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https://epublications.marquette.edu/theses_open/519

PERSPECTIVES ON SOCIAL SUPPORT AND STIGMA IN PREP-RELATED CARE
AMONG GAY AND BISEXUAL MEN ON PREP: A QUALITATIVE
INVESTIGATION

by

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A Thesis submitted to the Faculty of the Graduate School,
Marquette University,
in Partial Fulfillment of the Requirements for
the Degree of Master of Science

Milwaukee, Wisconsin

May 2019

ABSTRACT

PERSPECTIVES ON SOCIAL SUPPORT AND STIGMA IN PREP-RELATED CARE AMONG GAY AND BISEXUAL MEN ON PREP: A QUALITATIVE INVESTIGATION

Juan P. Zapata, B.A.

Marquette University, 2019

Men who have sex with men (MSM) are disproportionately impacted by HIV. Today, one of the most effective and innovative HIV prevention tools available is pre-exposure prophylaxis (PrEP). Despite its remarkable effectiveness at preventing HIV transmission, awareness and uptake of PrEP as a prevention strategy has been slow to take hold. As evidenced in previous literature, experiences of stigma have been found to negatively impact psychological and physical stress, and medication adherence. Social support has been found to buffer against some of these psychological and behavioral responses. This study explored the psychosocial dimensions of PrEP use among MSM to promote PrEP awareness and retention. Semistructured interviews were conducted with MSM who use PrEP ($N = 20$) to explore how social support is related to their PrEP-related care and their perceptions and experience of stigma related to PrEP use. Data were analyzed using Strauss and Corbin's grounded theory to enhance understanding of the lived experiences of MSM who currently use PrEP. Social support was found an important layer in PrEP-related care that promoted adaptive behavioral responses, such as adherence to care, enhancing resilience to stress, and increased sexual identity. In addition to providing protection against HIV, participants also described the psychosocial benefits of PrEP in terms of reducing HIV-related anxiety and fears. Lastly, this study also demonstrated that relationship status and PrEP-related stigma may also be a barrier to care or a source of additional stress for many MSM on PrEP. Findings suggest that PrEP has significant impacts beyond biomedical outcomes for both the individuals who use PrEP and their communities. They connected PrEP stigma and generational differences that have important implications for PrEP acceptability and the wellbeing of MSM from all age cohorts. Rather than talking about being overly burdened by stigma or shame, many participants discussed being "understood" and "proud" because of their PrEP use. The narratives this study has illustrated may help demonstrate that social support may help buffer against the stigma surrounding PrEP. These findings point to a need to develop tailored interventions to address psychosocial dimensions of PrEP for individuals and health-care professionals.

ACKNOWLEDGMENTS

Juan P. Zapata, B.A.

I have been fortunate to benefit from the training and guidance of my research mentor, Dr. de St. Aubin. I am thankful for his commitment to overseeing this project, in addition to his ongoing support and encouragement towards my professional and personal development. I would also like to extend my sincere thanks to Dr. Andrew Petroll, for his encouragement and support throughout this project. Finally, I would like to thank my committee members, Dr. Lucas Torres and Dr. Alyson Gerdes, for their guidance and support.

This work would not have been possible without the help of clinicians, nurses, health advisors, and administrators, at the Medical College of Wisconsin. I thank each and every one of them for their continued help and support. I am most indebted to the interviewees, who gave so much of their time. It was a humbling experience.

On a personal level I would like to thank my mother, father, and step-father for their continued moral, emotional, and spiritual support. I would also like to thank my cohort, in particular, Anne Malkoff for her immense encouragement and support throughout this project and beyond. Lastly, I would like to thank my puppy, Mateo, for his unconditional love. I am forever in gratitude to these individuals

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Introduction

At a 1982 press conference, when asked about AIDS—a new disease disproportionately affecting the gay community—White House Press Secretary Larry Speakes jokingly responded: “What’s AIDS? I don’t have it. Do you? There has been no personal experience here.” The room of journalists erupted in laughter following his evasive response (Stern, 2015). Over the past 35 years of the HIV epidemic, the number of people living with HIV has continued to rise in the United States. Despite widespread systemic gender disparities that afford men greater power and resources than women across cultures (Glick & Fiske, 1996), men are disproportionately affected by HIV. According to the 2016 Annual Epidemiology and Surveillance Report, the proportion of cases diagnosed among men who have sex with men (MSM) have increased. In 2015, gay and bisexual men accounted for 67% of all HIV diagnoses and 82% of diagnoses among males (CDC, 2014).

Today, one of the most effective and innovative HIV prevention tools available is pre-exposure prophylaxis (PrEP). PrEP involves the use of antiretroviral medications among persons who are currently HIV-uninfected, but at risk for HIV acquisition. Despite its remarkable effectiveness at preventing HIV transmission, awareness and uptake of PrEP as a prevention strategy has been slow to take hold, even among MSM, the population most at risk for HIV acquisition. In 2012, the CDC recommended that PrEP be considered for people who are HIV-negative and at substantial risk for HIV infection. This includes anyone who is in an ongoing relationship with an HIV-positive partner, history of inconsistent or no condom use, and/or commercial sex work (see 2012 CDC report for PrEP fact sheet for complete recommendations). It is estimated that there

is a 92%-99% reduction in HIV risk for HIV-negative individuals who take the medication daily, as directed (Grant et al., 2010). As with the success of antiretroviral medications for the treatment of HIV, the efficacy of PrEP in preventing HIV is dependent on medication adherence (Amico et al., 2011; Anderson et al., 2011; Van Damme et al., 2012). Unfortunately, both randomized clinical trials (Anderson et al., 2011; Grant et al., 2010) and open-label extension studies (Amico et al., 2016) of PrEP have shown a diminished pattern of adherence overtime.

The development of efficacious strategies to promote adherence have been well established in the existing literature, most of which fit within a framework previously established by Ickovics and Meisler (1997). According to this framework, factors correlated with adherence are associated with: “characteristics of the patient, the patient-provider relationship, the illness, and the context in which medical care is delivered.” (Simoni et al., 2007), Research on adherence to antiretroviral medication suggests that social support provided by friends, parents, partners, providers, or significant others can improve medication adherence among HIV-positive individuals (Catz, Kelly, Bogart, Benotsch, & McAuliffe, 2000; Gallant & Block, 1998; Prachakul & Grant, 2003). In addition to improving medication adherence, social support has been found to serve as a buffer against HIV-related stigma (Katz et al., 2013). Social support has also been shown to contribute to successful medication-taking behavior by reminding patients to take their medication and setting up subsequent medical appointments (Mosack, 2006). However, less research has investigated the relationship between social support and PrEP-related care. In light of this, the present study seeks to conceptualize the role of social support within the context of PrEP-related care and investigate PrEP-related stigma among gay

and bisexual men currently on PrEP.

HIV/AIDS

According to data conducted by the World Health Organization (WHO, 2017), to date, more than 70 million people have been infected with HIV and an estimated 35 million people have died of HIV-related illnesses. Prior to the classification of AIDS as a known health condition, the first peer-reviewed article published in 1981 described *Pneumocystis Carnii* Pneumonia, a condition exclusively affecting homosexual men (Gottlieb et al., 1981). Scientists would soon come to fully understand AIDS as a condition caused by untreated HIV infection. As the research continues to demonstrate the heightened risk for infection among MSM, many researchers have proposed theories to explain this increased risk. A wealth of psychological evidence suggests that experiences of objective discrimination, expectations of rejection, and the internalization of negative societal attitudes can lead to sexual risk behaviors (Meyer, 2003).

In recent years, researchers have examined the effect of stigma and social support on the lives of HIV-positive gay and bisexual men (Chaudoir, Fisher, & Simoni, 2011; Smith, Rossetto, & Peterson, 2008). A recent longitudinal study of 74 gay male caregivers of partners who died from AIDS found that those who reported experiencing a specific stigma-related stressor showed a significant main effect of risk on HIV risk behavior (Hatzenbuehler, Hilt, & Nolen-Hoeksema, 2008). Those who reported experiencing a specific stigma-related stressor showed increased depressive and anxious symptoms over time.

According to Goffman (1963), stigma is conceptualized on the basis of what constitutes deviance; a person marked with a stigma, “is reduced in our minds from a

whole and usual person to a tainted, discounted one” (p. 35). With this in mind, HIV/AIDS stigma is often referred to as, “prejudice, discounting, discrediting and discrimination directed at people perceived to have AIDS or HIV, their loved ones and associates and the groups and communities with which they are affiliated” (Herek & Capitano, 1998, p. 232). The stigma of HIV and AIDS has been consistently shown to affect social support (Bennett, Traub, Mace, Juarascio, & Hayer, 2016; Smith, Rossetto, & Peterson, 2008) and medication adherence (Ware, Wyatt, & Tugenberg, 2006). Results from a meta-analysis by Katz et al. (2013) indicated that at the individual level, social support improves medication adherence to HIV medication by buffering the negative effect of HIV-related stigma. This social support, in turn, has been found to increase health-seeking behavior, including access to antiretroviral therapy (ART) and health screening. The lingering stigma surrounding HIV and AIDS has also emerged as a significant barrier against the effectiveness of PrEP; as a result, patient’s medication adherence may decrease, which is problematic given the medical regimen necessary for PrEP to be successful (Tangmunkongvorakul et al., 2013).

Pre-Exposure Prophylaxis

There is the potential for PrEP to affect HIV transmission rates, but only if uptake and adherence are adequate. Although many studies yielded varied efficacy estimates, recent clinical trials with high-risk populations (e.g., serodiscordant couples, sex workers, etc.) demonstrate that effective use of PrEP can dramatically reduce risk for HIV infection (Anderson et al., 2011; Grant et al., 2014). Previous research on adherence to PrEP among MSM however, has found a diminished pattern of adherence across time and a significantly lower pattern of adherence among African American MSM (Groves et al.,

2015).

In October 2012, the San Francisco City Clinic (SFCC) conducted the US Demonstration Project, an open-label cohort study assessing PrEP delivery among MSM in San Francisco and Miami. In their analysis, intention to use PrEP was high among MSM, however, the most common reason for declining PrEP include the time required for testing, no perceived HIV-risk, and PrEP-related stigma. Cohen and colleagues (2015) found that in addition to perceived stigma, several participants reported experiencing direct PrEP-related stigma from individuals who believe that PrEP would lead to increased sexual risk behavior and may divert resources away from HIV-positive individuals. In a qualitative analysis of MSM who participated in the original PrEP study in Chiang Mai, Thailand, Tangmunkongvorakul et al. (2013) found that similar to the US Demonstration Project, PrEP-related stigma posed a challenge to medication adherence, particularly among MSM who did not want to disclose their sexual orientation (Cohen et al., 2012). In a study of PrEP demonstration sites in San Francisco, Liu et al. (2014) found a similar result on the effect of stigma on study participation. In their study, a majority reported social harm arising from PrEP-related stigma, including feeling stigmatized by medical providers, friends, and sex partners. They also found that stigma related to being seen taking PrEP, whether real or perceived, was associated with avoiding taking PrEP around other people.

To date, limited research has focused on the experiences of gay and bisexual men on PrEP. It has been proposed that PrEP effectiveness must be approached through a biopsychosocial perspective, meaning that social, psychological, and structural factors all contribute to the effectiveness of PrEP (Amico, 2012). Unfortunately, PrEP is often

studied solely as a biomedical intervention, while not considering the psychological or social factors in maintaining adherence. For example, in PrEP randomized controlled studies in the United States, optimal PrEP adherence was related to beliefs in the efficacy of the medication, low experience of side effects, older age, and not reporting frequency alcohol use or methamphetamine or cocaine use (Amico, 2012). Results from another study showed that social and structural factors all contributed to the success of PrEP, including lack of privacy, disruptions in routine, and/or underestimate risk of HIV in one's community or social-network partners (Amico, 2012). Further evidence on PrEP-related stigma suggest that the acceptability and success of PrEP needs to be considered at the community level, in order to combat discrimination that could impact treatment (Van der Elst et al., 2013). Future research should then seek to understand the complexity of PrEP through a biopsychosocial perspective in order to understand how individual and/or community-level beliefs and behaviors affect PrEP-related care (Amico, 2012).

Social Support

Social support has generally been shown to positively affect mental and physical health outcomes. One commonly cited definition by Cobb (1976), states that social support "is defined as information that one is cared for and loved, information that one is esteemed and valued, and information that one is a part of a network of communication and mutual obligation" (p. 38). This concept of social support and its relation to health outcomes have generally been explained by the stress buffering and main effects hypotheses (Cohen, Gottlieb, & Underwood, 2000). The buffering hypothesis suggests that supportive social relationships may provide resources such as informational and emotional support that promote adaptive behavioral responses to chronic stressors. From

this perspective, the real or perceived support from social relationships moderates the detrimental influence of stressors on physical and mental health. Alternatively, the main effect model proposes that social support may be associated with protective health effects through cognitive, emotional, behavioral, and/or biological influences that are not necessarily intended to moderate health outcomes. For instance, social support may directly or indirectly encourage health-seeking or medication taking behavior through conformity to social norms relevant to health and self-care (Cohen, 2004). These hypotheses provide an understanding of how real or perceived social support translate into mental and physical health outcomes.

The relationship between social support and physical/mental health has received considerable attention in behavioral and health research. The current body of literature has linked social support to a wide range of health outcomes, including better patient care and compliance with medical regimens (DiMatteo, 2004), decreased length of hospitalization (Murphey, et al., 2008), enhancing resilience to stress, and buffering against developing trauma-related psychopathology (Southwick, Vythilingam, & Charney, 2005). Likewise, substandard social support has been linked to the development and progression of cardiovascular disease (Knox & Uvnas-Moberg, 1998; Kop et al., 2005) and other chronic illnesses (Brummett, et al., 2001; Wang, Mittleman, & Orth-Gomer, 2005). Holt-Lunstad, Smith, and Layton (2010) conducted a meta-analytic review to determine the extent to which social support can influence and moderate the risk for all-cause mortality. Their analysis found that reported adequate social support can increase the likelihood of survival by 50% compared to those with poor social support;

the magnitude of this effect is comparable with quitting smoking, obesity, and physical inactivity.

Research has consistently demonstrated that in comparison to heterosexuals, sexual minorities have less social support, including less family connectedness (Eisenberg & Resnick, 2006) and lower satisfaction with social support networks (Plöderl & Fartacek, 2005). Emerging evidence suggests that experiences of stigma and discrimination among sexual minorities may result in social isolation, thereby leading to poorer health outcomes. Pachankis (2007) evaluated the link between the decision to conceal one's stigmatized identity (e.g., gay or lesbian identity) and social isolation. Overall, those who concealed their stigmatized identity were more likely to avoid entering a close relationship for fear of other people discovering their identity.

With respect to HIV/AIDS, the importance of social support is critical in both continuing treatment and overall well-being. Multiple studies have confirmed the positive association between real and perceived social support and adherence to HIV-medication (Catz, Kelly, Bogart, Benotsch, & McAuliffe, 2000) and better health outcomes (Gallant & Block, 1998). Research has also consistently shown an association between a strong social support network and disclosure of one's HIV-positive status. To date, there is little research examining the relationship between social support and PrEP in a sample of MSM or gay and bisexual men in ongoing care.

Current Study

Previous studies have described the role and definition of social support and HIV-related stigma on adherence among HIV-positive men. However, prior to understanding the effects of social support and stigma in PrEP-related care, we first need to understand

the unique social, psychological, and structural factors of PrEP, including the nature of social support and stigma surrounding PrEP-seeking behaviors and PrEP use and adherence. The purpose of the current study was to conceptualize the construct of social support within the context of PrEP use among gay and bisexual men and to investigate how stigma – generally and or specific to PrEP – affects PrEP-related care.

In the current project, grounded theory – a qualitative analysis methodology – was used to examine the construct of social support and stigma. The goal of grounded theory is to allow for an in-depth, exploratory examination of a phenomenon that emerges from the data rather than examining preconceived hypotheses (Strauss & Corbin, 1997).

According to Creswell (2013), qualitative research is to develop theories when partial or inadequate theories exist for certain populations and samples. Currently, no studies have been conducted that explore the experiences of gay or bisexual men on PrEP related to their care, stigma, and social support. Consistent with grounded theory, the use of broad research questions was used in order to investigate the phenomena in an unconstrained manner (Strauss & Corbin, 1998). The following research foci were used to guide the study:

1. How is social support related to (if at all) an individual's PrEP-related care?
2. How does stigma (generally and/or specific to PrEP) influence individuals' PrEP-related care?

These broad foci allowed for discovery of ideas and concepts that are embedded in the topic of interest, rather than restricting the study to a narrow focus (Strauss, 1987).

Method

Participants

The key to qualitative research is to generate enough data so that categories, concepts, and dimensions of the given phenomena can emerge (Glaser & Strauss, 1967; Strauss & Corbin, 1998). Data from a recent study examining sample size considerations in grounded theory demonstrated that theoretical saturation (Glaser & Strauss, 1967) normally occurs between 10 and 30 interviews (Thomson, 2011). A purposeful sampling technique was used to recruit 20 participants for this project. Purposeful sampling is described as choosing “particular subjects to include because they are believed to facilitate the expansion of the developing theory” (Bogdan & Biklen, 1998, p. 65). This study used purposive sampling to access men on PrEP who identified as gay or bisexual. Consistent with previous grounded theory studies, a 10-20-hour database provided enough data to achieve the aims of this work (Camic, et al., 2003; Creswell, 1998; Miles, et al., 1994).

To be eligible, individuals had to be at least 18 years of age, currently on PrEP, and identify as a gay/or bisexual man. All participants were recruited through a database of PrEP clinic patients affiliated with the co-investigator at the Medical College of Wisconsin (MCW). Interviews were conducted at the Froedtert and MCW Infectious Disease Clinic and at Marquette University between May 2018 to October 2018. Interviews lasted between 25 and 75 minutes and participants received compensation in the amount of 25\$. The project received Institutional Review Board (IRB) approval from MCW.

Procedure

The primary researcher who conducted each interview has both undergraduate and graduate training and experience in conducting in-person and phone interviews. A pilot interview was conducted with another graduate student who has extensive experience working with sexual and gender minorities in order to provide further interviewing practice and to adapt the interview protocol as necessary. In addition to the primary researcher, several undergraduate and graduate researchers were engaged in transcribing, coding and interpreting the data for the current project.

The primary researcher received approval from the MCW IRB to review patient information from the MCW PrEP-data base to contact eligible participants before the time of their appointment. Each participant completed one interview. Interviews were audio-taped and transcribed. When conducting the interviews, the primary researcher introduced himself as a graduate student researcher interested about experiences that participants had with PrEP. The general nature of the study was described. It was made clear that the participant was free to ask questions at any time, and to withdraw from the study at any time without penalty. After giving informed consent and becoming acclimated to the lab environment, the participants were reminded that the interview will be recorded but will be de-identified in the process. The primary researcher then initiated the semi-structured interview. After the interview, participants completed a brief demographic questionnaire to collect basic demographic information, including age, gender, ethnic identity, PrEP adherence, and educational attainment. Participants were thanked, provided with a list of Milwaukee LGBT resources, and given compensation for their participation. Participants were also asked to provide their contact information, including their phone number and email address.

Materials

The final interview consisted of approximately 24 open-ended questions. Probes were used with some questions to ensure that particular topics were covered efficiently. Interview questions focused in gathering information about the functional aspect of social support, including perceived support, satisfaction, and stigma-related experiences. Consistent with grounded theory, as categories and themes began to emerge, the interview protocol was slightly modified throughout the data collection process to investigate repeated occurrences in the responses. Participants completed one interview, the length of which varied. Interviews were audio-taped and transcribed. A semi-structured format was used in order to allow the researcher the flexibility to expand upon specific questions proposed on the interview protocol.

The interview covered questions related to initial treatment planning, social support involvement, and PrEP-related stigma. The interviewer asked who, if anyone is familiar with their use of PrEP. If a participant reported having disclosed to someone their PrEP use, then the interviewer asked additional probing questions, including perceived satisfaction/dissatisfaction with others' involvement, the effects of involvement on the participants' relationships with the involved individual and the provider, and form of encouragement (appraisal, emotional, informational). For those who have not told other people about their decision to use PrEP, the interviewer asked about their decision not to disclose that information, the effects they believe that decision might have had on their relationship, and how they believe their experience with PrEP would be different had they chosen to disclose their decision to use PrEP. We then asked them to consider PrEP-related stigma in order to understand their decision not to include others' in the

process and possible barriers to support and treatment. These included questions related to their experience with PrEP-related discrimination, misconceptions about PrEP, and how stigma generally and/or specific to PrEP influence individuals PrEP-related care.

Data Analysis

Data Analytic Team

Strauss and Corbin (1998) describe data analysis as, "...a process of breaking down, organizing, and reassembling data to develop a different understanding of phenomena" (p. 38). Several individuals, in addition to the primary researcher, were involved in coding and interpreting the data (see Table 1). Two peer debriefers and one peer auditor facilitated the analytic process. Characteristics of the two debriefers include European American ethnic backgrounds and experience working with sexual and gender minorities. The two debriefers were undergraduate students in psychology and biology, both of whom received training related to PrEP and grounded theory methodology. The peer debriefers assisted in the coding of the data and provided feedback on coding categories and data interpretations. According to Maxwell (1996), "soliciting feedback from others is an extremely useful strategy for identifying validity threats, your own biases and assumptions, and flaws in your logic and methods" (p. 94). Thus, peer debriefers served several roles, including: coding data, providing feedback on interpretations, and serving as a sounding board for the researchers' emerging insights and concerns (Dey, 1999). After becoming familiar with the raw data by reviewing each transcript, debriefers provided feedback on the preliminary coding and participated in category coding of all data during the open coding process. Finally, debriefers reviewed an outline of the final draft of the theory and provided feedback on the fit between the

theory proposed and data provided by participants. The auditor for this project is a straight cisgender male, European American, doctoral-level researcher. The auditor monitored the coding and interpretation process and provided feedback. The primary researcher and auditor met throughout the data analysis and interpretation process to discuss concerns and insights.

Analytic Process

Grounded Theory data analysis commences during the initial participant interaction and continues into the analysis process (Corbin & Strauss, 2008; Creswell, 2013). The first stage is known as memoing. Creswell define memoing as:

The process in grounded theory research of the researcher writing down ideas about the evolving theory. The writing could be in the form of preliminary propositions (hypotheses), ideas about emerging categories, or some aspects of the connection of categories as in axial coding. In general, these are written records of analysis that help with the formulation of theory. (p. 289)

During this process, the primary researcher developed an understanding of the data that was used to facilitate the analytic process. Memoing was repeated after each interview, this was used as a starting point to begin the coding process. The auditor and the primary researcher met weekly to discuss preliminary propositions about emerging categories.

Each interview was recorded and transcribed verbatim by a peer auditor, and then verified by a second individual. Guided by grounded theory, each interview was independently coded by the primary researcher and each peer auditor. The outcomes of coding are concepts and categories. Concepts are “words that stand for ideas contained in data” (Corbin & Strauss, 2008, p. 159), whereas, categories are defined as, “conceptual elements of a theory” (Glaser & Strauss, 1967, p. 36). This means that categories in grounded theory are more than names or labels that we attach to things in order to

identify them. A name or label can be a concept, but it need not be one (Dey, 1999). The auditor and the primary researcher discussed concept and category building throughout the data analytic process to ensure its reliability in grounded theory.

The analysis began by independently reviewing the initial transcript and making extensive notes regarding preliminary topics, themes, and/or relationships known as open coding. Strauss and Corbin (1998) state that the “...first step in theory building is conceptualizing” (p. 103). In other words, the purpose of open coding is to begin the process of breaking data down into concepts or representations of objects and events. In a further clarification, it is defined as “the part of analysis that pertains specifically to the naming and categorizing of phenomena through close examination of data” (Strauss & Corbin, 1990, p. 62). Here the researcher read each line, sentence, and paragraph to identify categories. For the purpose of this study, coding began after the initial interview.

After transcription, interviews were reviewed and broken down into phrases and sentences that represent the participants’ main ideas into categories. This grouping of concepts into categories represents the second step in the coding process known as axial coding. Axial coding is defined as “a set of procedures whereby data are put back together in new ways after open coding, by making connections between categories” (Strauss & Corbin, 1990, p. 96). The goal of this coding phase was to generate a list of categories regarding the practices and perceptions of the participants. Strauss and Corbin (1998) state that the purpose of axial coding is to “...begin the process of reassembling data that were fractured during open coding” (p. 124). This phase of analysis began by grouping category notes into main and subcategories. A list of categories was constructed through the process of comparing the concepts for similarities and differences. Initial data

analysis and findings were discussed with a medical faculty member from the Medical College of Wisconsin to determine how well these topics cluster together into emergent themes as a form of member checking (Strauss & Corbin 1998).

The next step in the analyses involved coding interviews using the category list generated known as selective coding. Selective coding is defined as “the process of selecting the core category, systematically relating it to other categories, validating those relationships, and filling in categories that need further refinement and development (Strauss & Corbin, 1990, p. 116). The core category in this context is described as “the central phenomenon around which all other categories are integrated” (Strauss & Corbin, 1990, p. 116). Each interview was coded by three individuals: the primary researcher and both peer debriefers. The debriefers first assigned categories independently, then met with the researcher to reach consensus on the categories represented in each passage. Finally, guided by grounded theory, suggested by associations, overlap, or diversions in the data, thematic categories were refined for analysis, based on a process known as *comparative analysis* (Sandelowski, 1986; Strauss & Corbin, 1998). The primary goals of this step of analysis was to develop an overarching theoretical scheme explaining how each of the categories related to each other. In this step of analysis, the main categories were compared to each other, and gradually grouped together to develop themes.

Results

Of the 20 participants, 12 were Caucasian, 4 were African American, 3 were Hispanic, and 1 was Asian. Participants ranged in age from 22 to 70 years (M age = 33.00, SD = 10.48) (see Table 2). Their time using PrEP ranged from 2 weeks to 3 years (M = 1.78, SD = 1.23). Over 70% of the sample (n = 15) missed taking their medication

at least once within the prior month, while 25% of the sample ($n = 5$) reported never missing their medication. Most of the sample (55%, $n = 11$) identified as single, 15% ($n = 3$) identified as married/domestic partner with a same-sex partner, 30% ($n = 3$) identified as dating a same sex partner, and 15% ($n = 3$) identified as “Other.” Approximately 85% of the sample identified as gay ($n = 17$), 10% identified as bisexual ($n = 2$), and 5% identified as other. The sample was relatively diverse in regard to educational attainment, with 35% ($n = 7$) reporting less than a college education, 40% ($n = 8$) reporting a bachelor’s degree, and 25% reporting a master’s degree ($n = 5$). Approximately 30% ($n = 6$) identified as Christian, 15% ($n = 3$) identified as Catholic, 10% ($n = 2$) identified as Baptist, 5% ($n = 1$) identified as Buddhist, 10% ($n = 1$) identified as Spiritual/Not religious, and 35% ($n = 7$) identified as “Other.” As shown in Table 2, over half of the sample identified as Liberal (65%, $n = 13$), 10% ($n = 2$) identified as Moderate, 10% ($n = 2$) identified as slightly more conservative, and 15% ($n = 3$) identified as Independent.

An inductive codebook with 96 different codes or sub-codes were developed based on iterations of independent analysis from three coders, giving particular attention to the following content areas: (a) social support related to an individual’s PrEP-related care and (b) manifestations of PrEP stigma and potential drivers of PrEP-related stigma (see Table 3). Emergent findings were discussed with the peer auditor and a medical researcher in the field of HIV/AIDS.

Discussion

The categories that emerged from the final coding scheme reflected the dominant themes used for the elaboration of study findings: social support within the LGBT community, psychological impact of PrEP, PrEP-related stigma, relationship-related

stigma, and access to care. Illustrative quotations were chosen to provide justification for the definition or basis of themes. All names used with selected quotes are pseudonyms.

Community Social Support

The findings of this study demonstrate that social support plays a substantial role in participants' experiences with PrEP. Consistent with previous research, it is evident that social support is an important feature in HIV care and health care access (Stangl et al., 2013). Numerous studies have illustrated the beneficial role of social support in various areas of functioning among patients with HIV, including better health-related quality of life (Chaudoir et al., 2008), higher CD4 count (Smith et al., 2004), and lower levels of HIV-related distress (Stangl et al., 2013). This exploratory study examined social support among gay and bisexual men to help determine how social support may be related to PrEP-related care. As shown in Table 3, all participants reported some degree of social support in their care. Sixty percent of the participants learned about PrEP from other gay and bisexual men who were also on PrEP. Miguel, 30 years old, explained how he learned about PrEP from someone else in the community. He also talked about an HIV-related experience that initiated his interest in starting PrEP:

I had sex with a friend of mine who I know was HIV positive and undetectable and 48 hours later I became very sick and the sickness was ultimately unrelated, but the timeframe and knowing that in the back in my mind was enough to scare me and it was a really negative experience and powerful experience, so I said to myself this is not a way I want to feel again. I never want to have an HIV scare again. I had a friend, who was a social acquaintance, he was a friend of a friend situation, who was a biology student, and identified as queer and we were casually open about our sex lives. He was the first person who told me about PrEP, how it worked, and where to get it. He made it very easy for me to go on it after that experience I had.

Brandon, 41 years old described a similar encounter: “I learned about PrEP through a friend who was taking it, who was actually HIV positive and he was getting treated with something similar. He told me the name of his physician and where to go.” Robert, 25 described how he felt about first learning about PrEP from another gay man, instead of a medical professional:

They tell you what to do, what to eat, to exercise, to lose weight, do this, do that, and I feel people are like “ok, I’ll do that” and then they don’t follow through. I’ve seen a lot of medical non-compliance in my job. So, coming from a friend, made it feel real.

These positive peer interactions prompted many participants to seek out medical care with providers who were known to be gay-friendly. With these providers, participants were able to discuss their sexual health without feeling stigmatized or lectured about health care. These behaviors seemed to establish a well-known network of care that helped establish a sense of community and trust among gay and bisexual men.. Sebastian, 34 explained how his current PrEP provider made him feel validated and understood during his initial consultation:

I saw Dr. X and she’s phenomenal, we talk about everything. She makes me feel like she’s my cousin/sister/ whatever. It wasn’t like one of those oh you’re gay are you sure you don’t already have it situations and it was very cool and calm. And then when I got done with the appointment she’s like we’ll get you in the system as soon as you are ready.

James, 30 had a similar experience with his provider: “I think what prompted me was really going to a gay doctor that was more specialized in PrEP and being able to talk to him and get all the questions out of my head that were misconceptions that are out there about PrEP, and just learning more about PrEP and the benefit of it. I think that was what really pushed me to decide like okay I’m gonna get on PrEP”. These responses mirror studies that have been found between positive provider relations and patient outcomes

(Petroll & Mosack, 2011). This includes a wide range of illness contexts, dimensions of patient satisfaction with providers' communication, engagement, and general interaction skills that are linked to adherence to care (Nobile & Drotar, 2003). This was further demonstrated among participants who did not have an initial positive experience with their provider and PrEP. Josh, 32 explained how he had a negative experience:

I think the only thing with PrEP in general was that it was somewhat difficult to find an actual provider to get it and then someone has to be really comfortable sharing a lot of details with someone in order to go through the whole process. My GP did not know anything about it. He questioned why I needed it and made me feel very uncomfortable. It took me awhile to look for another doctor to go on it.

These responses suggest that providers' knowledge and attitude about PrEP may be a significant barrier to PrEP adoption. Some participants described having to educate their providers about PrEP because their provider lacked knowledge about it and had to go somewhere else for care. While some participants did report having a positive experience, the lack of support and medical mistrust among potential PrEP users, particularly, among communities of color, may be a significant barrier to care or PrEP-adoption. Participants also noted that lack of communication from their provider that could be interpreted as judgmental. For example, Antonio, 24 explained that his doctor "was negative towards me and uninterested in what I had to say or felt I needed. I could tell she was judging me, her attitude was like she was thinking "this faggot is always coming in for another test, just use a condom." Because many people who could benefit from being on PrEP are not on it yet, it is possible that experiences such as Antonio's may be common occurrences for gay men who lack access to affirming health care. Indeed, men's experiences of non-supportive providers should be explored in future research.

As can be observed in Table 3, the perception of normality was another theme that immersed within social support and PrEP-related care. Men in this study reported that within their network of support, PrEP was a normal dimension of daily life. This encouraged men to share their use of PrEP with other men. Their discussion of PrEP made men in our study feel as a resource to their community. This increased their identity and reassured their decision to use PrEP. This also provided some relief in the form of emotional support that made men feel “respected” and “understood” to be on PrEP. As shown in Table 3, all participants reported an overwhelmingly positive experience with sharing their decision to use PrEP. This form of emotional support is critical in continual adherence to care (DiMatteo, 2004). Jordan, 28 described how he felt:

Talking about PrEP made me feel less anxious because I was normalizing my own behavior. I also have other friends who were engaging in high-risk sexual activity and I was like hey this is a really easy thing to do and it is way more affordable than you think. I was able to take them where I go. I feel really informed and really confident. It also really enforced that part of my identity as a gay male.

These responses begin to demonstrate the role of social support in PrEP-related care. As was previously defined, the stress buffering hypothesis suggests that social relationships may provide informational and emotional support that promote adaptive behavioral responses, such as adherence to care and enhancing resilience to stress (Cohen, 2004). As evidenced in this study, social support was found to be an integral layer in PrEP-related care. This is an important finding because it demonstrates an avenue through which PrEP can be successfully promoted to at-risk populations. The fact that so many men who were interviewed had learned about PrEP from friends as opposed to medical providers or advertisements could be a reflection of this important network within the LGBT community. As shown in Table 3, most men within the sample did not

report their family as a source of support. In fact, most participants said their families were unaware of their decision to use PrEP because they would not understand it or would not support it. While family support has been shown to be associated with positive mental health outcomes (Cohen, 2004), it may be difficult for individuals to explain PrEP at this level of support. PrEP presents a unique intervention that requires an understanding of the cultural, social, and biological mechanisms through which PrEP operates in order to be understood (Amico, 2012). The rationale for PrEP use can be misunderstood due to the misconceptions surrounding PrEP and HIV. Future research should therefore be targeted at disseminating knowledge about PrEP within family members of the LGBT community. This area of research has the potential of increasing PrEP use among youth who are at risk of acquiring HIV, yet still dependent on their parents or caretakers for financial support.

Psychological Impact of PrEP

With the introduction of PrEP, there is the potential for PrEP to affect HIV transmission rates. The impact of PrEP may also have a significant impact on the psychological well-being of gay and bisexual men and their quality of life by reducing HIV-related anxiety and allowing more dynamic and fulfilled sex lives. HIV-related anxiety has been problematic since the beginning of the epidemic and has been associated with several health outcomes including poorer psychosocial functioning, and diminished sexual fulfillment (Vanable, Carey, Blair, Littlewood, 2006). While attitudes toward HIV have improved over the past few decades, the fear of HIV continues to be a significant problem for many gay and bisexual men (Chaudoir, Fisher, & Simoni, 2011). To date, there is little published literature on the psychological impact of PrEP. This study was

therefore intended to investigate the experiences of gay and bisexual men on PrEP. As shown in Table 3, a significant theme that emerged within the data was the mental health component associated with initiating PrEP-use and the psychological impact of being a PrEP user.

In this study, nearly half of men said they had an HIV-related incident, whether real or perceived, in the past that initiated their use of PrEP. Andres, 32 shared his personal story before going on PrEP:

Until recently, I thought I was HIV positive. I had a second exposure with someone I knew. It all just crumbled down into a collapsible bridge, per se. I got hit to the bottom and I was in a mental institution for a while because of suicide and also related to what could have happened if I were positive. You can still live with HIV, but I felt I couldn't. Then when I got better my doctor suggested I go through PrEP.

Brandon, 41 also talked about his experience with HIV: "You're never 100% sure unless you abstain, even if you're using a condom you can never be sure. This wall of reality slaps you in the face every time you decide, 'hey I am kind of into this dude and I would like to take this to the next level'. But then I think of the risk and I don't enjoy it as much. I have had some exposures in the past. I know what it feels like." These responses show that HIV-related anxiety continues to be a significant barrier to care and psychological well-being. These experiences and fear of HIV led many participants to go on PrEP. Once on PrEP, many participants described feeling significantly less anxious. While no studies have explicitly examined the psychological impact of PrEP or changes in attitudes toward HIV, it is possible to suggest that PrEP has significantly changed how men view their sexual health. Within his response, Brandon 41 explained how PrEP reduced his stress surrounding sex:

There's less anxiety. I am not having a panic attack every time I have sex. The background noise has subsided, and I think that it has gotten better over time. I don't think about it as much as a stressful risk, even though I know it's still a risk, it's just not as stressful for me since I started PrEP. The feeling of freedom is beyond.

This idea of pride in being a responsible sexually active gay man was a recurrent theme in men's accounts and demonstrate the protective benefits of being a PrEP-user. Another participant described how he felt prior to going on PrEP when he got tested: "Thinking about transmission is an automatic thing, so I remember having the moments where you mess up and you have a hiccup with no protection and it's like oh my god, three months until I know for certain. I remember feeling kind of crazy until I knew for sure."

Findings from this study highlight the psychological component associated with PrEP. In addition to providing protection against HIV, participants described the psychosocial benefits of PrEP in terms of reducing fear and providing relief from the anxiety and stress previously associated with sex. Until recently, PrEP has been solely investigated as a biological intervention, these findings however suggest that PrEP may also help reduce HIV-related anxiety within the LGBT community.

PrEP-related Stigma

A key overarching assumption men described was that for many people in their social and sexual networks, PrEP was related to increased sexual activity. Men described how they have had to explain their rationale for using PrEP regardless of whether they are having condomless sex. For example, some men described what they said people assumed about their sex lives or their HIV status. Miguel, 30 described his experience with PrEP-related stigma:

The stigma really is I can't control myself because I'm on this medication that helps prevent HIV because I can't control myself sexually to not have that much sex and try to prevent it. People will say you're just sleeping around so that negative stigma is, we can't control ourselves, we don't know how to take care of our sexual health in a more proactive nonchemical way so we have to take a pill so a lot of gay men that I know they view it as oh why can't you just put on condom on? Why can't that just be enough you know?

Some participants also described how PrEP-related stigma, or stigma related to having multiple sex partners, has led them to limit who they share their decision to use PrEP with: "I am afraid that someone would perceive me as just sleeping around with anyone. I don't like to tell people on Grindr because that's what everyone will think of me, as just being a slut, sleeping around with any guy without a condom." Most men also described several assumptions about being on PrEP, including an association with sexually promiscuous. This type of association between this behavior and health has been found within the HIV literature as a way of limiting gay men's sexual freedom and expression (Bennett et al., 2008). HIV and sexual health continue to be highly moralized topics. In this context, gay and bisexual men using PrEP may be shunned, both sexually and socially. Some men also discussed experiences of PrEP-related judgement or rejection when trying to connect online with someone else. Brody, 24 explained his experience with PrEP and social media: "Someone online told me that it was the slut pill. He said I must be that type of guy who will have bareback sex with anyone because I am on PrEP. They think it's a free for all situation." Andres, 32 encountered a similar situation online when someone assumed, he did not want to have a serious relationship because he has having sex with way too many since he was on PrEP.

Some men discussed how older gay men view PrEP differently than younger gay men. Older generations may hold an assumption that younger gay men should be more

responsible because they have better access to education and services than before.

Manuel, 43 described this generational difference in attitudes toward PrEP:

Older gay men are relating it back to the 80s where the AIDS epidemic was killing off a lot of their friends and I have lost several people too, So, me being on it, it's protecting me and protecting my husband. The younger kids think they're invincible.

Alex, 22 y/o also experienced older men being more vocal in their disagreement with his decision to be on PrEP:

I went over to this dude's house and you know we smoked some weed and we were talking about random shit, and he was older, I think he was like 33, 35, and I think at the time I was like 19 or 20. He was talking about how you younger gay men take PrEP and think everything is fine. He told me that it wasn't that simple and that PrEP wouldn't change what happened with his life.

The generational shift in attitudes toward HIV also promotes PrEP-related stigma among gay and bisexual men. While research has not yet explored the relationship between generational attitudes and PrEP, it is likely that HIV-related experiences have affected PrEP likeability and adoption among some gay and bisexual men.

Relationship-related Stigma and PrEP

The findings of this study also demonstrate that relationship status may also be a barrier to care or a source of additional stress for many gay and bisexual men. For some participants, talking about PrEP was seen as exposing their non-monogamous sexual practices, which were thought to be stigmatized sexual activities in the context of a relationship or marriage. Erick, 43 described how his decision to use PrEP may inform other people of his non-traditional relationship: "I don't like telling anyone about PrEP because most people know I have a husband. I am concerned about the reaction to having a husband and a boyfriend would be. I don't want other people to see my relationship as

anything less or something.” Many participants also experienced some relationship conflict as a result of their decision to continue using PrEP. Vincent, 27 shared his experience when his boyfriend decided to discontinue PrEP, but he did not:

In my experience it can create trust issues where one person sees the relationship one way and the other sees it the other way, they think “oh why are you still on PrEP?” He thought I couldn’t trust him or that I wanted to be in a non-monogamous relationship instead. He didn’t understand why I still wanted to be on it. It made me feel safe at all times if something happened, you never know.

These findings suggest that there are differences in PrEP acceptability among men who are in different types of sexual and romantic relationships. As predicted, PrEP use is underpinned by a complex interplay of social, cultural, and psychological mechanisms that can affect the individual PrEP-user differently throughout their treatment plan. While limited research has examined PrEP-use and relationship status, one recent study found that men who were in a monogamous relationship were hesitant to communicate about PrEP out of concern that breaching the topic of HIV prevention would cause a partner to suspect of them (John, Rendina, Starks, & Grov, 2018). While this study did not directly explore PrEP use within relationships, it is possible to suggest that there are certain challenges faced by men in discussing PrEP that might limit long-term PrEP use or adoption. Certain interventions, such as a Dyadic intervention, may provide a context to effectively elicit PrEP discussions within MSM relationships. These findings suggest that providers should also introduce the topic of PrEP in any relationship, regardless of a patient’s presumed relationship status (monogamy vs. open relationship) to help reduce some of the interpersonal barriers or stressors to PrEP discussion that could limit PrEP.

Access to Care

While awareness and uptake of PrEP is continually growing in the U.S., only 9.1% of men objectively identified by CDC criteria as candidates for PrEP were currently on PrEP (CDC, 2014). This study found that among men who were on PrEP, PrEP concealment could be a significant barrier to care for men who are considering taking it. Some men described that given how PrEP is marketed toward gay men, it is often referred to as the birth control pill for gay men or the queer drug. This could make it difficult for men who are closeted or not open about their sexuality to discuss PrEP with their provider or their supportive network. Jamie, 30 described how PrEP may be difficult to access for men who are not openly gay:

I don't think that closeted men would ever reach out to PrEP, just like "oh that's a queer thing", or people on the down-low, I don't think they would reach out and pursue PrEP. So, I think that like, being out is a privilege associated with access to care. I know someone who would never go on it because of this.

Another participant stated: "if you're in a community where you can't tell people about your sexuality, I couldn't imagine trying to get access to PrEP. The information is confidential, but you're going and making the appointment. You would be worried who would see you, what they would think. You are even more stuck in the closet." Some men also described they felt they had a responsibility to educate others about PrEP, noting that broader education in and beyond the gay community was needed in order to improve PrEP access. These findings suggest possible strategies for health care providers and health communicators to meet the health care needs of men considering PrEP. Related to this, many participants noted that it would be helpful to decrease the stigma surrounding PrEP by showing that it is not just a pill for gay men to take. While there has been more recent coverage in the media and in popular culture about PrEP, it continues to be considered an option only for men who have sex with men. Successfully advocating

for broader PrEP access requires that societal and structural stigma surrounding sexuality be addressed head on. As demonstrated within these findings, most men were on PrEP based on their own merit, while this is a favorable method, it should also be noted that many men, in particular, men of color, lack some of these resources. These accounts of PrEP use help to shed light on broader issues surrounding PrEP implementation and moral panics around sex and sexuality, which may serve to negatively impact both the availability and uptake of PrEP and the health of diverse communities.

Conceptual Model

Based on previous literature and data drawn from the current study, a conceptual model was developed to demonstrate how these themes may be related to PrEP-related care (Figure 1). This is not meant to be a statistical model, rather it is a heuristic to help explain the thematic model. As evidenced in previous literature, experiences of stigma have been found to negatively impact access to health resources, undermine social relationships that are important for keeping individuals healthy, prevent them from seeking health care, hide their identity, contribute to psychological and physical stress, and adversely affect medication adherence (Hatzenbuehler et al., 2013). This is especially pronounced for gay and bisexual men who are HIV-positive (Hatzenbuehler & Pachankis, 2016). The limited scholarship on PrEP has found that these experiences can negatively impact uptake and retention in PrEP-related care (Liu et al., 2014). Social support has been found to buffer against some of these psychological and behavioral responses (Katz et al., 2013). Unfortunately, less research has investigated the relationship between social support and PrEP-related care. As demonstrated in Figure 1, the data suggested a relationship between social support and positive mental health

outcomes. Both health care and LGBT social support were considered to contribute to improved self-esteem and reduced anxiety within PrEP-related care. For example, the more educated about PrEP and the more involved in PrEP-related care, the more likely to have a positive experience with PrEP and to feel confident and reassured in their decision to use PrEP.

This exploratory study examined PrEP social support among gay and bisexual men. In their interviews, participants discussed various aspects of social support that affected their experience with PrEP. Their discussion of PrEP with other individuals within the LGBT community made men in our study feel as a resource to their community. This increased their sexual identity and reassured their decision to use PrEP. This also provided some relief in the form of emotional support that increased their self-esteem. These aspects of social support have been previously identified within the literature to buffer against negative mental health outcomes, including depression, anxiety, as well as to increase medication adherence across a variety of chronic illnesses (Hatzenbuehler et al., 2013). The participants identified some underlying mechanisms of social support and PrEP-related care. They made a connection between normalizing and sexual promiscuity in the fact that many individuals who they shared their decision to use PrEP with were nonjudgmental and accepting of their decision. These responses reduced HIV-related stigma that many participants described in the past as being detrimental in their well-being. Many participants described how PrEP removed fear and stress related to contracting HIV, and increased their quality of life by allowing more dynamic and fulfilled sex lives. These experiences prompted adequate use of PrEP, which was measured through self-report. While this study did not directly explore the relationship

between these variables and medication adherence, it is likely that these experiences have prompted adequate use of PrEP (Table 2). Future research should however, attempt to use quantitative analyses to examine these variables, including a developed measure for adherence, to provide further evidence for the role of social support within PrEP-related care.

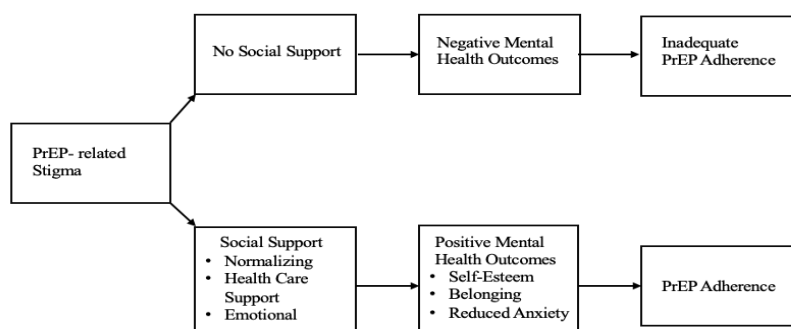


Figure 1. Conceptual Model of Social Support and Stigma in PrEP-related Care

Limitations

Some study limitations must be noted. First, due to the size of the sample, the methods used for recruitment, and the purposeful sampling strategy used, these findings lack generalizability. It is important to note that participants were from only recruited from the Medical College of Wisconsin. The PrEP-related experiences of gay and bisexual men in other locations may be different. Therefore, future studies should aim to recruit samples that are more representative of the composition of the U.S. population overall. Future research should also target gay communities of color and focus questions to capture those individuals uniquely challenging experiences. It is also important to note the relative social and economic privilege of many of the participants interviewed. In

being motivated to use PrEP, this sample may have been more likely to have a positive experience with PrEP. Many gay men likely do not fit this profile. More research is warranted in order to understand diverse intersectional experiences of men on PrEP. Second, it should also be noted that our data was drawn from a semi-structured interview and that responses may be subject to recall or memory bias. Qualitative data is often subject to social desirability bias as well as interviewer effects. Therefore, future studies should consider incorporating multimodal forms of assessing social support to determine treatment outcomes within this demographic.

Clinical Implications and Future Directions

Despite these limitations, this study has provided insight into the various experiences of men on PrEP. Findings from this study highlight the importance of understanding how social support is related to PrEP access among gay and bisexual men. This study also helped demonstrate how PrEP-related stigma may impede access to this prevention modality among this demographic. As demonstrated by these findings, successful PrEP implementation is dependent on social, psychological, and structural factors. Rather than talking about being overly burdened by stigma or shame, many participants discussed being “understood” and “proud” because of their PrEP use. The narratives this study has illustrated may help demonstrate that social support may help buffer against the stigma surrounding PrEP. Men’s accounts of PrEP use and disclosures in relation to support also help demonstrate the challenges, tensions, and stressors related to gay sexuality. Men who lack these resources may resist PrEP in order to avoid being labeled as a slut, a whore, or as gay. In light of the present study’s findings, there are several ways that clinicians may consider adapting their treatment strategies to best meet

the mental health care needs of gay and bisexual men. When compared with heterosexual men, gay and bisexual men experience significant mental health disparities, including depression, anxiety, distress, trauma and substance use (Asch et al., 2015). For example, depression is thought, by some, to drive HIV risk behaviors, hindering assertiveness and capacity to initiate safe sex (Allgöwer, Wardle, & Steptoe, 2001). Findings from this study highlight the importance of understanding how PrEP may promote psychological well-being. More specifically, the current study's findings suggest that clinicians should consider addressing PrEP with gay and bisexual men within mental health treatment to help reduce anxiety surrounding HIV infection. These findings also suggest that mental health providers who work with gay and bisexual men in particular should receive further training on PrEP to allow them to understand and effectively communicate with their gay male patients and other at-risk populations.

There is a need for public health campaigns focused on “normalizing” PrEP and breaking these associations between PrEP and gay male promiscuity. Future research should begin to explore the psychological impact of PrEP using an experimental design to determine the relationship between PrEP and mental health outcomes. Future research should also begin to focus on gay communities of color and closeted gay men to understand their unique challenging experiences with PrEP adoption. HIV remains a serious issue for gay and bisexual men in the United States, and PrEP has shown to be an effective way to reduce infections (CDC, 2017). In capturing the unique challenges and experiences of men who have adopted PrEP, this study may be helpful in trying to increase PrEP use. More research is needed to investigate ways in which social support can facilitate health care experiences and treatment outcomes.

Table 1.

Analytic Research Team

Research Team Members	Role in Research
Primary Researcher	Led conceptualization of the research design. Managed project, recruitment, data collection, and analysis. Met periodically with the research team to complete the project.
Auditor	Trained doctoral-level researcher with extensive experience working with sexual and gender minorities. Met periodically with the researcher to ensure that the data analytic process was consistent and valid. Provided feedback as necessary.
Member Check	Infectious disease medical specialist with a focus on the care of HIV-positive patients and PrEP-related care. Met periodically with the primary researcher to discuss category and theory development.
Peer Debrief 1	Psychology and physical therapist student with undergraduate research experience working with sexual and gender minorities and PrEP. Was involved in open, axial, selective, and theory building. Prior to data analysis, the peer debriefer met with the primary researcher to go over grounded theory and to discuss memoing notes and preliminary ideas on the emerging concepts. The peer debriefer also provided feedback on the various theories.
Peer Debrief 2	Psychology and biology student with undergraduate research experience working with sexual and gender minorities and PrEP. Was involved in open, axial, selective, and theory building. Prior to data analysis, the peer debriefer met with the primary researcher to go over grounded theory and to discuss memoing notes and preliminary ideas on the emerging concepts. The peer debriefer also provided feedback on the various theories.

Table 2.

PrEP Patient Demographic Variables

Age, <i>M</i> (SD)	33 (10.48)
Time on PrEP, <i>M</i> (SD)	1.78 (1.23)
Missed taking PrEP, <i>n</i> (%)	
Within the past week	2 (10%)
Within the past 1-2 weeks	6 (30%)
Within the past month	7 (35%)
Never skipped any medications	5 (25%)
Race/Ethnicity, <i>n</i> (%)	
Caucasian/European American	12 (60%)
African American/Black	4 (20%)
Hispanic/Chicano/Mexican American	3 (20%)
Asian American	1 (5%)
Sexual Orientation, <i>n</i> (%)	
Bisexual	2 (10%)
Gay/Homosexual	17 (85%)
Other	1 (5%)
Religious Affiliation, <i>n</i> (%)	
Christian	6 (30%)
Catholic	3 (15%)
Spiritual, not religious	1 (5%)
Baptist	2 (10%)
Buddhist	1 (5%)
Other	7 (35%)
Political Affiliation, <i>n</i> (%)	
Very liberal	4 (20%)
Liberal	9 (40%)
Moderate	2 (10%)
Slightly more conservative	2 (10%)
Independent	3 (15%)
Education, <i>n</i> (%)	
High school or GED	7 (35%)
Bachelor's degree	8 (40%)
Master's degree	5 (25%)
Relationship Status, <i>n</i> (%)	
Married/domestic partner with same sex partner	3 (15%)
Dating same sex partner(s) only	3 (15%)
Single	11 (55%)
Other	3 (15%)

Note. *n* = 20

Table 3.
Analytic Codes

Theme: Social Support within the LGBT Community	Frequency
1. Learning about through someone else from the LGBT community	12
2. Identified social support in treatment	
a. Partner	6
b. Husband	3
c. Friend(s)	19
d. Doctor	15
3. Family unaware of their decision to use PrEP	
a. Family would not understand based on their own beliefs and understanding	5
b. Not close to family	7
4. Open about health care (PrEP) and sexuality	10
5. Other queer men as social support	12
6. Began talking about PrEP with other people to normalize the behavior	
a. Put an image and personal face to PrEP	7
b. Talked about PrEP with other men on PrEP and their experience with it	10
c. Talked about PrEP to discuss health and possible side effects	9
7. Talked about PrEP to encourage other at-risk men to use it	8
8. Talked about PrEP with heterosexual identified people	7
9. Support for treatment from LGBT community members	
a. Other gay and bisexual men	10
b. Other men on PrEP	14
10. Began talking about PrEP with other people to normalize the behavior	
a. Put an image and personal face to PrEP	7
b. Talked about PrEP with other men on PrEP and their experience with it	10
c. Talked about PrEP to discuss health and possible side effects	9
11. Talked about PrEP to encourage other at-risk men to use it	8
12. Talked about PrEP with heterosexual identified people	7
13. Reaction from supportive others when participant shared decision to use PrEP	
a. Relief	7
b. Curious whether or not PrEP will work	2
c. Affordability and access	3
d. Referral to care	5
e. Closer relationship and shared resources	8
f. Possible concern(s) about what it would do on the long run	4
g. Not aware of what PrEP was until the conversation happened	7

14. Individual reaction from sharing decision to use PrEP with social support	
a. Relief	9
b. Informed and confident	6
c. Resource to friends and the community	9
d. Increased sense of identity	2
15. Type of support within Prep treatment	
a. Emotional	16
b. Reminder to take medication	4
c. Social welcoming and further normalizing of the behavior	8
d. Reassurance	5
e. Provided information about the biology of PrEP and how it works	8
16. Respected and understood to be on PrEP	20
17. Improved relationship with social support	
a. Has improved relationship with current partner	3
b. Improved relationship with other men and friends as a form of relationship building	10
18. Has a partner or has had a partner who also uses PrEP	8
<hr/>	
Theme: Psychological Impact of PrEP	Frequency
19. HIV related experience initiated PrEP use	
a. Avoid Potential HIV transmission from current partner	1
b. HIV-related fear	14
c. Exposure to HIV from a previous sexual partner	5
20. Mental relief initiated PrEP use	17
21. HIV-related experience initiated PrEP conversation with social support	3
22. It is a responsibility to talk about status and PrEP within a relationship	7
23. Assumptions based on your decision to use PrEP	
a. Assumption that you are gay and sexually at-risk, so you need it	4
b. Less willing to commit to partner	4
c. Assumption that you are HIV-positive	9
24. Concern about the long-term use of PrEP	6
<hr/>	
Theme: PrEP-related Stigma	Frequency
25. Stigma about men who are on PrEP	
a. Slut synonym(s)	15
b. Responsible	6
c. Irresponsible and reckless	8
d. Assumptions based on what the medication does	9
e. Why is a condom no longer good enough	3
26. Community (gay and bisexual men) view on PrEP	
a. Increased sexual risk behavior	12
b. Older gay men who relate it to the AIDS epidemic	3
c. Younger gay men believe they're invincible	5

d. Fear of HIV	4
e. Financial status associated with PrEP and accessibility to health care	4
27. Non-LGBT view on PrEP	
a. Do not know about it	11
b. Increased sexual risk behavior	8
c. How prevalent is HIV still?	2
28. HIV does not just affect the queer community	
a. Rates of HIV infection in Milwaukee for African American women are high	1
b. PrEP is not a queer drug	12
29. Individual reaction from stigma about men who are on PrEP	
a. Irritated	6
b. Part of the stigma is true	6
c. Not ashamed by the stigma	16
30. Direct experiences of stigma	8
31. Stigma has prevented accessing mental health services	5
32. Read hurtful/untrue things about PrEP	11
33. Comparison of PrEP to birth control	5
34. Decrease stigma by showing different people on PrEP	
a. Heterosexual people	9
b. By explaining PrEP and trying to simplify the message of what it is	8
c. Revival of education about HIV culture and that it does just affect gay people	8
d. Promoting PrEP at non-LGBT events	2
Theme: Relationship-related Stigma and PrEP	Frequency
35. Stigma about men who are in non-monogamous relationships	8
36. It is a responsibility to talk about status and PrEP within a relationship	7
37. Idea that younger people are more open to non-traditional relationships	4
38. Assumption that you are dating someone who is HIV-positive	9
Theme: Access to Care	Frequency
39. Being out of the closet, is a privilege associated with access	15
40. Closeted gay men who would not reach out to access PrEP	3
41. Difficult to conceal PrEP from other people	3
42. Being your own health advocate	17

Note. Frequency column is based on the number of participants who were coded for each category

BIBLIOGRAPHY

- Amico, K.R. (2012). Adherence to pre-exposure chemoprophylaxis: The behavioral bridge from efficacy to effectiveness. *Curr Opin HIVAIDS*, 7(6):542–548. doi: 10.1097/COH.0b013e3283582d4a.
- Amico, K. R., Mehrotra, M., Avelino-Silva, V. I., McMahan, V., Veloso, V. G., Anderson, P., For the iPrEx Study Team. (2016). Self-reported Recent PrEP Dosing and Drug Detection in an Open Label PrEP Study. *AIDS and Behavior*, 20, 1535–1540.
- Anderson, P.L., Lama, J.R., Buchbinder, S., et al. (2011). Expanded case-control analysis of drug detection in the global iPrEx trial. Sixth IAS Conference, Rome, abstract MOLBPE034. Presented at: 6th IAS Conference on HIV Pathogenesis, Treatment and Prevention; Rome. 2011.
- Bennett, D. S., Traub, K., Mace, L., Juarascio, A., & O’Hayer, C. V. (2016). Shame among people living with HIV: a literature review. *AIDS Care*, 28(1), 87–91. <http://doi.org/10.1080/09540121.2015.1066749>.
- Bennett, D.E., Myatt, M., Bertagnolio, S., Sutherland, D., & Gilks, C.F. (2008). Recommendations for surveillance of transmitted HIV drug resistance in countries scaling up antiretroviral treatment. *Antiviral therapy*, 13 Suppl 2, 25-36.
- Brummett, B.H., Barefoot, J.C., Siegler, I.C., Clapp-Channing, N.E., Lytle, B.L., Bosworth, H. B., Williams, R.B. Jr., & Mark, D. B. (2001). Characteristics of socially isolated patients with coronary artery disease who are at elevated risk for mortality. *Psychosom. Med.* 63: 267–272. doi:10.1097/00006842-20010300000010.
- Bogdan, R., & Biklen, S. K. (1998). *Qualitative Research for Education: An introduction to theories and methods*. Boston: Allyn and Bacon, Inc.
- Camic et. Al. (2003). Qualitative Research in Psychology. *Expanding perspectives in methodology and design*.
- Capitanio, P., John, Herek, M., Gregory. (1999). AIDS Stigma and Sexual Prejudice. *American Behavioral Scientist*. Sage Publications, Inc.
- Catz, S. L., Kelly, J. A., Bogart, L. M., Benotsch, E. G., & McAuliffe, T. L. (2000). Patterns, correlates, and barriers to medication adherence among persons prescribed new treatments for HIV disease. *Health Psychol*, 19, 124-133. doi:10.1037/02786133.19.2.124.

- Corbin, Juliet., Strauss, Anselm, M. (1997). *Grounded Theory in Practice*. Thousand Oaks, CA: Sage Publications
- Center for Disease Control (CDC). HIV Among African Americans, 2016. HIV Surveillance Report 2016; 26. doi:10.1037/0278-6133.19.2.124.
- CDC. HIV Surveillance Report: Diagnoses of HIV infection in the United States and Dependent Areas, 2014; 26.
- CDC. National Health Statistics Report in the United States, 2014; 16.
- CDC. Interim guidance: Preexposure prophylaxis for the prevention of HIV infection in men who have sex with men. *MMWR Morb Mortal Weekly Rep* 2011; 60:65–68.
- Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, 13(1), 3–21. doi:10.1007/bf00988593.
- Charmaz, K. (2007). Grounded Theory. *The Blackwell Encyclopedia of Sociology*. doi:10.1002/9781405165518.wbeosg070.
- Chaudoir, S. R., Fisher, J. D., & Simoni, J. M. (2011). Understanding HIV disclosure: A review and application of the Disclosure Processes Model. *Social Science & Medicine*(1982), 72(10), 1618–1629.
- Chesney, M.A., Ickovics, J.R., Chambers, D.B., Gifford, A.L., Neidig, J., Zwickl, B., & Wu, A.W. (2000). Self-reported adherence to antiretroviral medications among participants in HIV clinical trials: The AACTG adherence instruments. Patient Care Committee & Adherence Working Group of the Outcomes Committee of the Adult AIDS Clinical Trials Group (AACTG). *AIDS Care*, 12, 255–266. doi:10.1080/09540120050042891.
- Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine*, 38, 300–314. <https://doi.org/10.1097/00006842-197609000-00003>.
- Cohen, S. E., Vittinghoff, E., Bacon, O., Doblecki-Lewis, S., Postle, B. S., Feaster, D. J., ... Liu, A. Y. (2015). High Interest in Pre-exposure Prophylaxis Among Men Who Have Sex with Men at Risk for HIV-Infection: Baseline Data from the US PrEP Demonstration Project. *Journal of Acquired Immune Deficiency Syndromes*, 68(4), 439–448. <http://doi.org/10.1097/QAI.0000000000000479>.
- Cohen, S. (2004). Social relationships and health. *Am Psychol*, 59, 676–684. doi:10.1037/0003-066X.59.8.676.
- Cohen, S., Gottlieb, B., & Underwood, L. (2000). Social relationships and health. In S. Cohen, L. Underwood, & B. Gottlieb (Eds.), *Measuring and intervening in social support* (pp. 3–25). New York: Oxford University Press.

doi:10.1093/med:psych/9780195126709.003.0001.

- Corbin, J., & Strauss, A. (2008). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory (3rd ed.)*. Thousand Oaks, CA: Sage.
- Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA, US: Sage Publications, Inc.
- Creswell, J. W. (2013). *Qualitative Inquiry & Research Design: Choosing among Five Approaches (3rd ed.)*. Thousand Oaks, CA: SAGE.
- Crookall, D. (1997). Basics of qualitative research: Grounded theory, procedures, and techniques. *Simulation & Gaming*, 28(1), 129. Retrieved from <https://search.proquest.com/docview/230336421?accountid=100>.
- Dey, I. (1999). *Grounding Grounded Theory: Guidelines for Qualitative Inquir.*: Bingley, United Kingdom: Emerald Group Publishing.
- DiMatteo, M. R. (2004). Social support and patient adherence to medical treatment: A meta-analysis. *Health Psychology*, 23, 207-218. <http://dx.doi.org/10.1037/02786133.23.2.207>.
- Eisenberg, M.E., & Resnick, M.D. (2006). Suicidality among gay, lesbian and bisexual youth: the role of protective factors. *J Adolesc Health*, 39, 662-668. doi:10.1016/j.jadohealth.2006.04.024.
- Fang, X., Li, X., Stanton, B., Hong, Y., Zhang, L., Zhao, G., ... Lin, D. (2009). Parental HIV/AIDS and Psychosocial Adjustment among Rural Chinese Children. *Journal of Pediatric Psychology*, 34(10), 1053–1062. <http://doi.org/10.1093/jpepsy/jsp006>.
- Gallant, J. E., & Block, D. S. (1998). Adherence to antiretroviral regimens in HIV infected patients: results of a survey among physicians and patients. *Journal of the International Association of Physicians in AIDS Care*, 4(5), 32-35.
- Gifford, A.L., Bormann, J.E., Shively, M.J., Wright, B.C., Richman, D.D., & Bozzette, S.A. (2000). Predictors of self-reported adherence and plasma HIV concentrations in patients on multidrug antiretroviral regimens. *Journal of Acquired Immune Deficiency Syndromes*, 23, 386–395. <https://doi.org/10.1097/00042560200004150-00005>.
- Glaser, B. (1992). Basics of grounded theory analysis, *Sociology Press, Mill Valley*.
- Glaser, Barney G & Strauss, Anselm L., 1967. *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Chicago, Aldine Publishing Company.

- Glick, P., & Fiske, S. T. (1996). The ambivalent sexism inventory: Differentiating hostile and benevolent sexism. *Journal of Personality and Social Psychology*, 70(3), 491-512. <http://dx.doi.org/10.1037/0022-3514.70.3.491>.
- Goffman, E. (1963) *Stigma; notes on the management of spoiled identity* Englewood Cliffs, N.J., Prentice-Hall
- Gottlieb, M. S., Schroff, R., Schanker, H. M., Weisman, J. D., Fan, P. T., Wolf, R. A., & Saxon, A. (1981). Pneumocystis carinii pneumonia and mucosal candidiasis in previously healthy homosexual men. *N Engl J Med*, 305(24), 1425-1431. doi:10.1056/NEJM198112103052401.
- Grant, R. M., Lama, J. R., Anderson, P. L., McMahan, V., Liu, A. Y., Vargas, L., ... Glidden, D. V. (2010). Preexposure Chemoprophylaxis for HIV Prevention in Men Who Have Sex with Men. *The New England Journal of Medicine*, 363(27), 2587–2599. <http://doi.org/10.1056/NEJMoa1011205>.
- Grant, R. M., Anderson, P. L., McMahan, V., Liu, A., Amico, K. R., Mehrotra, M., ... Glidden, D. V. (2014). Uptake of pre-exposure prophylaxis, sexual practices, and HIV incidence in men and transgender women who have sex with men: A cohort study. *The Lancet Infectious Diseases*, 14(9), 820-829. doi: [10.1016/S14733099\(14\)70847-3](https://doi.org/10.1016/S14733099(14)70847-3).
- Grov, C., Whitfield, T. H. F., Rendina, H. J., Ventuneac, A., & Parsons, J. T. (2015). Willingness to Take PrEP and Potential for Risk Compensation Among Highly Sexually Active Gay and Bisexual Men. *AIDS and Behavior*, 19(12), 2234-2244. doi: [10.1007/s10461-015-1030-1](https://doi.org/10.1007/s10461-015-1030-1).
- 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*, 27:455–462. doi:10.1037/0278-6133.27.4.455.
- Herek, G.M., Gillis, J.R., & Cogan, J.C. (1999). Psychological sequelae of hate crime victimization among lesbian, gay, and bisexual adults. *Journal of Consulting and Clinical Psychology*, 67:945–951. <https://doi.org/10.1037//0022-006x.67.6.945>.
- Herek, G. M., Widaman, K. F., & Capitanio, J. P. (2005). When sex equals AIDS: Symbolic stigma and heterosexual adults' inaccurate beliefs about sexual transmission of AIDS. *Social Problems*, 52(1), 15-37. Retrieved from <https://search.proquest.com/docview/216928096?accountid=100>.
- Holt-Lunstad, J., Smith, T.B., & Layton, J.B. (2010). Social Relationships and Mortality Risk: A Meta-analytic Review. *PLoS Med*7(7): e1000316. <https://doi.org/10.1371/journal.pmed.1000316>.

- House, J.S., & Kahn, R.L. (1985) Measures and concepts of social support. In: Cohen, S.; Syme, S.L., editors. *Social support and health*. San Diego, CA: Academic Press, 83-108.
- Ickovics, J.R., & Meisler, A.W. (1997). Adherence in AIDS clinical trials: a framework for clinical research and clinical care. *J Clin Epidemiol*; 50:385–391.
- John, S.A., Starks, T.J., Rendina, H.J., & Grov, C. (2018). Should I Convince My Partner to Go on Pre-Exposure Prophylaxis (PrEP)? The Role of Personal and Relationship Factors on PrEP-Related Social Control among Gay and Bisexual Men. *AIDS Behav.* 1239-1252. PMID: PMC5738299.
- Katz, I. T., Ryu, A. E., Onuegbu, A. G., Psaros, C., Weiser, S. D., Bangsberg, D. R., & Tsai, A. C. (2013). Impact of HIV-related stigma on treatment adherence: systematic review and meta-synthesis. *Journal of the International AIDS Society*, 16(3Suppl 2), 18640. <http://doi.org/10.7448/IAS.16.3.18640>.
- Knox, S.S., & Uvnas-Moberg, K. (1998). Social isolation and cardiovascular disease: An atherosclerotic pathway? *Psychoneuroendocrinology* 23: 877–890. [https://doi.org/10.1016/s0306-4530\(98\)00061-4](https://doi.org/10.1016/s0306-4530(98)00061-4).
- Kop, W.J., Berman, D.S., Gransar, H., Wong, N.D., Miranda-Peats, R., White, M.D., Shin, M., Bruce, M., Krantz, D.S., & Rozanski, A. (2005). Social network and coronary artery calcification in asymptomatic individuals. *Psychosom. Med.* 67: 343–352. <https://doi.org/10.1097/01.psy.0000161201.45643.8d>.
- Lohse, N., Obel, N., Kronborg, G., Laursen, A., Pedersen, C., Larsen, C. S., ... Gerstoft, J. (2005). Declining risk of triple-class antiretroviral drug failure in Danish HIV infected individuals. *AIDS*, 19(8), 815–822. doi:10.1097/01.aids.0000168976.51843.9f.
- Lopez, G. (2015). “The CDC Wants 1 in 4 Sexually Active Gay and Bisexual Men to Use an HIV Prevention Pill,” Retrieved from www.Vox.com/identities/2015/11/24/97939s8/cdc-truvada-gay-bisexual-men.
- Liu A, Cohen S, Follansbee S, et al. Early Experiences Implementing Pre-exposure Prophylaxis (PrEP) for HIV Prevention in San Francisco. *PLoS Medicine*. 2014;11(3):e1001613. doi:10.1371/journal.pmed.1001613.
- Maxwell, Joseph, A. (1996) *Qualitative research design: an interactive approach*: Thousand Oaks, CA. Sage Publications.
- 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.

- Miles, Edward, W., Hatfield, John D., Huseman, Richard C. (1994) Equity sensitivity and outcome importance. *Journal of Organizational Behavior*.
- Mosack, K.E. (2006). The involvement of family in HIV treatment planning discussions: Barriers and facilitators. Paper presented at the NIMH Annual International Research Conference on the role of families in preventing and adapting to HIV/AIDS. San Juan, Puerto Rico.
- Murphy, B.M., Elliott, P.C., Le Grande, M.R., Higgins, R.O., Ernest, C.S., Goble, A.J., & Tatoulis, J. (2008). Worcester MU. Living Alone Predicts 30-Day Hospital Readmission after Coronary Artery Bypass Graft Surgery. *European Journal of Cardiovascular Prevention & Rehabilitation*, 15(2):210–5. doi: 10.1097/HJR.0b013e3282f2dc4e.
- Pachankis, J. E. (2007). The psychological implications of concealing a stigma: A cognitive affective-behavioral model. *Psychological Bulletin*, 133, 328–345.
- Petroll, A.E., & Mosack, K.E. (2011). Physician awareness of sexual orientation and preventive health recommendations to men who have sex with men. *Sexually Transmitted Diseases*; 38:63-7.
- Plöderl, M., & Fartacek, R. (2005). Suicidality and associated risk factors among lesbian, gay, and bisexual compared to heterosexual Austrian adults. *Suicide and Life Threatening Behavior*, 35, 661–670. <https://doi.org/10.1037/00332909.133.2.328>.
- Prachakul, W., & Grant, J.S. (2003). Informal caregivers of persons with HIV/AIDS: A review and analysis. *J Assoc Nurses AIDS Care*; 14:55-71. doi:10.1177/1055329003014003005.
- Sandelowski, M. J. (1986). The problem of rigor in qualitative research. *ANS. Advances in nursing science*, 8(3), 27-37. <https://doi.org/10.1097/00012272-19860400000005>
- Simoni, J. M., Frick, P. A., & Huang, B. (2006). A longitudinal evaluation of a social support model of medication adherence among HIV-positive men and women on antiretroviral therapy. *Health Psychology*, 25(1), 74-81. doi:10.1037/02786133.25.1.74.
- Smith, R., Rossetto, K., & Peterson, B.L. (2008). A meta-analysis of disclosure of one's HIV positive status, stigma and social support. *AIDS Care* 20(10): 1266-75. doi:1080/09540120801926977.
- Southwick, S.M., Vythilingam, M., & Charney, D.S. (2005). The Psychobiology of depression and resilience to stress: Implications for prevention and treatment. *Annual Review of Clinical Psychology*, 1, 255-291.

doi:10.1146/annurev.clinpsy.1.102803.143948.

- Stangl, A.L., Lloyd, J.K., Brady, L.M., Holland, C.E. and Baral, S. (2013) A Systematic Review of Intervention to Reduce HIV-Related Stigma and Discrimination from 2002 to 2013: How Far Have We Come? *Journal of International AIDS Society*, 16, Article ID: 18734. <https://doi.org/10.7448/IAS.16.3.18734>
- Stern, M. J. (2015, December 1) "Listen to Reagan's Press Secretary Laugh About Gay People Dying of AIDS," *OUTWARD*. Retrieved from <http://www.slate.com>.
- Strauss, A. (1987). *Qualitative Analysis for Social Scientists*. Cambridge: Cambridge University Press. doi: 10.1017/CBO97805115578Y42.
- Strauss, A. L., & Corbin, J. M. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks: Sage Publications.
- Strauss, A. & Corbin, J. (1990). *Basics of qualitative research: Techniques and procedures for developing grounded theory*, 1st edn, *Sage Publications, Newbury Park*.
- Tangmunkongvorakul, A., Chariyalertsak, S., Amico, K.R., et al. (2013). Facilitators and barriers to medication adherence in an HIV prevention study among men who have sex with men in the iPrEx study in Chiang Mai, Thailand. *AIDS Care*, 25(8):961–967. doi:10.1080/09540121.2012.748871.
- Thompson, Murray, W. (2011) Personality and oral health. *European Journal of Oral Sciences*.
- Van Damme, L., Corneli, A., Ahmed, K., Agot, K., Lombaard, J., Kapiga, S., ... & Temu, L. (2012). Preexposure prophylaxis for HIV infection among African women. *New England Journal of Medicine*, 367(5), 411-422. *
- Van der Elst, E. M., Mbogua, J., Operario, D., Mutua, G., Kuo, C., Mugo, P., ... Sanders, E. J. (2013). High Acceptability of HIV Pre-exposure Prophylaxis but Challenges in Adherence and Use: Qualitative Insights from a Phase I Trial of Intermittent and Daily PrEP in At-Risk Populations in Kenya. *AIDS and Behavior*, 17(6), 2162–2172. <http://doi.org/10.1007/s10461-012-0317-8>.
- Veiel, H.O.F. & Baumann, U. (1992). *The meaning and measurement of social support*. New York: Hemisphere Publication Services. doi:10.12987/yale/9780300102185.003.0002.
- Wagner, G.J., Remien, R.H., Carballo-Diegeuz, A., & Dolezal, C. (2002). Correlates of adherence to combination antiretroviral therapy among members of HIV-positive mixed status couples. *AIDS Care*, 14, 105–109.

doi: 10.1080/09540120220097973.

Wang, H.X., Mittleman, M.A., & Orth-Gomer, K. (2005). Influence of social support on progression of coronary artery disease in women. *Soc. Sci. Med.* 60: 599–607.
doi: 10.1016/j.socscimed.2004.05.021.

Ware, N., Wyatt, M., & Tugenberg, T. (2006) Social relationships, stigma and adherence to anti-retroviral therapy for HIV/AIDS. *AIDS Care*, 18:904–910.
doi: 10.1080/09540120500330554.

World Health Organization (WHO). Global Health Observatory Data (GHO). Retrieved from <http://www.who.int/gho/hiv/en/>.