalizing symptoms when they receive any level of social support. In contrast, the effect of moving from above-average social support to high social support on internalizing symptoms may be minimal or non-existent. In other words, someone moving from zero social support to one person who supports them (i.e., the navigator) may have a larger impact on internalizing symptoms than moving from four people to five people who could be counted on to provide social support. In addition, it is possible that the mediating effect of social support is itself moderated by the intensity of participants' internalizing symptoms. In other words, the effect of treatment navigation on internalizing symptoms through social support may depend on the severity of someone's anxiety or depression symptoms. Perhaps only participants starting patient navigation with high internalizing symptoms, low social support—or both—would have significant changes in anxiety and depression. These moderated mediated pathways were not

able to be examined with the statistical power in the current study but could be explored with a larger randomized controlled trial.

Temporal ordering for the analyses in this study also assumed that any difference in social support was occurring within the first three months of the study, although it is possible that changes in the mediators occurred earlier or later within the six months assessed. The CLPM analyses used social support measures at 3 months as mediators and the LDS analyses used the latent difference score of changes from baseline to 3-month follow-up. This temporal ordering was done in line with best practices for longitudinal analysis, which require the potential causes and mediators to precede the outcome being examined (Kazdin, 2007). Collecting data from additional time points may have been beneficial for the analyses because assessment on multiple occasions during treatment provides additional information on the timeline of mediators/mechanisms/outcomes and the chance for a bidirectional change to exist (Kazdin, 2007). It could have also revealed more nuances in the purported mediators and outcomes. Thus, having additional time points would allow for examination of potential navigation effects for a larger part of the study.

Variability in how often patient navigators met with their participants, what format navigators met with participants, and navigator adherence to the treatment protocol may have also impacted the results. Participants communicated with their navigators using different means: in person, virtual meetings, texts, and emails. It is possible that the method of communication affected perceived social support or rapport and their related effects on internalization. A stronger collaborative alliance between a care provider and patient is associated with greater therapeutic change (Orlinsky et al., 2004). Participants in the PN condition also met with their patient navigators with different frequencies based on patient needs and their desired services.

The dosage of intervention may have varied between participants, affecting results. However, navigators would generally reach out to their participants every two weeks if they had not heard from them. Thus, there was a baseline, modal level of contact frequency that was attempted to be maintained throughout the study. Finally, patient navigators' fidelity to the intervention was not available at the time of analyses but could affect the content of the received treatment, potentially affecting the type of social support received.

Examining this study's theoretical foundations may provide insight into factors related to the obtained internalizing symptom results. Minority stress theory and intraminority stress theory suggest that Hispanic/Latinx SMM have elevated rates of mental health disorders and internalizing symptoms due to stressors both within and outside of the Hispanic/Latinx SMM community (Goldberg & Smith, 2011; Newcomb & Mustanski, 2010; Pachankis et al., 2020). In addition, the double jeopardy hypothesis suggests that participants may have worse health outcomes compared to White SMM and Hispanic/Latinx heterosexuals due to having multiple minority identities (Ferrero & Farmer, 1996). Within the context of the double jeopardy hypothesis, it is possible that participants had low internalizing symptoms because they had high identity integration (i.e., absence of subjective conflict and separation between two or more social identities), which is found to mediate the effect of social identity on wellbeing (Matschke, 2022). Within the context of minority stress theory and intraminority stress theory, participants may have experienced low internalizing symptoms due to fewer stressors from within and outside the Hispanic/Latinx SMM community (Brooks, 1981; Meyer, 2003; Pachankis et al., 2020); they could also have characteristics or resources that attenuate the stress that they do experience.

Within the framework of minority stress theory, this study's participants may have lower internalizing symptoms compared to the average for Hispanic/Latinx SMM due to fewer distal minority stress processes (e.g., fewer objective experiences of discrimination and violence due to minority identities) or proximal stress processes (e.g., identity concealment, internalized homonegativity, anticipatory anxiety about social rejection due to identity; Meyer, 2003). Data were not collected on distal minority stress processes for this study, but factors associated with proximal stress processes can be examined. Participants may have decreased identity concealment, a proximal stress process, in comparison to the general Hispanic/Latinx SMM population because inclusion criteria for the study required participants to identify as gay/bisexual or report having sex with men in the past 12 months. Thus, participants in this study may have been more "out" compared to the general Hispanic/Latinx SMM population. Outness (i.e., not attempting to conceal one's minority sexual orientation) is negatively associated with internalized homonegativity, another proximal stress process (Frost & Meyer, 2009); internalized homonegativity mediates the effects of outness on depression (Frost & Meyer, 2009). Participants, due to potentially higher levels of outness, may also have less anticipatory anxiety about social rejection due to their minoritized identities—another proximal stressor—because they were not actively trying to conceal a minority identity (Meyer, 2003). Therefore, participants with fewer proximal stress processes—identity concealment, internalized homonegativity, anxiety about identity-based social rejection—and low internalizing symptoms in comparison to the general Hispanic/Latinx SMM population may have self-selected for this study.

Minority stress theory states that environmental circumstances—such as lower socioeconomic status (SES)—can increase proximal and distal minority stress processes, which

can lead to increased internalizing symptoms (Brooks, 1981; Meyer, 2003). Participants reported several demographic factors that are positively correlated with SES in this study. Education is highly correlated with income in the US and is a primary indicator of SES (Tamborini et al., 2015). Participants in this sample were highly educated, with most participants reporting at least some level of college education (90.9%); in comparison, approximately 61% of adults aged 25 or older have at least some college education in the US (US Census, 2018). Most participants also had insurance at baseline (90.9%) at a rate higher than average for Hispanic/Latinx Americans (80%; Artiga et al., 2021; US Census, 2020). Education is positively associated with insurance coverage, which is positively associated with the use of mental health services; using health services is associated with fewer mental health issues (Rowan et al., 2013; Tamborini et al., 2015; Zajacova & Lawrence, 2018). Thus, participants in this study may have experienced a decrease in internalizing symptoms related to a higher SES associated with increased levels of education and insurance coverage.

However, participants also reported certain demographic factors associated with lower SES at a higher rate than the general population. Participants were more likely to report being unemployed (16.4%) and to have a lower annual income than the median in San Diego (56.4% of sample reported <$30,000 per year; median income in San Diego for an individual is ~$38,000; US Census Bureau, 2020). However, it is possible that overall income was below the median partially due to the relatively low age range for the sample (18-29 years old) compared to the general population; a lower age range may leave out additional income that could come with promotions or bonuses for remaining with a company for an extended period. The participants in this study were highly educated and insured but were more likely to be unemployed and make less money than the average person from San Diego. Thus, participants reported a mixture of

psychosocial factors that were both positively and negatively associated with SES—and therefore internalizing symptoms.

It is possible that the effect of proximal stressors on participants' mental health was moderated by characteristics of minority identity such as identity salience (Meyer, 2003). For participants, the salience of their minority identities (i.e., how strongly they identify with their minority identities) may be low, which would suggest that experiences of distal stressors (i.e., objective experiences like discrimination and violence) may have less of a negative impact on their mental health. For example, if a person was a victim of a hate crime due to their perceived sexual orientation, strongly identifying with their sexual orientation would increase the negative effects of the crime on their mental health (Meyer, 2003). However, low minority identity salience is partially in contrast to qualitative feedback from participants, who found the concordance between their own minority identities and those of the patient navigators to be a notable strength of the study. Thus, the effect of identity salience on mental health within this study is unknown.

Within the context of intraminority stress theory, participants in this study perceived to have low sexual status in the SMM community would experience increased internalizing symptoms (Pachankis et al., 2020). Lower sexual status in the SMM community is associated with being a member of a minoritized race/ethnicity, being of older age, and having less income/resources (Pachankis et al., 2020). Lower sexual status within the SMM community can cause increased stress, lower social support, and decreased self-esteem—which can negatively affect mental health (Green, 2008). Participants in this study may have low internalizing symptoms due to interacting with an SMM community that has lower social competitiveness or lower social exclusion, decreasing intraminority stress. Participants may also have the social and

sexual capital to offset decreased sexual status associated with being a person from a minoritized ethnicity/race (Pachankis et al., 2020). Examining the bases for intraminority stress theory further can provide additional insight into why participants may have experienced low internalizing symptoms.

As previously described, intraminority stress theory is based on the foundation of three theories: Intrasex competition theory, sexual field theory, and the theory of precarious manhood (Buss, 1988; Green, 2013; Pachankis et al., 2020; Vandello et al., 2008). Within the context of intrasex competition theory, a minoritizied racial/ethnicity identity would be associated with decreased sexual capital (Pachankis et al., 2020). However, participants could have high sexual capital in other domains that could offset the lower social/sexual capital that is unfortunately associated with being a minoritized race/ethnicity person. Participants could, for example, increase their sexual capital by having access to excess money/resources, expressing stereotypically masculine mannerisms or personality characteristics, being younger, or being physically attractive (Pachankis et al., 2020). Of note, the participants in the study needed to be between 18-29 years old due to inclusion criteria—young in comparison to the general population. In addition, as previously noted, participants had lower than median income for the San Diego area. However, given the participants' relatively young age, it is possible that participants had high income relative to their age. Having sufficient compensatory sexual capital due to income, age, masculinity, or attractiveness could therefore offset intraminority stress and prevent participants from having increased mental health issues associated with low sexual capital and social exclusion.

Within the context of sexual field theory, competitive stress caused by self-comparisons with one's sexual partners of the same gender can potentially increase mental health symptoms

(Green, 2013; Pachankis et al., 2020). Within this sample, however, many participants reported at least some level of attraction to women (43.6%). Because sexual field theory suggests an increase in competitive stress—and therefore mental health issues—due to being the same gender as one's sexual partners, people in this sample may have had relatively less competitive stress due to the high proportion of participants who are also attracted to women. However, only 5 of 54 participants who had sex within the past year reported a female partner—and each of those 5 participants also had male sexual partners within the last year. So, although a large proportion of participants report attraction to women, they may still be experiencing relatively high competitive stress by having at least some sexual partners who are male. However, bisexual people—or people attracted to multiple genders—generally have higher rates of mental health concerns and disorders (Chan et al., 2020; Feinstein & Dyar, 2017). The increased rates of mental health concerns among bisexual people are theoretically linked to bisexual stigma, binegativity from both heterosexual and gay/lesbian groups, experiences of prejudice, a greater likelihood to conceal their sexual identity, increased identity uncertainty, and a more tenuous connection to the queer community (Chan et al., 2020; Feinstein & Dyar, 2017). Therefore, although attraction to both men and women may decrease competitive stress, other sources of bisexual stress may offset any potential mental health gains.

Within the context of the theory of precarious manhood, it is possible that participants had low internalizing symptoms because they did not feel the need to performatively behave in a masculine manner (Pachankis et al., 2020; Vandello et al., 2008). Although all participants were required to identify as male as part of the study inclusion criteria, several participants also endorsed additional gender identities. One participant identified as "transgender" and five others identified as "non-binary." It is possible that participants with these additional gender identities

may not have felt the same urge to defend their masculinity—because they did not exclusively identify as male. Thus, even if they were perceived to be gay—and therefore perceived as less masculine—they may not have experienced the same level of minority stress and its associated effects on mental health (Pachankis et al., 2020; Wong et al., 1999). However, trans men often endorse feeling stress to engage in masculine gender performance to align their internal sense of maleness with their external features and to portray their gender to others in a way that is recognizably male (Kinmore, 2022). Trans men and non-binary people who are perceived as male may also feel stress to perform masculinity due to safety concerns or to avoid discrimination (Kinmore, 2022; Miller & Grollman, 2015). Thus, although it is possible that participants may feel less pressure to perform masculinity due to identification with multiple gender identities, it is also possible that they feel increased minority stress to perform masculinity to align their identity and appearance, protect themselves, and avoid discrimination.

Participants may have also benefited from aspects of Hispanic/Latinx culture that could reduce internalizing symptoms. For example, given the above average social support reported by participants at all time points they may experience increased solidarity with their family units or focus on harmonious social relationships, both of which are often emphasized in Latinx culture (Noyola et al., 2020; Valdivieso-Mora et al., 2016). Studies have found positive physical and mental health effects for Latinx people with family social support (Alegría et al., 2007; Page, 2004). Hispanic/Latinx culture also contains elements that can be protective for mental health, such as religiosity—associated with decreased suicide risk and collectivistic values that foster social support in some samples (Hovey, 1999; Noyola et al., 2020; Valdivieso-Mora et al., 2016).

Limitations & Future Research

This study has some limitations that decrease the generalizability of findings. The measures used to assess social support, the PROMIS Emotional Support 8a survey and Informational Support 8a survey, have some limitations. To assess social support in both the usual care and patient navigation conditions, the measures needed to assess emotional support and informational support received from any source. Therefore, any changes seen in social support in the PN condition cannot be attributed to participants' interactions with their patient navigators with full certainty because they could be reporting support from other sources (e.g., family, friends). In addition, the T-scores calculated for these measures are based on a default sample used by PROMIS. Differences could exist between the characteristics of the default sample—based on a national sample of the general US population—and the participants in this study, altering T-scores (PROMIS, 2015). However, the reliability and precision among the short forms are considered highly similar (Cella et al., 2010; PROMIS, 2016).

Although there are other measures that assess for informational support and emotional support, there do not seem to be any measures that assess for social support specifically from a health or service provider. However, some measures, such as the Multidimensional Scale of Perceived Social Support (MSPSS) do include subscales for support from family, friends, and significant others (Zimet et al., 1988). The MSPSS does provide language that could be simply adapted to refer to a patient navigator, although it would then need to be evaluated as a new measure. A modified MSPSS could collect data on social support from general sources in addition to support specifically from the patient navigator. However, the MSPSS is a measure of global support. Thus, if a modified version of the MSPSS were used for a similar future study, social support effects could not be broken down by informational support and emotional support.

Therefore, using a modified MSPSS would be a trade-off between gathering data on general social support received from specific sources (i.e., friends, family, significant others, patient navigator) and analyzing data on specific social support (i.e., emotional support, informational support) received from any source.

Although scores of internalizing symptoms and social support did not strongly vary over time in this study, it is possible that there was still an effect of the patient navigation condition. There may have been a smaller effect on internalizing symptoms that was washed out by other sources of increased stress. For example, participants could have experienced an increase in minority or intraminority stress that was offset by social support from the peer patient navigator. However, the lack of a large change in internalizing symptoms could suggest that even the most effective patient navigator was not able to provide enough social support to ameliorate symptoms of anxiety and depression—or that the intervention may only be effective if participants begin treatment with higher internalizing symptoms and/or lower social support.

As noted above, there are some suggestions that could be provided based on the limitations of the current study. Having additional structure to how frequently navigators meet with participants would help standardize the dosage across participants. However, too much structure would prevent navigators from performing their jobs and meeting the ever-changing and idiosyncratic needs of their participants (Wells, 2018). Collecting data on the frequency of how often navigators met with participants and including that as a covariate within the analyses may be beneficial. Likewise, examining data on protocol adherence would help ensure that participants were all receiving relatively comparable content across sessions and navigators.

CONCLUSION

The results of this study found that the patient navigation condition did not predict a decrease in internalizing symptoms (i.e., depression, anxiety, stress) at six-month follow-up through social support (i.e., emotional support and informational support). Low internalizing symptoms throughout the study may have had a floor effect, positively skewing data. It is possible that the intervention would have a significant effect on internalizing symptoms if participants had higher internalizing symptoms or lower social support at baseline. Participants may have also experienced low internalizing symptoms due to fewer minority and intraminority stressors compared to the general Hispanic/Latinx SMM community. For example, participants were relatively young, which offers social and sexual capital to offset the decreased sexual capital—and related stress—associated with being a member of a minoritized ethnicity. Inclusion criteria for the study required participants to identify as SMM or report having sex with men within the past twelve months. As a result, proximal stress processes such as identity concealment, internalized homonegativity, and anxiety about social rejection may be lower. Participants may have also experienced a decrease in internalizing symptoms related to increased levels of education and insurance coverage.

Future studies would benefit from gathering data at additional time points, recruiting more participants to examine potential moderated mediation pathways, and selecting a sample with higher internalizing symptoms and/or lower social support at baseline. Selecting a measure—or modifying an existing measure—that assesses for social support received specifically from the patient navigator would be helpful. In addition, including the frequency of how often participants met with navigators as a covariate would account for potential differences in the dose of intervention. Further investigation incorporating these changes is suggested; with

some minor modifications, patient navigation for PrEP could be a scalable, efficient, and culturally-relevant method of diminishing the impact of mental health disparities among this population.

REFERENCES

Adame, J. L., Lo, C. C., & Cheng, T. C. (2021). Ethnicity and self-reported depression among Hispanic immigrants in the U.S. *Community Mental Health Journal, 58*, 121-135. https://doi.org/10.1007/s10597-021-00801-0

Alegría, M., Mulvaney-Day, N., Torres, M., Polo, A., Cao, Z., & Canino, G. (2007). Prevalence of psychiatric disorders across Latino subgroups in the United States. *American Journal of Public Health, 97*(1), 68-75. Doi:10.2105/AJPH.2006.087205

Alvy, L. M., McKirnan, D., Du Bois, S. N., Jones, K., Ritchie, N., & Fingerhut, D. (2011). Health care disparities and behavioral health among men who have sex with men. *Journal of Gay & Lesbian Social Services, 23*(4), 507-522. https://doi.org/10.1080/10538720.2011.611114

American Medical Association (2015). Improving the health insurance marketplace: Patient navigators. https://www-ama-assn-org.libproxy.sdsu.edu/delivering-care/patient-support-advocacy/improving-health-insurance-marketplace

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*(5th ed.). https://doi.org/10.1176/appi.books.9780890425596

Anderson, P. L., Glidden, D. V., Liu, A., Buchbinder, S., Lama, J. R., Guanira, J. V., McMahan, V., Bushman, L. R., Casapía, M., Montoya-Herrera, O., Veloso, V. G., Mayer, K. H., Chariyalertsak, S., Schechter, M., Bekker, L., Kallás, E. G., Grant, R. M., & For the iPrex Study Team. (2012). Emtricitabine-tenofovir concentrations and pre-exposure prophylaxis efficacy in men who have sex with men. *Science Translational Medicine, 4*(151), 151ra125. Doi:10.1126/scitranslmed.3004006

Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment, 10*(2), 176-181. https://doi.org/10.1037/1040-3590.10.2.176

Arciniega, G. M., Thomas, C. A., Tovar-Blank, Z. G., & Tracey, T. J. G. (2008). Toward a fuller conception of machismo: Development of a traditional machismo and caballerismo scale. *Journal of Counseling Psychology, 55*(1), 19–33. https://doi.org/10.1037/0022-0167.55.1.19

Artiga, S., Hill, L., Orgera, K., & Damico, A. (2022, December 20). *Health coverage by race and ethnicity, 2010-2019*. Kaiser Family Foundation. https://www.kff.org/racial-equity-and-health-policy/issue-brief/health-coverage-by-race-and-ethnicity/

Asay, T. P., & Lambert, M. J. (1999). The empirical case for the common factors in therapy: Quantitative findings. In M. A. Hubble, B. L. Duncan, & S. D. Miller (Eds.), The heart & soul of change: What works in therapy (pp. 23-55). American Psychological Association.

Barrera, J. M. (1980). A method for the assessment of social support networks in community survey research. Connections, 3(3), 8-13.

Beauregard, N., Marchand, A., & Blanc, M. (2011). What do we know about the non-work determinants of workers' mental health? A systematic review of longitudinal studies. BMC Public Health, 11, 439. https://doi-org.libproxy.sdsu.edu/10.1186/1471-2458-11-439

Bell, J. G., Secic, M., Shaffer, L. E., Aldrich, E. R., Schott, V. A., Taylor, C., Reynolds, K., McMath, T., & Elliott, J. O. (2020). Patient navigation effect on cancer patients' quality of life and distress. Journal of Oncology Navigation & Survivorship, 11(10), 349-358.

Bjørlykhaug, K. I., Karlsson, B., Hesook, S. K., & Kleppe, L. C. (2021). Social support and recovery from mental health problems: *A scoping review. Nordic Social Work Research, 12*(5), 666-697. https://doi-org.libproxy.sdsu.edu/10.1080/2156857X.2020.1868553

Blashill, A. J., Brady, J. P., Rooney, B. M., Rodriguez-Diaz, C. E., Horvath, K. J., Blumenthal, J., Morris, S., Morris, S., Moore, D. J., & Safren, S. A. (2020). Syndemics and the PrEP cascade: Results from a sample of young Latino men who have sex with men. *Archives of Sexual Behavior, 49*, 125-135. https://doi.org/10.1007/s10508-019-01470-7

Blashill, A. J., Gordon, J. R., Rojas, S. A., Ramers, C. B., Lin, C. D., Carrizosa, C. M., Nogg, K. A., Lamb, K. M., Lucido, N. C., Jones, I. J., Rivera, D., Cobian Aguilar, R. A., Brady, J. P., Fuentes, M., & Wells, K. J. (2021). Pilot randomized controlled trial of a patient navigation intervention to enhance engagement in the PrEP continuum among young Latino MSM: A protocol paper. BMJ Open, 11(5):e040955. Doi:10.1136/bmjopen-2020-040955

Brady, J. P., Kimball, D., Mendenhall, B., & Blashill, A. J. (2019). Machismo and anabolic steroid misuse among young Latino sexual minority men. Body Image, 30, 165-169. https://doi.org/10.1016/j.bodyim.2019.07.007

Brennan, D. J., Ross, L. E., Dobinson, C., Veldhuizen, S., & Steele, L. S. (2010). Men's sexual orientation and health in Canada. Canadian Journal of Public Health, 101(3), 255-258. Doi:10.1007/BF03404385

Bromberg, D. J., Paltiel, A. D., Busch, S. H., & Pachankis, J. E. (2021). Has depression surpassed HIV as a burden to gay and bisexual men's health in the United States? A comparative modeling study. *Social Psychiatry and Psychiatric Epidemiology, 56*, 273-282. Doi:10.1007/s00127-020-01938-1

Brooks, V. R. (1981). *Minority stress and lesbian women*. Free Press.

Brummett, B. H., Mark, D. B., Siegler, I. C., Williams, R. B., Babyak, M. A., Clapp-Channing, N. E., & Barefoot, J. C. (2005). Perceived social support as a predictor of mortality in coronary patients: Effects of smoking, sedentary behavior, and depressive

symptoms. *Psychosomatic Medicine, 67*(1), 40-45. Doi:10.1097/01.psy.0000149257.74854.b7.

Buchmueller, T., & Carpenter, C. S. (2010). Disparities in health insurance coverage, access, and outcomes for individuals in same-sex versus different-sex relationships, 2000–2007. *American Journal of Public Health, 100*(3), 489-495. Doi:10.2105/AJPH.2009.160804

Buss, D. B. (1988). The evolution of human intrasexual competition: Tactics of mate attraction. *Journal of Personality and Social Psychology, 54*(4), 616-628.

Cáncer, P. F., Estrada, E., Ollero, M. J. F., & Ferrer, E. (2021). Dynamical properties and conceptual interpretation of latent change score models. *Front. Psychol., 12*(Sec. Quantitative Psychology and Measurement). https://doi.org/10.3389/fpsyg.2021.696419

Caplan, S. (2019). Intersection of cultural and religious beliefs about mental health: Latinos in the faith-based setting. *Hispanic Health Care International, 17*(1), 4-10. https://doi.org/10.1177/1540415319828265

Castel, L. D., Williams, K. A., Bosworth, H. B., Eisen, S. V., Hahn, E. A., Irwin, D. E., Kelly, M. A. R., Morse, J., Stover, A., DeWalt, D. A., & DeVellis, R. F. (2008). Content validity in the PROMIS social-health domain: A qualitative analysis of focus-group data. *Quality of Life Research, 17,* 737. https://doi-org.libproxy.sdsu.edu/10.1007/s11136-008-9352-3

Cella, D., Riley, W., Stone, A., Rothrock, N., Reeve, B., Yount, S., Amtmann, D., Bode, R., Buysse, D., Choi, S., Cook, K., Devellis, R., DeWalt, D., Fries, J. F., Gershon, R., Hahn, E. A., Lai, J. S., Pilkonis, P., Revicki, D., Rose, M., Weinfurt, K., & Hays, Ron; PROMIS cooperative group (2010). *Journal of Clinical Epidemiology, 63*(11), 1179-1194. Doi:10.1016/j.jclinepi.2010.04.011

Centers for Disease Control and Prevention (CDC) (2020). Diagnoses of HIV infection in the United States and dependent areas, 2018 (updated). *HIV Surveillance Report, 31*. https://www.cdc.gov/hiv/library/reports/hiv-surveillance/vol-31/index.html

Chan, R. C. H., Operario, D., & Mak, W. W. S. (2020). Bisexual individuals are at greater risk of poor mental health than lesbians and gay men: The mediating role of sexual identity stress at multiple levels. Journal of Affective Disorders, 1(260), 292-301. Doi:10.1016/j.jad.2019.09.020

Chang, C. J., Kellerman, J. K., Fehling, K. B., Feinstein, B. A., & Selby, E. A. (2021). The roles of discrimination and social support in the associations between outness and mental health outcomes among sexual minorities. *American Journal of Orthopsychiatry, 91*(5), 607-616. http://dx.doi.org.libproxy.sdsu.edu/10.1037/ort0000562

Cochran, S. D., Mays, V. M., Alegria, M., Ortega, A. N., & Takeuchi, D. (2007). Mental health and substance use disorders among Latino and Asian American lesbian, gay, and bisexual

adults. *Journal of Consulting and Clinical Psychology, 75*(5), 785-794. doi:10.1037/0022-006X.75.5.785

Cole, D. A., Nick, E. A., Zelkowitz, R. L., Roeder, K. M., & Spinelli, T (2017). Online social support for young people: Does it recapitulate in-person social support; can it help? *Computers in Human Behavior, 68,* 456-464. https://doi.org/10.1016/j.chb.2016.11.058

Cutrona, C. E., & Suhr, J. A. (1992). Controllability of stressful events and satisfaction with spouse support behaviors. Communication Research, 19(2), 154-174. https://doi.org/10.1177/009365092019002002

Dahlhamer, J. M., Galinksy, A. M., Joestl, S. S., & Ward, B. W. (2016). Barriers to health care among adults identifying as sexual minorities: A US national study. *American Journal of Public Health, 106*(6), 1116-1122. doi:10.2105/AJPH.2016.303049

Davey, D. J., Bustamente, M. J., Wang, D., Young, S., & Klausner, J. D. (2016). PrEP continuum of care for MSM in Atlanta and Los Angeles county. *Clinical Infectious Diseases, 62*(3), 402–403. doi:10.1093/cid/civ890

Díaz, R. M., Ayala, G., Bein, E., Henne, J., & Marin, B. V. (2001). The impact of homophobia, poverty, and racism on the mental health of gay and bisexual Latino men: Findings from 3 US cities. *American Journal of Public Health, 91*(6), 927-932. doi:10.2105/ajph.91.6.927

Dickey, W. C., Dew, M. A., Becker, J. T., & Kingsley, L. (1999). Combined effects of HIV-infection status and psychosocial vulnerability on mental health in homosexual men. *Social Psychiatry and Psychiatric Epidemiology: The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services, 34*(1), 4-11. http://dx.doi.org.libproxy.sdsu.edu/10.1007/s001270050105

Dunlop, B. W., Still, S., LoParo, D., Aponte-Rivera, V., Johnson, B. N., Schneider, R. L., Nemeroff, C. B., Mayberg, H. S., & Craighead, W. E. (2020). Somatic symptoms in treatment-naïve Hispanic and non-Hispanic patients with major depression. *Depression and Anxiety, 37*(2), 156-165. doi:10.1002/da.22984

Dürrbaum, T., & Sattler, F. A. (2019). Minority stress and mental health in lesbian, gay male, and bisexual youths: A meta-analysis. *Journal of LGBT Youth, 17*(3), 298-314. https://doi.org/10.1080/19361653.2019.1586615

Engel, G. L. (1997). From biomedical to biopsychosocial: *Being scientific in the human domain. Psychosomatics, 38*(6), 521-528. https://doi.org/10.1016/S0033-3182(97)71396-3

Fang, L., Chuang, D., & Al-Raes, M. (2019). Social support, mental health needs, and HIV risk behaviors: A gender-specific, correlation study. *BMC Public Health, 19,* 651. https://doi-org.libproxy.sdsu.edu/10.1186/s12889-019-6985-9

Feinstein, B. A., & Dyar, C. (2017). Bisexuality, minority stress, and health. *Current Sexual Health Reports, 9*(1), 42-49. Doi:10.1007/s11930-017-0096-3

Ferraro, K. F., & Farmer, M. M. (1996). Double jeopardy, aging as leveler, or persistent health inequality? A longitudinal analysis of White and Black Americans. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences, 51*(6), S319–S328. doi:10.1093/geronb/51b.6.s319

Fillion, L., de Serres, M., Cook, S., Goupil, R. S., Bairati, I., & Doll, R. (2009). Professional patient navigation in head and neck cancer. *Seminars in Oncology Nursing, 25*(3), 212-221. https://doi-org.libproxy.sdsu.edu/10.1016/j.soncn.2009.05.004

Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment, 7*(3), 286-299. https://doi.org/10.1037/1040-3590.7.3.286

Forney, J. C., & Miller, R. L. (2012). Risk and protective factors related to HIV-risk behavior: A comparison between HIV-positive and HIV-negative young men who have sex with men. *AIDS Care, 24*(5), 544-552. https://doi-org.libproxy.sdsu.edu/10.1080/09540121.2011.630341

Fragoso, J. M., & Kashubeck, S. (2000). Machismo, gender role conflict, and mental health in Mexican American men. *Psychology of Men and Masculinity, 1*(2), 87-97. https://doi.org/10.1037/1524-9220.1.2.87

Frost, D. M., & Meyer, I. H. (2009). Internalized homophobia and relationship quality among lesbians, gay men, and bisexuals. *Journal of Counseling Psychology, 56*(1), 97-109. https://psycnet.apa.org/doi/10.1037/a0012844

Gilbert, P. A., & Rhodes, S. D. (2014). Immigrant sexual minority Latino men in rural North Carolina: An exploration of social context, social behaviors, and sexual outcomes. *Journal of Homosexuality, 61*(8), 1131-1151. doi:10.1080/00918369.2014.872507

Goldbach, J. T., Tanner-Smith, E. E., Bagwell, M., & Dunlap, S. (2014). Minority stress and substance use in sexual minority adolescents: A meta-analysis. *Society for Prevention Research, 15*(3), 350-363. doi:10.1007/s11121-013-0393-7

Goldberg, A. E., & Smith, J. Z. (2011). Stigma, social context, and mental health: Lesbian and gay couples across the transition to adoptive parenthood. *Journal of Counseling Psychology, 58*(1), 139-150. https://doi.org/10.1037/a0021684

Gray, N. N., Mendelsohn, D. M., & Omoto, A. M. (2015). Community connectedness, challenges, and resilience among gay Latino immigrants. *American Journal of Community Psychology, 55*(1-2), 202-214. doi:10.1007/s10464-014-9697-4

Graziano, R., & Elbogen, E. B. (2017). Improving mental health treatment utilization in military veterans: Examining the effects of perceived need for care and social support. *Military Psychology, 29*(5), 359-369. https://doi-org.libproxy.sdsu.edu/10.1037/mil0000169

Green, A. I. (2008). Health and sexual status in an urban gay enclave: An application of the stress process model. *Journal of Health and Social Behavior, 49*(4), 436-451. https://doi.org/10.1177%2F002214650804900405

Green, A. I. (2013). Sexual fields: Toward a sociology of collective sexual life. University of Chicago Press.

Greenberg, D. B. (2004). Barriers to the treatment of depression in cancer patients. Journal of the National Cancer Institute Monographs, 32, 127-135. doi:10.1093/jncimonographs/lgh019

Greenberg, P. E., Fournier, A., Sisitsky, T., Pike, C. T., & Kessler, R. C. (2015). The economic burden of adults with major depressive disorder in the United States (2005 and 2010). *The Journal of Clinical Psychiatry, 76*(2), 155-162. https://doi.org/10.4088/JCP.14m09298

Greenberg, J., Mace, R. A., Popok, P. J., Kulich, R. J., Vatel, K. V., Burns, J. W., Somers, T. J., Keefe, F. J., Schatman, M. E., & Vranceanu, A. M. (2020). Psychosocial correlates of objective, performance-based, and patient-reported physical function among patients with heterogeneous chronic pain. Journal of Pain Research, 13, 2255-2265. doi:10.2147/JPR.S266455

Hamaker, E. L., Kupers, R. M., & Grasman, R. P. (2015). A critique of the cross-lagged panel model. Psychological Methods, 20(1), 102-116. https://doi.org/10.1037/a0038889

Harandi, T. F., Taghinasab, M. M., & Nayeri, T. D. (2017). The correlation of social support with mental health: A meta-analysis. *Electronic Physician Journal, 9*(9), 5212-5222. doi:10.19082/5212

Hatzenbuehler, M. L., Nolen-Hoeksema, S., & Erickson, S. J. (2008). Minority stress predictors of HIV risk behavior, substance use, and depressive symptoms: Results from a prospective study of bereaved gay men. *Health Psychology, 27*(4), 455–462. https://doi.org/10.1037/0278-6133.27.4.455

Have, M. T., Vollebergh, W., Bijl, R., & Ormel, J. (2002). Combined effect of mental disorder and low social support on care service use for mental health problems in the Dutch general population. Psychological Medicine, 32(2), 311-323. doi:10.1017/s0033291701005013

Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 44*(Pt 2), 227-239. doi:10.1348/014466505X29657.

Henry, T. L., Jetty, A., Petterson, S., Jaffree, H., Ramsay, A., Heiman, E., & Bazemore, A. (2020). Taking a closer look at mental health treatment differences: Effectiveness of mental health treatment by provider type in racial and ethnic minorities. *Journal of Primary Care & Community Health, 11*, 1-9. https://doi.org/10.1177/2150132720966403

Hess, K. L., Hu, X., Lansky, A., Mermin, J., & Hall, H. I. (2017). Lifetime risk of a diagnosis of HIV infection in the United States. *Annals of Epidemiology, 27*(4), 238–243. https://doi.org/10.1016/j.annepidem.2017.02.003.

Heywood, W., & Lyons, A. (2016). HIV and elevated mental health problems: Diagnostic, treatment, and risk patterns for symptoms of depression, anxiety, and stress in a national community-based cohort of gay men living with HIV. *AIDS and Behavior, 20*, 1632-1645. https://doi-org.libproxy.sdsu.edu/10.1007/s10461-016-1324-y

Hovey, J.D. (1999). Religion and suicidal ideation in a sample of Latin American immigrants. *Psychological Reports, 85*(1), 171–177.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Ibañez, G. E., Van Oss Marin, B., Flores, S. A., Millett, G., & Diaz, R. M. (2009). General and gay-related racism experienced by Latino gay men. *Cultural Diversity and Ethnic Minority Psychology, 15*(3), 215-222. doi:10.1037/a0014613

Jimenez, D. E., Bartels, S. J., Cardenas, V., & Alegría, M. (2013). Stigmatizing attitudes toward mental illness among racial/ethnic older adults in primary care. *The International Journal of Geriatric Psychiatry, 28*(10), 1061-1068. https://doi.org/10.1002/gps.3928

Jimenez, D. E., Bartels, S. J., Cardenas, V., Dhaliwal, S. S., & Alegría, M. (2012). Cultural beliefs and mental health treatment preferences of ethnically diverse older adult consumers in primary care. *The American Journal of Geriatric Psychiatry, 20*(6), 533-542. https://doi.org/10.1097/JGP.0b013e318227f876

Kapadia, Siconolfi, D. E., Barton, S., Olivieri, B., Lombardo, L., & Halkitis, P. N. (2013). Social support network characteristics and sexual risk taking among a racially/ethnically diverse sample of young, urban men who have sex with men. AIDS and Behavior, 17(5), 1819-1828. https://doi-org.libproxy.sdsu.edu/10.1007/s10461-013-0468-2

Kaufman, J., Yang, B. Z., Douglas-Palumberi, H., Grasso, D., Lipschitz, D., Houshyar, S., Krystal, J. H., & Gelernter, J. (2006). Brain-derived neurotrophic factor-5-HTTLPR gene interactions and environmental modifiers of depression in children. Biological Psychiatry, 59(8), 673-680. https://doi.org/10.1016/j.biopsych.2005.10.026

Kazdin, A. E. (2007). Mediators and mechanisms of change in psychotherapy research. Annual Review of Clinical Psychology, 3, 1-27. https://doi-org.libproxy.sdsu.edu/10.1146/annurev.clinpsy.3.022806.091432

Kelly, K. J., Doucet, S., & Luke, A. (2019). Exploring the roles, functions, and background of patient navigators and case managers: A scoping review. *International Journal of Nursing Studies, 98*, 27-47. http://dx.doi.org.libproxy.sdsu.edu/10.1016/j.ijnurstu.2019.05.016

Kinmore, A. K. (2022). Trans men: Precarious manhood and the paradox of hegemonic masculinity. University Honors Theses, Paper 1257. https://doi.org/10.15760/honors.1288

Lam, J. A., & Rosenheck, R. (1999). Social support and service use among homeless persons with serious mental illness. International Journal of Social Psychiatry, 45(1), 13-28. doi:10.1177/002076409904500103qu

Landstedt, E., Gustafsson, P. E., Johansson, K., & Hammarström, A. (2016). Longitudinal associations between social relationships at age 30 and internalizing symptoms at age 42: Findings from the Northern Swedish Cohort. *International Journal of Public Health, 61*(1), 75-81. http://dx.doi.org.libproxy.sdsu.edu/10.1007/s00038-015-0691-x

Laska, K. M., Gurman, A. S., & Wampold, B. E. (2014). Expanding the lens of evidence-based practice in psychotherapy: A common factors perspective. *Psychotherapy (Chic), 51*(4), 467-481. doi:10.1037/a0034332

Lee, C., Oliffe, J. L., Kelly, M. T., & Ferlatte, O. (2017). Depression and suicidality in gay men: Implications for health care providers. *American Journal of Men's Health, 11*(4), 910-919. https://doi.org/10.1177/1557988316685492

Lépine, J., & Briley, M. (2011). The increasing burden of depression. *Neuropsychiatric Disease and Treatment, 7*, 3-7. doi:10.2147/NDT.S19617

Lovibond, P. (2018). *Overview of the DASS and its uses*. Psychology Foundation of Australia. http://www2.psy.unsw.edu.au/dass//over.htm

Luke, A., Doucet, S., & Azar, R. (2018). Pediatric patient navigation models of care in Canada: An environmental scan. *Paediatrics & Child Health, 23*(3), e46-e55. https://doi.org/10.1093/pch/pxx176

MacCallum, R. C., & Austin, J. T. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology*, *51*, 201-226. http://dx.doi.org/10.1146/annurev.psych.51.1.201

Matschke, C. (2022). The impact of social support on social identity development and well-being in international exchange students. *Journal of Cross-Cultural Psychology*, *53*(10), 1307-1334. https://doi-org.libproxy.sdsu.edu/10.1177/00220221221118387

Maulik, P. K., Eaton, W. W., & Bradshaw, C. P. (2009). The role of social network and support in mental health service use: Findings from the Baltimore ECA study. *Psychiatric Services, 60*(9), 1222-1229. doi:10.1176/ps.2009.60.9.1222

Meanley, S., Chandler, C., Jaiswal, J., Flores, D. D., Stevens, R., Connochie, D., & Bauermeister, J. A. (2020). Are sexual minority stressors associated with young men who have sex with men's (YMSM) level of engagement in PrEP? *Behavioral Medicine, 47*(3), 225-235. http://dx.doi.org.libproxy.sdsu.edu/10.1080/08964289.2020.1731675

Meshi, D., & Ellithorpe, M. E. (2021). Problematic social media use and social support received in real-life versus on social media: Associations with depression, anxiety and social isolation. *Addictive Behaviors, 119,* 106949. https://doi.org/10.1016/j.addbeh.2021.106949

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin, 129,* 674–697. doi:10.1037/0033-2909.129.5.674

Miller, L. R., & Grollman, E. A. (2015). The social costs of gender nonconformity for transgender adults: Implications for discrimination and health. *Sociological Forum, 30*(3), 809-831. https://doi.org/10.1111/socf.12193

Minitab editor (2011). Variability and statistical power. Minitab. https://blog.minitab.com/en/adventures-in-statistics-2/variability-and-statistical-power

Mitchell, K. J., Jones, L. M., Turner, H. A., Hamby, S., Farrell, A., Cuevas, C., & Daly, B. (2020). Exposure to multiple forms of bias victimization on youth and young adults: Relationships with trauma symptomatology and social support. *Journal of Youth and Adolescence, 49,* 1961-1975. http://dx.doi.org.libproxy.sdsu.edu/10.1007/s10964-020-01304-z

Mund, M., & Nestler, S. (2019). Beyond the cross-lagged panel model: Next-generation statistical tools for analyzing interdependencies across the life course. *Advances in Life Course Research, 41,* 100249. https://doi.org/10.1016/j.alcr.2018.10.002

Muthén, L. K., & Muthén, B. O. (2012). Mplus user's guide (7th ed.). Los Angeles, CA: Authors.

Nasser, E. H., & Overholser, J. C. (2005). Recovery from major depression: The role of support from family, friends, and spiritual beliefs. *Acta Psychiatrica Scandinavica, 111,* 125-132. doi:10.1111/j.1600-0447.2004.00423.x

National Alliance on Mental Illness (NAMI) (2020). *Hispanic/Latinx*. https://www.nami.org/Your-Journey/Identity-and-Cultural-Dimensions/Hispanic-Latinx

National Center for Health Statistics (NCHS) (2020). *Percentages of selected mental health indicators for adults aged 18 and over, by race and Hispanic origin: United States, January-June 2019*. http://cdc.gov/nchs/data/nhis/earlyrelease/ERmentalhealthbyrace-508.pdf

Newcomb, M. E., & Mustanski, B. (2010). Internalized homophobia and internalizing mental health problems: A meta-analytic review. *Clinical Psychology Review, 30*(8), 1019-1029. https://doi.org/10.1016/j.cpr.2010.07.003

Norton, P. J. (2007). Depression anxiety and stress scales (DASS-21): Psychometric analysis across four racial groups. *Anxiety, Stress & Coping, 20*(3), 253-265. https://doi-org.libproxy.sdsu.edu/10.1080/10615800701309279

Noyola, N., Sánchez, M., & Cardemil, E. V. (2020). Minority stress and coping among sexual diverse Latinxs. *Journal of Latinx Psychology, 8*(1), 58-82. http://dx.doi.org/10.1037/lat0000143

O'Laughlin, K. D., Martin, M. J., & Ferrer, E. (2018). Cross-sectional analysis of longitudinal mediation processes. *Multivariate Behavioral Research, 53*(3), 375-402. https://doi-org.libproxy.sdsu.edu/10.1080/00273171.2018.1454822

Orlinsky, D. E., Rønnestad, M. H., & Willutzki, U. (2004). Fifty years of psychotherapy process-outcome research: Continuity and change. In M. J. Lambert (Ed.), *Bergin and Garfield's handbook of psychotherapy and behavior change* (5th ed., pp. 307-389). New York: Wiley.

Ortega, A. N., Rosenheck, R., Alegría, M., & Desai, R. A. (2000). Acculturation and the lifetime risk of psychiatric and substance use disorders among Hispanics. *The Journal of Nervous and Mental Health Disease, 188*(11), 728-735. https://journals.lww.com/jonmd/Abstract/2000/11000/Acculturation_and_the_Lifetime_Risk_of_Psychiatric.2.aspx

Orth, U., Clark, D. A., Donnellan, M. B., & Robins, R. W. (2021). Testing prospective effects in longitudinal research: Comparing seven competing cross-lagged models. *Journal of Personality and Social Psychology, 120*(4), 1013-1034. http://dx.doi.org/10.1037/pspp0000358

Ozbay, F., Johnson, D. C., Dimoulas, E., Morgan III, C. A., Charney, D., & Southwick, S. (2007). Social support and resilience to stress. *Psychiatry (Edgmont), 4*(5), 35-40. PMID: 20806028; PMCID: PMC2921311.

Pachankis, J. E., Clark, K. A., Burton, C. L., Hughto, J. M. W., Bränström, R., & Keene, D. E. (2020). Sex, status, competition, and exclusion: Intraminority stress from within the gay community and gay and bisexual men's mental health. *Journal of Personality and Social Psychology, 119*(3), 713-740. https://doi.org/10.1037/pspp0000282

Pachankis, J. E., Hatzenbuehler, M. L., Rendina, H. J., Safren, S. A., & Parsons, J. T. (2015). LGB-affirmative cognitive-behavioral therapy for young adult gay and bisexual men: A randomized controlled trial of a transdiagnostic minority stress approach. Journal of Consulting and Clinical Psychology, 83(5), 875-889. doi:10.1037/ccp0000037

Page, R. (2004). Positive pregnancy outcomes in Mexican immigrants: What can we learn? Journal of Obstetric, Gynecologic, and Neonatal Nursing, 33(6), 783-790. doi:10.1177/0884217504270595

Pakula, B., & Shoveller, J. A. (2013). Sexual orientation and self-reported mood disorder diagnosis among Canadian adults. *BMC Public Health, 13*, 209. https://doi.org/10.1186/1471-2458-13-209

Parsons, J. T., Millar, B. M., Moody, R. L., Starks, T. J., Rendina, H. J., & Grov, C. (2017). Syndemic conditions and HIV transmission risk behavior among HIV-negative gay and bisexual men in a U.S. national sample. *Health Psychology, 36*(7), 695-703. https://doi.org/10.1037/hea0000509.

Patient-Reported Outcomes Measurement Information System (PROMIS). (2015). *PROMIS Informational Support Scoring Manual*. https://www.healthmeasures.net/search-view-measures?task=Search.search

Patient-Reported Outcomes Measurement Information System (PROMIS). (2016). *PROMIS Emotion Support – A guide to the PROMIS® Emotional Support instruments*. Health Measures. https://www.healthmeasures.net/search-view-measures?task=Search.search

Patient-Reported Outcomes Measurement Information System (PROMIS). (2020). *PROMIS Emotional Support Scoring Manual*. https://www.healthmeasures.net/search-view-measures?task=Search.search

Patient-Reported Measurement Information System (PROMIS). (2021). *Measure development & research*. Health Measures. https://www.healthmeasures.net/explore-measurement-systems/promis/measure-development-research

Pew Research Center (PRC). (2020). *U.S. Hispanic population surpassed 60 million in 2019, but growth is slowed*. https://www.pewresearch.org/fact-tank/2020/07/07/u-s-hispanic-population-surpassed-60-million-in-2019-but-growth-has-slowed/

Pereira, H., de Vries, B., Serrano, J. P., Afonso, R. M., Esgalhado, G., & Monteiro, S. (2020). Depression and quality of life in older gay and bisexual men in Spain and Portugal. The International Journal of Aging and Human Development, 91(2), 198-213. doi:10.1177/0091415019864600

Phillips, S., Nonzee, N., Tom, L., Murphy, K., Hajjar, N., Bularzik, C., Dong, X., & Simon, M. A. (2014). Patient navigators' reflections on the navigator-patient relationship. Journal of Cancer Education, 29(2), 337-344. doi:10.1007/s13187-014-0612-3

Plöderl, M., & Tremblay, P. (2015). Mental health of sexual minorities. A systematic review. International Review of Psychiatry, 27(5), 367-385. https://doi-org.libproxy.sdsu.edu/10.3109/09540261.2015.1083949

Potochnick, S. R., & Perreira, K. M. (2011). Depression and anxiety among first-generation immigrant Latino youth: Key correlates and implications for future research. *The Journal of Nervous and Mental Disease, 198*(7), 470-477. doi:0.1097/NMD.0b013e3181e4ce24

Prestage, G., Hammoud, M., Jin, F., Degenhardt, L., Bourne, A., & Maher, L. (2018). Mental health, drug use and sexual risk behavior among gay and bisexual men. *International Journal of Drug Policy, 55*, 169-179. doi:10.1016/j.drugpo.2018.01.020

Price-Robertson, R., Obradovic, A., & Morgan, B. (2017). Relational recovery: Beyond individualism in the recovery approach. Advances in Mental Health, 15(2), 108-120. https://doi-org.libproxy.sdsu.edu/10.1080/18387357.2016.1243014

Procidano, M. E., & Heller, K. (1983). Measures of perceived social support from friends and family: Three validation studies. American Journal of Community Psychology, 11(1), 1-24. https://doi-org.libproxy.sdsu.edu/10.1007/BF00898416

Pulsipher, C. A., Montoya, J. A., Plant, A., Curtis, P., Holloway, I. W., & Leibowitz, A. A. (2016). *Addressing PrEP disparities among young gay and bisexual men in California*. California HIV/AIDS Research Program. https://aplahealth.org/wp-content/uploads/2016/09/APLA_PrEP_FullReport_WEB.pdf.

Quinn, K. G., Christenson, E., Sawkin, M. T., Hacker, E., & Walsh, J. L. (2020). The unanticipated benefits of PrEP for young Black gay, bisexual, and other men who have sex with men. *AIDS and Behavior*, *24*, 1376-1388. https://doi-org.libproxy.sdsu.edu/10.1007/s10461-019-02747-7

Rhodes, S. D., Martinez, O., Song, E., Daniel, J., Alonzo, J., Eng, E., Duck, S., Downs, M., Bloom, F. R., Allen, A. B., Miller, C., & Reboussin, B. (2013). Depressive symptoms among immigrant Latino sexual minorities. *American Journal of Health Behaviors, 37*(3), 404-413. doi:10.5993/AJHB.37.3.13

Rhodes, T., Singer, M., Bourgois, P., Friedman, S. R., & Strathdee, S. A. (2005). The social structural production of HIV risk among injecting drug users. *Social Science & Medicine, 61*(5), 1026-1044. https://doi-org.libproxy.sdsu.edu/10.1016/j.socscimed.2004.12.024

Rivera, D. B., Brady, J. P., & Blashill, A. J. (2021). Traditional machismo, caballerismo, and the pre-exposure prophylaxis (PrEP) cascade among a sample of Latino sexual minority men. *Journal of Sex Research, 58*(1), 21-28. doi:10.1080/00224499.2020.1743961

Rodriguez-Seijas, C., Eaton, N. R., & Pachankis, J. E. (2019). Prevalence of psychiatric disorders at the intersection of race and sexual orientation: Results from the National Epidemiologic Survey of Alcohol and Related Conditions-III. *Journal of Consulting and Clinical Psychology, 87*(4), 321-331. https://doi.org/10.1037/ccp0000377

Rodriquez, E. J., Livaudais-Toman, J., Gregorich, S. E., Jackson, J. S., Nápoles, A. M., & Pérez-Stable, E. J. (2018). Relationships between allostatic load, unhealthy behaviors, and depressive disorder in U.S. adults, 2005-2012 NHANES. *Preventative Medicine, 110*, 9-15. https://doi.org/10.1016/j.ypmed.2018.02.002\

Rowan, K., McAlpine, D., & Blewett, L. (2013). Access and cost barriers to mental health care by insurance status, 1999 to 2010. *Health Aff (Millwood), 32*(10), 1723-1730. doi:10.1377/hlthaff.2013.0133

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods, 7*(2), 147-177. https://doi.org/10.1037/1082-989X.7.2.147

Scheer, J. R., Clark, K. A., Maiolatesi, A. J., & Pachankis, J. E. (2021). Syndemic profiles and sexual minority men's HIV-risk behavior: A latent class analysis. *Archives of Sexual Behavior, 50*, 2825-2841. https://doi-org.libproxy.sdsu.edu/10.1007/s10508-020-01850-4

Schnarrs, P. W., Jones, S. S., Parsons, J. T., Baldwin, A., Rosenberger, J. G., Lunn, M. R., & Rendina, H. J. (2021). *Archives of Sexual Behavior, 50*, 1781-1792. https://doi-org.libproxy.sdsu.edu/10.1007/s10508-020-01784-x

Scott, H. M., Pollack, L., Rebchook, G. M., Huebner, D. M., Peterson, J., Kegeles, S. M. (2014). Peer social support is associated with recent HIV testing among young Black men who have sex with men. *AIDS and Behavior, 18*(5), 913-920. http://dx.doi.org.libproxy.sdsu.edu/10.1007/s10461-013-0608-8

Selig, J. P., & Preacher, K. J. (2009). Mediation models for longitudinal data in developmental research. *Research in Human Development, 6*(2-3), 144-164. doi:10.1080/15427600902911247

Shensa, A., Sidani, J. E., Escobar-Viera, C. G., Switzer, G. E., Primack, B. A., & Choukas-Bradley, S. (2020). Emotional support from social media and face-to-face relationships: Associations with depression risk among young adults. *Journal of Affective Disorders, 260*, 38-44. doi:10.1016/j.jad.2019.08.092

Shrader, C., Duncan, D. T., Chen, Y., Driver, R., Russell, J., Moody, R. L., Knox, J., Skaathun, B., Durrell, M., Hanson, H., Eavou, R., Goedel, W. C., & Schneider, J. A. (2023). Latent profile patterns of network-level norms and associations with individual-level sexual behaviors: The N2 Cohort Study in Chicago. *Archives of Sexual Behavior*. https://doi-org.libproxy.sdsu.edu/10.1007/s10508-023-02555-0

Siegel, K., Mesagno, F. P., Chen, J., & Christ, G. (1989). Factors distinguishing homosexual males practicing risky and safer sex. *Social Science & Medicine, 28*(6), 561-569. https://doi-org.libproxy.sdsu.edu/10.1016/0277-9536(89)90250-5

Skakoon-Sparling, S., Lachowsky, N. J., Moore, D. M., Lambert, G., Cox, J., Grace, D., Apelian, H., Sang, J. M., & Hart, T. A. (2022). Social support and HIV prevention behaviors among urban HIV-negative gay, bisexual, and other men who have sex with men. *Health Psychology, 41*(1), 65-75. http://dx.doi.org.libproxy.sdsu.edu/10.1037/hea0001131

Siamak, S., & Bahram, J. (2007). A study on the reliability and validity of the short form of the depression anxiety stress scale (DASS-21). *Journal of Social Sciences and Humanities of Shiraz University, 26*(3), 65-77. https://www.sid.ir/en/journal/ViewPaper.aspx?id=125151

Singer, M. (1994). AIDS and the health crisis of the U.S. urban poor; the perspective of critical medical anthropology. *Social Science and Medicine, 39*(7), 931-948. https://doi.org/10.1016/0277-9536(94)90205-4.

Singer, M. C., Erickson, P. I., Badiane, L., Diaz, R., Ortiz, D., Abraham, T., & Nicolaysen, A. M. (2006). Syndemics, sex and the city: Understanding sexually transmitted diseases in social and cultural context. *Social Science & Medicine, 63*(8), 2010-2021. doi:10.1016/j.socscimed.2006.05.012

Singer, M. (2009). *Introduction to syndemics: A critical systems approach to public and community health*. San Francisco, CA: Wiley.

Smith, M. K., Stein, G., Cheng, W., Miller, W. C., & Tucker, J. D. (2019). Identifying high risk subgroups of MSM: A latent class analysis using two samples. *BMC Infectious Diseases, 19*, 203. https://doi-org.libproxy.sdsu.edu/10.1186/s12879-019-3700-5

Stall, R., Mills, T. C., Williamson, J., Hart, T., Greenwood, G., Paul, J., Pollack, L., Binson, D., Osmond, D., & Catania, J. A. (2003). Association of co-occurring psychosocial health problems and increased vulnerability to HIV/AIDS among urban men who have sex with men. *American Journal of Public Health, 93,* 939–942. https://doi.org/10.2105/AJPH.93.6.939.

Strauss, B. B., Greene, G. J., Phillips, G., II, Bhatia, R., Madkins, K., Parsons, J. T., & Mustanski, B. (2017). Exploring patterns of awareness and use of HIV pre-exposure prophylaxis among young men who have sex with men. *AIDS and Behavior, 21,* 1288–1298. https://doi.org/10.1007/s10461-016-1480-0.

Substance Abuse and Mental Health Services Administration (SAMHSA) (2020). *Results from the 2019 National Survey on Drug Use and Mental Health detailed tables*. Table 8.39B. https://www.samhsa.gov/data/report/2019-nsduh-detailed-tables

Sun, C. J., Ma, A., Tanner, A. E., Mann, L., Reboussin, B. A., Garcia, M., Alonzo, J., & Rhodes, S. D. (2016). Depressive symptoms among Latino sexual minority men and Latina transgender women in a new settlement state: The role of perceived discrimination. *Depression Research and Treatment, Volume 2016*. doi:10.2105/ajph.91.6.927.

Szabó, M. (2010). The short version of the Depression Anxiety Stress Scales (DASS-21): Factor structure in a young adolescent sample. *Journal of Adolescence, 33*(1), 1-8. doi:10.1016/j.adolescence.2009.05.014

Tamborini, C. R., Kim, C., & Sakamoto, A. (2015). Education and lifetime earnings in the United States. *Demography, 52,* 1383-1407. doi:10.1007/s13524-015-0407-0

Tofighi D, & MacKinnon D. P. (2011). RMediation: an R package for mediation analysis confidence intervals. *Behavior Research Methods, 43*(3), 692-700. https://doi.org/10.3758/s13428-011-0076-x

United States Census Bureau (2018). *Educational Attainment in the United States: 2018*. https://www.census.gov/data/tables/2018/demo/education-attainment/cps-detailed-tables.html

United States Census Bureau (2020). *Median individual income in San Diego*. https://datacommons.org/place/geoId/0666000?utm_medium=explore&mprop=income&popt=Person&cpv=age%2CYears15Onwards&hl=en

Valdivieso-Mora, E., Peet, C. L., Garnier-Villareal, M., Salazar-Villanea, M., & Johnson, D. K. (2016). *Frontiers in Psychiatry, 7,* Article 1632. https://doi.org/10.3389/fpsyg.2016.01632

Vanable, P. A., Carey, M. P., Brown, J. L., Littlewood, R. A., Bostwick, R., & Blair, D. (2012). What HIV-positive MSM want from sexual risk reduction interventions: Findings from a qualitative study. *AIDS and Behavior*, *16*(3), 554-563.

Vandello, J. A., Bosson, J. K., Cohen, D., Burnaford, R. M., & Weaver, J. R. (2008). Precarious manhood. *Journal of Personality and Social Psychology, 95*(6), 1325-1339. https://doi.apa.org/doi/10.1037/a0012453

Walker, J., Hansen, C. H., Martin, P., Sawhney, A., Thekkumpurath, P., Beale, C., Symeonides, S., Wall, L., Murray, G., & Sharpe, M. (2013). Prevalence of depression in adults with cancer: A systematic review. *Annals of Oncology, 24*(4), 895-900. https://doi.org/10.1093/annonc/mds575

Wang, J., F. Mann, B. Lloyd-Evans, R. Ma, & S. Johnson (2018). Associations between loneliness and perceived social support and outcomes of mental health problems: A systematic review. *BMC Psychiatry*, *18*(1), 156. doi:10.1186/s12888-018-1736-5

Wang, Y., Wang, Z., Jia M., Liang, A., Yuan, D., Sun, Z., Gan, F., Wang, Y., Cai, Y., & Zhang, Z. (2017). Association between a syndemic of psychosocial problems and unprotected anal intercourse among men who have sex with men. *BMC Infectious Diseases, 17,* 46. https://doi-org.libproxy.sdsu.edu/10.1186/s12879-016-2132-8

Wassertheil-Smoller, S., Arredondo, E. M., Cai, J., Castenada, S., Choca, J. P., Gallo, G., Jung, M., LaVange, L. M., Lee-Rey, E. T., Mosley, T., Penedo, F. J., Santistaban, D. A., & Zee, P. C. (2014). Depression, anxiety, antidepressant use, and cardiovascular disease among Hispanic men and women of different national backgrounds: Results from the Hispanic Community Health Study/Study of Latinos (HCHS/SOL). *Annals of Epidemiology, 24*(11), 822-830. doi:10.1016/j.annepidem.2014.09.003

Wells, K. J., Valverde, P., Ustjanauskas, A. E., Calhoun, E. A., & Risendal, B. C. (2018). What are patient navigators doing, for whom, and where? A national survey evaluating the

types of service provided by patient navigators. *Patient Education & Counseling, 101,* 285-294. http://dx.doi.org/10.1016/j.pec.2017.08.017

Wethington, E., & Kessler, R. C. (1986). Perceived support, received support, and adjustment to stressful life events. Journal of Health and Social Behavior, 27, 78-89. https://doi-org.libproxy.sdsu.edu/10.2307/2136504

Whitfield, T. H. F., Jones, S. S., Wachman, M., Grov, C., Parsons, J. T., & Rendina, H. J. (2019). The impact of pre-exposure prophylaxis (PrEP) use on sexual anxiety, satisfaction, and esteem among gay and bisexual men. Journal of Sex Research, 56(9), 1128-1135. doi:10.1080/00224499.2019.1572064

Widaman, K. F., Ferrer, E., & Conger, R. D. (2010). Factorial invariance within longitudinal structural equation models: Measuring the same construct across time. Child Development Perspectives, 4(1), 10-18. doi:10.1111/j.1750-8606.2009.00110.x

Wilkinson, A. L., El-Hayek, C., Fairley, C. K., Roth, N., Tee, B. K., McBryde, E., Hellard, M., & Stoové, M. (2017). Measuring transitions in sexual risk among men who have sex with men: The novel use of latent class and latent transition analysis in HIV Sentinel Surveillance. American Journal of Epidemiology, 185(8), 627-635. https://doi-org.libproxy.sdsu.edu/10.1093/aje/kww239

Wompold, B. E. (2015). How important are the common factors in psychotherapy? An update. World Psychiatry, 14(3), 270-277. https://doi-org.libproxy.sdsu.edu/10.1002/wps.20238

Wong, F. Y., McCreary, D. R., Carpenter, K. M., Engel, A., & Korchynsky, R. (1999). Gender-related factors influencing perceptions of homosexuality. *Journal of Homosexuality, 37*(3), 19–31. doi:10.1300/J082v37n03_02

Zajacova, A., & Lawrence, E. M. (2018). The relationship between education and health: Reducing disparities through a contextual approach. *Annual Review of Public Health, 39,* 273-289. https://doi.org/10.1146/annurev-publhealth-031816-044628

Zea, M. C., Reisen, C. A., & Poppen, P. J. (1999). Psychological well-being among Latino lesbians and gay men. *Cultural Diversity and Ethnic Minority Psychology, 5*(4), 371-379. https://doi.org/10.1037/1099-9809.5.4.371

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52,* 30-41. https://doi-org.libproxy.sdsu.edu/10.1207/s15327752jpa5201_2