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Carolyn A Brown 7/1/2020

Investigating the Role of Sexual Identity/Behavior Stigma and HIV-Related Stigma in HIV Prevention and Care Engagement among Men who have Sex with Men and Transgender Women in South Africa

By

Carolyn A. Brown

Doctor of Philosophy

Epidemiology

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Patrick S. Sullivan, PhD
Advisor

_____

Aaron J. Siegler, PhD
Committee Member

_____

Michael R. Kramer, PhD
Committee Member

_____

Stefan D. Baral, MD
Committee Member

Accepted:

_____

Lisa A. Tedesco, Ph.D.
Dean of the James T. Laney School of Graduate Studies

_____

Date

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Carolyn A. Brown
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Sc.B., Brown University, 2011

Chair: Patrick S. Sullivan, PhD
Committee: Michael R. Kramer, PhD; Aaron J. Siegler, PhD; Stefan D. Baral, MD

An abstract of
A dissertation submitted to the Faculty of the James T. Laney School of Graduate Studies of Emory University in partial fulfillment of the requirements for the degree of
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Abstract

Investigating the Role of Sexual Identity/Behavior Stigma and HIV-Related Stigma in HIV Prevention and Service Engagement among Men who have Sex with Men and Transgender Women in South Africa

by Carolyn A. Brown

HIV remains a leading cause of morbidity and mortality in sub-Saharan Africa. Global achievements in HIV testing, treatment, and retention have not been equally gained and men who have sex with men (MSM) and transgender women (TGW) account for a disproportionately high burden of HIV worldwide. One factor contributing to HIV disparities among MSM and TGW is stigma. MSM and TGW may face multiple layers of stigma, due to sexual orientation and behavior, gender identity, race/ethnicity, HIV, and other identities. This dissertation examines the impact of sexual identity/behavior stigma and HIV-related stigma on HIV prevention and service engagement among MSM and TGW in South Africa.

Aim 1 assessed the association of baseline levels of sexual identity/behavior stigma and HIV-related stigma on HIV prevention uptake among MSM and TGW enrolled in the Sibanye Health Project (SHP). The SHP was a 12-month longitudinal pilot of a package of HIV prevention interventions in Port Elizabeth and Cape Town, South Africa. No measured domains of stigma were found associated with uptake of pre-exposure prophylaxis (PrEP). Increased enacted stigma at baseline was associated with increased number of optional drop-in visits.

Aim 2 investigated the modifiability of sexual identity/behavior stigma through engagement with the care offered by sensitized providers and clinic staff of the SHP. Over the 12-month period, we found decreases enacted stigma, orientation concealment, and healthcare stigma. We did not find any significant change in anticipated or internalized stigma. Changes in stigma were not associated with either PrEP uptake or number of drop-in visits.

Aim 3 was a qualitative assessment of the impact of a sensitized, safe space clinic on HIV prevention engagement and changes in stigma. Emergent themes included the complex factors around engagement with safe spaces (i.e. spaces offering culturally competent, non-stigmatizing care for MSM and TGW) versus community/public clinics, changes in orientation concealment, healthcare stigma, and the personal impact of engagement with safe spaces.

These findings highlight the modifiability of some domains of stigma and the utility of safe space, sensitized clinics in decreasing stigma and increasing HIV prevention engagement among MSM and TGW in South Africa.

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Chapter 1: Background and Significance

Overview

HIV remains a leading cause of morbidity and mortality in sub-Saharan Africa [1]. In the past decade progress in reducing incident HIV infections has slowed and global disparities in HIV infection have increased [1,2]. Eliminating disparities in HIV incidence and treatment outcomes are of high priority to the National Institutes of Health (NIH) (https://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-137.html). Global achievements in HIV testing, treatment, and retention have led to optimism regarding eventual HIV eradication, but these achievements have not been equally gained [3,4]. MSM account for a disproportionately high burden of HIV worldwide [4], and HIV prevalence among MSM has been shown higher compared to other adults in almost every setting studied [3]. Despite heterosexual sex and vertical transmission being the main driver of the HIV epidemic in Africa, data continues to emerge on the disproportionate burden of HIV among MSM [5–9]. Preventing new HIV infections among MSM is critical to protecting the health of MSM communities as well as for reducing the overall population prevalence; these efforts are particularly important in settings like South Africa where HIV is 19% among the adult population but estimated to be 22-48% among MSM [10]. Despite effective HIV prevention and treatment methods, serving MSM in South Africa remains a challenge due to high HIV incidence and unique population needs [11,12]. Further work to identify and mitigate HIV risk factors specific to MSM populations is needed; stigma is one such factor.

Stigma negatively impacts the health of MSM populations [3,5]. Stigma occurs when an individual or group of individuals possess a socially devalued identity [13], and was defined in more detail by renowned social epidemiologists Link and Phalen as the “co-occurrence of its components – labeling, stereotyping, separation, status loss, and discrimination” [14]. Using an intersectionality framework, we will examine how multiple layers of stigma facing MSM, due to sexual orientation and behavior, gender identity,

race/ethnicity, HIV and other health status, and other factors, compound resulting in greater risk for a variety of poor health outcomes, including HIV.

HIV-related stigma has been well-documented as a major barrier to preventing new HIV infections and to the provision of care for people living with HIV (PLWH) [15–17]. Attention to HIV-related stigma has increased throughout the course of the HIV epidemic, but stigma continues to be a significant barrier to treatment and prevention efforts [17,18]. For PLWH, HIV-related stigma occurs through at least four mechanisms: enacted, perceived, anticipated, and internalized [17]. Enacted stigma refers to the degree a person has experienced prejudice and discrimination due to their socially devalued status [19], perceived stigma refers to the degree to which a person perceives the public to stereotype and discriminate against a stigmatized group [20], anticipated stigma refers to the degree to which a person expects they will experience prejudice and discrimination in the future [21], and internalized stigma refers to the degree to which a member of a devalued group either consciously or unconsciously endorses the negative beliefs associated with the group [22]. HIV-related stigma has been shown to decrease healthcare access and health service utilization, which can lead to low uptake of HIV voluntary counseling and testing and poor adherence to antiretroviral therapy (ART) [5,23–29]. Ultimately these barriers to healthcare access can lead to low self-awareness of HIV serostatus [5,26,30]. In some settings, HIV-related stigma has been associated with HIV transmission risk behaviors, including unprotected receptive or insertive anal sex [29,31]. Furthermore, HIV-related stigma contributes to poor mental health outcomes like depression, panic, and generalized anxiety [24,29,31]. Although there is a body of evidence supporting the effect of HIV-related stigma on health outcomes, most of the studies in this area have been cross-sectional and there have been calls for the next generation of stigma research to use longitudinal designs [16].

Sexual behavior stigma in particular has been associated with adverse HIV-related outcomes among MSM including increased sexual risk practices and reduced rates of HIV testing [12,32–35]. Sexual behavior stigma is defined in this dissertation as stigma that is

enacted, perceived, internalized, or anticipated as a result of one's sexual behavior, or negative experiences in healthcare settings due to one's sexual behavior [12,36]. In South Africa, discrimination on the basis of sexuality is illegal; however, same-sex practices remain highly stigmatized throughout sub-Saharan Africa [5]. Sexual behavior stigma is associated with a host of negative health outcomes, including chronic emotional distress, substance use, suicidality, other mental health burdens, and higher levels of sexual-risk behaviors [3,5,37–40]. Gaining a better understanding of how and in what contexts sexual behavior stigma impacts health-seeking and health-protective behaviors will facilitate the mitigation of health disparities between sexual minority populations and non-sexual minority populations. [41]. Sexual minorities experience increased risk of HIV and other STIs due to both group-specific stressors and general psychological and physiological processes that occur regardless of sexuality [40]. A psychological mediation framework proposed by Hatzenbuehler shows that sexual behavior related stress and stigma can lead to coping behaviors and emotional regulation, that in turn increase health and mental health risks among sexual minorities [40]. Like HIV-related stigma, sexual behavior stigma has also been associated with adverse mental health outcomes such as depression, suicidal ideation, and substance use [12,42–44], which are other important outcomes that may in turn impact HIV risk. MSM and transgender women (TGW) often also face stigma due to their sexual or gender identity in healthcare settings, and stigma reduction interventions with multiple layers of approach (e.g. participant skill building and structural or policy change) have been able to reduce some aspects of stigma in various settings, as highlighted in a systematic review by Nyblade et al [45].

Measuring Stigma

As evidence demonstrating the negative health impacts of stigma grows, stigma mitigation interventions have gained interest, particularly as components of interventions that aim to reduce HIV disparities for MSM [46,47]. In order to assess the effectiveness of stigma mitigation interventions, validated and consistent stigma measurement tools are critical [47].

A recent systematic review summarizing studies between 2004 and 2014 that used quantitative, qualitative, or mixed methods approaches to measure stigma affecting MSM found limited measurement of stigma affecting MSM outside of higher income settings [47]. Of the 541 articles included in this systematic review, only seven (1.3%) studies measured MSM stigma and were from Sub-Saharan Africa, where HIV prevalence remains highest. In South Africa, there was one paper that included stigma measurement for MSM [48]. Among the MSM stigma articles, validated stigma measures were reported in 220 (41.9%), and 277 (52.8%) did not report on validity or did not use validated metrics [47]. The most commonly used stigma scale for MSM was the Attitudes Towards Lesbians and Gay Men (ATLG) Scale, which was originally developed in 1984 but has been updated multiple times, most recently in 2004 [47,49,50]. Other scales that have been used are shown in Table 1, taken from the Fitzgerald-Husek, et al systematic review [47]. Despite the existence of the scales listed in Table 1, there remain concerns with the measurement of stigma through these scales for a variety of reasons. For example, the ATLG scale, which was used by far most frequently, was created as “a brief measure of heterosexuals’ attitudes toward gay men and lesbians” [50], and it not specific to measuring domains of stigma amongst sexual minorities themselves. Additionally, many of the scales measure only one or two of the domains, for example the Reactions to Homosexuality Scale measures only internalized homophobia among MSM [51]. Furthermore, the majority of studies examining MSM stigma have focused on attitudes around sexual orientation rather than sexual practices, which may limit their utility in the measurement of stigma against MSM who do not identify as gay or homosexual [47,52].

Table 1. Most commonly used scales measuring stigma associated with men who have sex with men in articles from 2004-2014.

Author	Name of Scale	Frequency of Use (n=525)
Herek	Attitudes Toward Lesbians and Gay Men (ATLG)	128
Ross & Rosser	Reactions to Homosexuality Scale	19
Morrison & Morrison	Modern Homonegativity Scale (MHS)	18
Diaz et al	Experiences of Homophobia	18
Shidlo	Revised Nungesser Homosexuality Attitudes Inventory (NHAI-R)	16
Mayfield	Internalized Homonegativity Inventory (INHN)	16
Hudson & Ricketts	Index of Homophobia (IHP)	15
Martin & Dean	The Internalized Homophobia Scale (IHP)	13
Nungesser	Nungesser Homosexuality Attitudes Inventory (NHAI)	12
Pinel	Stigma Consciousness Questionnaire (SCQ)	2

Adapted from: Fitzgerald-Husek A, Van Wert MJ, Ewing WF, Grosso AL, Holland CE, Katterl R, et al. Measuring stigma affecting sex workers (SW) and men who have sex with men (MSM): A systematic review. Paraskevis D, editor. PLoS One.

Calls for disparities research among MSM. Addressing stigma facing MSM is critical to accomplishing the NIH's goal of eliminating disparities in HIV incidence and treatment outcomes for those living with HIV/AIDS. The World Health Organization (WHO), UNAIDS, and the US National HIV/AIDS Strategy have called for improved measurement and reduction of stigma affecting MSM as a method for reducing HIV incidence [41,53]. In a 2015 report by the WHO, sexual behavior stigma was associated with high-risk sexual behavior among young MSM; similarly, internalized stigma among MSM has been linked to HIV risk behavior in various settings [53–55]. In many studies, only internalized stigma has been measured, and additional data on other dimensions of stigma is critical for a broader understanding of the mechanisms that lead to these associations. Internalized stigma has been highlighted in the literature as one of the most prevalent domains of stigma and largely has been described in psychological frameworks, however little evidence has aimed to address it [56]. While psychological factors do play a role, inclusion of metrics on social and structural factors that contribute to power structures that reinforce stigmatization should be equally studied and addressed in stigma reduction efforts [56]. Mitigating sexual behavior stigma as part of a human rights approach to health is not only inherently critical, it is a

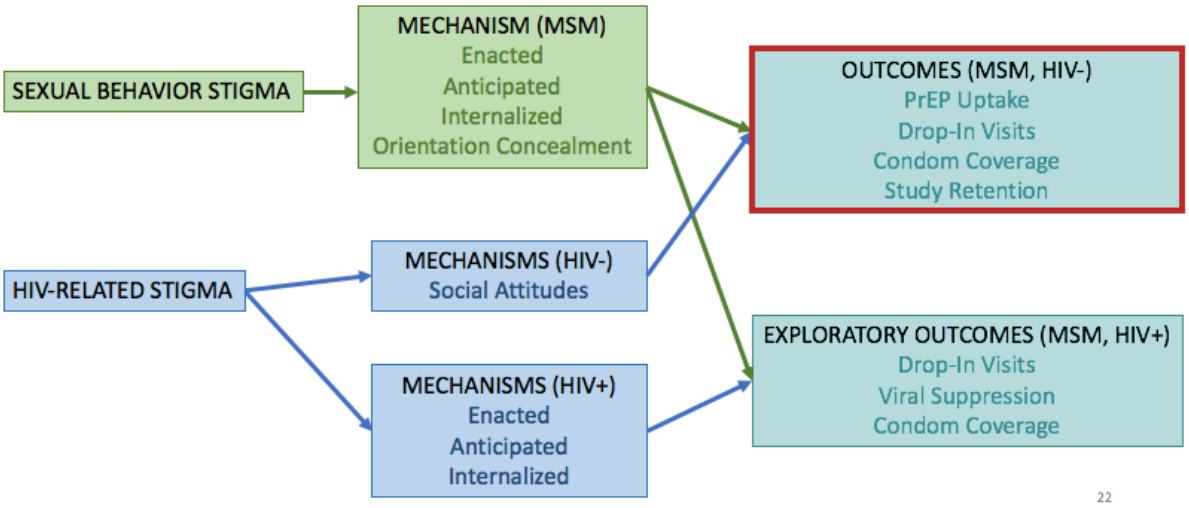
necessary component of strategies to address HIV disparities among men who have sex with men [41].

Intersecting stigmas affecting MSM. Stigma is best considered within an intersectional framework to better conceptualize the way layers of social factors interact to contribute to poor health outcomes among MSM. The theory of intersectionality was first developed in 1989 as a theory to demonstrate how multiple identities assumed by a person intersect to result in greater than additive effects, representing a larger system of oppression and discrimination [57]. The theory of intersectionality describes intra- and inter-group differences in social experience and risk. With this lens, MSM face multiple layers of stigma, due to sexual behavior, gender identity, HIV or other disease status, race/ethnicity, socioeconomic status, and other factors, which compound to result in greater risk for a variety of poor health outcomes, including HIV service and prevention uptake, mental health outcomes, and substance abuse. Understanding how social identities intersect to compound risk helps inform public health practice, particularly in terms of understanding and combating layers of stigma among minority groups [58–60]. A study in Cape Town, South Africa comparing perceived and experienced stigma among HIV-positive MSM and HIV-positive men who only have sex with women found comparable levels of internalized HIV-related stigma but that MSM with HIV experienced greater discrimination than their heterosexual counterparts [5,61]. This exemplifies how stigma and experiences of discrimination are multifaceted and compounded among groups of people with multiple socially devalued identities, like MSM living with HIV. For these analyses, we will explore the intersection of sexual behavior stigma towards MSM with stigmas from other sources, particularly HIV-related stigma. We will also assess differences within categories of socioeconomic status and race/ethnicity. Transgender women were also included in this study so multiple gender identities can also be examined with regard to stigma. Earnshaw and Chaudoir have presented an HIV Stigma Framework for conceptualizing how HIV-related stigma affects

both HIV positive and HIV negative individuals [17], and we have adapted this framework to include sexual behavior stigma (Figure 1).

Stigma reduction strategies. The overall significance of this work will contribute to stigma reduction interventions, which ultimately support broader HIV interventions aimed at reducing disparities in HIV incidence and outcomes. Stigma strategies have been implemented at different levels, including intrapersonal, interpersonal, organizational/institutional, community, and governmental/structural [62–64]. Stigma reduction strategies at the intrapersonal level, particularly within the field of HIV/AIDS work, have included cognitive therapy and counseling as an effective way to decrease self-stigma (internalized stigma)[62,65,66]. Self-help and advocacy and support groups have also been found to decrease intrapersonal stigma in a variety of settings, with findings that these groups contribute to a person's identity, self-esteem, coping skills, and social integration

Figure 1. Conceptual framework of intersecting stigmas and outcomes of interest



[62]. Additionally, interpersonal level interventions that aim to modify the environment surrounding a participant in order to reduce stigma have been shown effective. These interventions have included home care teams, community-based rehabilitation, and care and support interventions targeting communication around a stigmatized identity [62,67]. Interventions also exist at the community and structural level, and a review of stigma interventions found that successful programs to decrease stigma should be multi-targeted

and operating at multiple levels [62]. For example, pairing an interpersonal level intervention with community level initiatives has shown promising. Despite growing evidence that structural stigma contributes to adverse health outcomes among stigmatized groups, few data has investigated both institutional-level practices with any other level of intervention, and such approaches should be included in future work [68]. However taken together, a growing body of evidence demonstrates the potential of interventions to reduce stigma, highlighting the public health implications of this project.

Qualitative Triangulation. Mixing quantitative and qualitative methods has long been advocated in order to strengthen research findings, particularly in the social sciences [69]. Triangulation is broadly defined as "the combination of methodologies in the study of the same phenomenon" [70]. By engaging in in-depth conversations with MSM who participated in SHP, we will be able to contextualize the findings from these analyses with detailed experiences and perceptions of stigma, stigma experienced in healthcare settings, and reasons for uptake/lack of uptake of HIV prevention and care services. We will probe on components of the SHP intervention that may or may not have changed participants' experienced/perceived stigma. In addition, the in-depth interviews will allow for probing on important non-HIV health factors related to intersectional stigma among MSM, such as mental health, alcohol, and substance use.

Innovation. These aims are innovative in several ways. 1) We will be part of a new generation of stigma research assessing changes in stigma in an MSM cohort using a longitudinal design. 2) We have measured and will assess multiple domains of stigma due to multiple identities, meaning this stigma data we will use is multidimensional and rich in a way that much past stigma research has not been. The applicability of this project will ultimately rest in how effectively the findings can be translated into programs and interventions that are relevant to the lived experiences of MSM.

Research Goal

The overarching goal of the proposed aims is to understand the roles of sexual identity/behavior stigma and HIV-related stigma, separately and together, on HIV prevention and care engagement among men who have sex with men in South Africa. These findings will inform stigma reduction interventions, which ultimately support broader HIV interventions aimed at decreasing HIV incidence and promoting retention in HIV prevention and services among MSM.

Sibanye Health Project

We will use data previously collected by this research group to address Aims 1 and 2. The Sibanye Health Project (SHP), a Methods of Prevention Packages Program (MP3) pilot, was a 4-phase prevention intervention prospective cohort that aimed to test combination HIV prevention interventions and services for MSM in South Africa; all data has already been collected [71]. The goal was to determine the acceptability of the package, and to develop a rational and well-informed proposal for a subsequent efficacy trial of a package of HIV prevention services.

The SHP concluded in 2016, with 292 MSM enrolled from Cape Town and Port Elizabeth, South Africa. Study retention was 88% at 12 months. The pilot study was a prospective one-year assessment of the implementation of a package of combination HIV prevention services. In addition to providing information on acceptability and uptake of the prevention package, the longitudinal study aimed to develop capacity for conducting prospective data collection and providing prevention interventions and services. The package included community level interventions to improve health literacy and uptake of prevention services by MSM as well as training of health care providers and clinic staff on LGBT sensitization and provision of sexual health services to MSM.

Through the Sibanye pilot, 201 MSM were followed for a period of 12 months. Participants were offered prevention interventions, including condom choices with an assortment of styles, sizes, and features; condom-compatible lubricant choices, including

water- and silicone-based types, HIV prevention counseling, couples HIV testing and counseling (CHTC), and PrEP for eligible men. Non-occupational post-exposure prophylaxis (nPEP) were made available for men at high risk for HIV transmission. Data on service utilization, condom use, HIV and STI incidence, stigma, acceptability of the prevention package, HIV-related knowledge, and other outcomes were collected.

Chapter 2: Developing and Validating the Multidimensional Sexual Identity Stigma (MSIS) Scale

Introduction

Men who have sex with men (MSM) account for a disproportionately high burden of HIV worldwide [4], and HIV prevalence among MSM has been shown to be higher than prevalence in other populations in almost every setting studied [3]. Preventing new HIV infections among MSM is critical to protecting the health of MSM communities as well as to reducing the overall population prevalence; prevention efforts are particularly important in settings like South Africa where HIV prevalence is 19% among the adult population, and 22-48% among MSM [10]. Despite effective HIV prevention and treatment methods and the protection of the freedom to express one's sexual identity by the Constitution of the Republic of South Africa, providing health services to MSM in South Africa remains a challenge due to high HIV incidence and distinct sexual health needs of MSM [11,12]. Although the proximal biologic factors causing HIV are well defined, the complex relationships between social factors and identities that can increase risk for MSM are now being quantified; one such factor is sexuality identity stigma.

Sexual identity stigma has previously been defined as social stigma directed towards people who are perceived to be non-heterosexual, because of their beliefs, identities, or behaviors [72]. In their HIV Stigma Framework, Earnshaw and Chaudoir describe several domains of stigma, including enacted, anticipated, and internalized [17]. Enacted stigma is the experience of a specific episode of discrimination due to a socially devalued status [19,73]. Enacted stigma has been observed to have particularly strong associations with physical indicators of health and well-being, possibly because experiences of social rejection or physical violence is likely to directly impact physical health [74]. Anticipated stigma refers to the degree to which someone expects they will experience prejudice and discrimination from others in their community [17]. Anticipated stigma has been linked to behavioral and physical indicators of health, with some studies finding reduced likelihood of disclosing

sexual risks or identities to providers, reduced healthcare access, and possibly accelerated HIV disease progression among those living with HIV [74,75]. Internalized stigma represents devaluing and discrediting oneself or one's group based on one's stigma (Earnshaw, Bogart, Dovidio, & Williams, 2013). Internalized stigma has been particularly associated with affective and behavioral indicators of health and well-being, including greater helplessness, lower self-esteem, and low health agency [74]. Earnshaw and Chaudoir developed the Stigma and HIV Disparities Model to describe how these distinct types of stigma have unique effects, but together negatively affect health and contribute to existing health disparities for people living with HIV [39,76]. The HIV Stigma Framework has been successfully applied to substance use, and may translate to other stigmas such as sexual identity stigma [77].

Sexual identity stigma, usually measured as a univariate construct, has been found to be associated with many negative health outcomes among MSM, including chronic emotional distress [38,40,78], substance use [40,78,79], suicidality [40,79], other mental health burdens [40,78], and higher levels of sexual-risk behaviors [3,5,6,78,79]. Sexual minorities experience increased risk of HIV and other STIs due to maladaptive coping behaviors or lowered self-efficacy from group-specific stressors and general psychological and physiological processes that occur regardless of sexuality [40]. A psychological mediation framework proposed by Hatzenbuehler specifies how sexual identity-related stress and stigma may lead to coping behaviors and emotional regulation, that in turn increase health and mental health risks among sexual minorities [40].

As evidence demonstrating the negative health impacts of stigma has grown, interest in stigma mitigation interventions has increased, particularly as components of multiple intervention packages, such as those that aim to reduce HIV incidence for MSM [46,47]. Despite interest in mitigating stigma, most studies have not adequately or consistently measured sexual identity stigma. A 2019 systematic review found that of the stigma reduction interventions with at least one implementation outcome in sub-Saharan Africa, the majority evaluated HIV-related stigma and did not evaluate sexual identity stigma [80]. In

order to assess the effectiveness of stigma mitigation interventions, validated and consistent stigma measurement tools are critical [47].

The most commonly used sexual identity stigma scale for MSM is the Attitudes Towards Lesbians and Gay Men (ATLG) Scale [47]. Other scales that have been used were summarized by Fitzgerald-Husek and colleagues in a systematic review, and include the Reactions to Homosexuality Scale and the Modern Homonegativity Scale (MHS)[47]. Despite the high utility of these scales, they are subject to a number of limitations. The ATLG and the majority of other scales examining sexual identity stigma focus on attitudes towards sexual orientation rather than sexual practice, which may limit utility in settings where a substantial proportion of MSM do not identify as gay or homosexual [47,52]. These scales also predominantly focus on one or two stigma domains, limiting the ability to explore the impact of different domains of stigma that can facilitate intervention targeting [17]. Given these limitations, there remains a need for a multi-domain tool to measure stigma affecting MSM that can be applied and evaluated across settings.

As part of a study to evaluate a combination HIV prevention package among MSM in South Africa, the Multidimensional Sexual Identity Stigma (MSIS) Scale was developed and validated to measure multiple domains of sexual identity stigma among MSM in South Africa.

Methods

The overarching objective of the Sibanye Health Project (SHP) was to evaluate the acceptability and uptake of a combination package of biomedical, behavioral, and community-level HIV prevention interventions and services for MSM and transgender women who have sex with men in South Africa (McNaghten et al., 2014). This study, one component of the SHP, sought to develop and validate a sexual identity stigma scale among SHP participants using qualitative techniques for scale development and baseline data collection for scale validation. Informed consent was obtained at the study clinics before any

study procedures were initiated. Informed consent forms were available in English, Xhosa, and Afrikaans.

Scale Development

A brief review of current literature was conducted to identify scales that were validated for use in other populations and that had at least partial alignment with Earnshaw's Stigma Measurement model [39]. An expert panel composed of a group of international stigma experts (Leickness Simbayi, Paul Semugoma, Carmen Logie, and Stefan Baral) was convened to identify the subscales and scale items that best mapped onto these domains, and to recommend adaptations of scale items as needed. Overall, 12 scales were reviewed; the full list of scales included can be found in Multimedia Appendix 5 of McNaghten et al.'s (2014) article (McNaghten et al., 2014). Based on in-depth discussion, experts selected a set of promising items that were deemed optimal for use in an international context to assess the primary domains of Earnshaw's Measurement model, and also determined each item as fitting in one domain of the stigma model: enacted, anticipated, or internalized stigma. The panel also provided suggestions on changes to individual items, including the need to allow for men of diverse sexual identities to feel included. To this end, an item was added prior to scale initiation that allowed men to choose their preferred term (such as "MSM", "gay", or "bisexual"), and the preferred term automatically populated where relevant for all stigma items on the electronic questionnaire.

Focus Groups and Cognitive Interviews

Four focus groups with 21 study participants were conducted in Cape Town (n=1) and Port Elizabeth (n=3) to identify emic experiences with stigma, to confirm expert panel conclusions, and to facilitate new item development as needed. Participants eligible for focus groups were male at birth, reported anal sex with a man in the past 6 months, were aged 18 years or older, and spoke English, Afrikaans, or Xhosa. Focus groups included a pile-sorting activity to identify whether the expert-panel derived items that had been

categorized into stigma domains did in fact match those domains. Participants were shown all scale items on pre-labeled cards (one item per card) and asked to organize them according to the model domains of enacted, anticipated, or internalized stigma. Participants had an open discussion and then sorted each card into the consensus category. Discussions regarding the items and their sorting was part of the qualitative analysis dataset, and items that did not have clear consensus regarding an optimal sorting pile were noted. This was followed by cognitive interviews to explore participant comprehension of individual scale items. Focus groups and cognitive interviews occurred in both Cape Town and Port Elizabeth with MSM that were recruited using pre-existing contacts from MSM interested in participating in research projects or from referral from these initial contacts, and all were compensated 100 ZAR for their time. Analysis was guided by Grounded Theory, using a constant comparison methodology [81] and conceptual mapping to visualize relationships across themes [82].

Scale Finalization

Results from focus group discussions and cognitive interviews among MSM in South Africa were next shared with the expert panel, allowing for consultation on final tailoring and adaptation of items. This resulted in a set of scale items that were used in the SHP baseline survey (Appendix A). The stigma scale consisted of 32 questions in four stigma domains: enacted, sexual orientation concealment, anticipated, and internalized. Due to recommendations emanating from the focus group discussions and the expert panel, the Likert scale categories were tailored to each domain. Eligible participants for the SHP, participating in the quantitative assessment of the stigma scale, were male at birth, reported anal sex with a man in the past 12 months, were aged 18 years or older, lived in or around either study city, and spoke English or Xhosa. Participants were recruited through participating research centers, at events and MSM hotspots, through advertisements, and through referrals from other study participants.

Coding and Analyses

Stigma variables were coded so that the lowest value represented low stigma and the highest value represented high stigma. For example, for the statement "I avoided holding hands or being affectionate with a male partner in public environments", a response of "Never" was assigned the value 1, and the response "Often" was assigned the value 4 (response options were "Never", "Rarely", "Sometimes", "Often"). "Does not apply" responses for all variables were coded as missing.

Cronbach's alphas were calculated to assess internal reliability. Exploratory factor analysis and correlations with six constructs expected to be associated with the stigma domains, identified *a priori*, were conducted to assess construct validity. Factor analysis was conducted, and parallel analysis comparing eigenvalues from the factor analysis to eigenvalues from randomly created data was used to determine the number of factors to retain. Cross-loading variables, variables not loading, and variables with less than 0.4 factor loading values were dropped sequentially until a final four-factor model was reached, containing 23 variables. All analyses were done in Stata 14.0 (College Station, TX).

For each of the four final factors, a summary factor score was created. For each individual, a mean score for each domain (factor) was created by taking the mean of all the variables within that domain. A summary factor was labeled as missing for an individual if more than 25% of the variables making up that factor were missing. Univariate associations between summary factor scores and constructs of interest were evaluated using univariate linear and logistic regression, as appropriate, with an alpha of 0.05. Constructs of interest included *healthcare stigma* because experiences of stigma often intersect, sexual identity because those that are more out may be differentially impacted by different types of stigma (comprised of: *sexual identity disclosure to a provider*, *gay versus bisexual identity*, and *female partners past 12 months*), and service use (*obtained condom past 3 months*, *obtained lubricant past 3 months*).

Results

The MSIS was created through an expert panel process that included data from focus group discussions (4 focus groups with n=21 total participants) and cognitive interviews (n=79) among MSM in South Africa. Pile sorting conducted in the focus group discussions identified that items grouped by experts into stigma domains were often not grouped similarly by study participants. Based on focus group data and subsequent expert panel discussion, the expert panel made minor, consensus-based changes to improve item wording to fit the cultural context. In particular, greater clarity was provided regarding timing of events in relation to experiences of stigma; anticipated items were changed to be framed in the future, experienced items framed in the past, and internal items framed in the present. Focus group discussions identified important themes that were not fully captured by Earnshaw's Stigma Measurement model, in particular avoidance of care-seeking and disclosure of male sex partners to providers, which was tied to experienced and anticipated negative reactions and consequences [83]. Further exploration of these rich data led to creation of items that populate the "orientation concealment" domain.

The final 23-item scale that was administered to 292 participants revealed a four-factor solution, congruent with the designed domains, and associated with *a priori*-specified constructs: 1) healthcare stigma; 2) disclosure of sexual identity to healthcare provider; 3) sexual identity; 4) a female partner in the last 12 months; 5) obtained condom in last three months; and 6) obtained lubricant in last three months.

The exploratory factor analysis (EFA) of the sexual identity stigma scale included the 292 MSM who completed the baseline survey, demographics can be seen in Table 2. Of the 292 participants, most identified as black African (86.8%), male (91.6%), unmarried (96.5%), and gay (66.6%) or bisexual (25.4%). Levels of stigma were similar by domain between the study sites of Cape Town and Port Elizabeth. The average stigma level was less than a 0.5 difference for all domains between sites and less than 0.1 standard deviations difference between sites. Frequencies for the variables on the stigma scale can be seen in Figure 2

and Table 3. In the enacted stigma domain, the most commonly reported experience was being made fun of or called names (63%). Over one in ten (13%) participants had been hit or beaten up at least once. Common orientation concealment behaviors were avoiding holding hands or being affectionate with men in public (53%) and acting more manly than usual to be accepted (45%). Over one in four participants anticipated being called hurtful words (26%) and believed that people at work assume they have many sexual partners (26%). In the internalized stigma domain, 25% of participants feel uncomfortable being socially involved with other gay men, and almost a third (32%) believed that being gay is against the will of God.

Table 2. Demographic characteristics of 292 participants included in baseline stigma assessment in Cape Town and Port Elizabeth, South Africa, 2014

Variable	Categories	n	Percentage*
Age (years)	Mean = 26.2 SD=6.84		
Site			
	Cape Town	115	39.4%
	Port Elizabeth	177	60.6%
Race/Ethnicity			
	Black African	252	86.8%
	Coloured	31	10.7%
	Indian or Asian	1	0.3%
	White	5	1.7%
	Other	1	0.3%
	Missing	3	
Sexual Identity			
	Heterosexual or straight	20	7.0%
	Homosexual or gay	191	66.6%
	Bisexual	73	25.4%
	Other	3	1.0%
	Missing	5	
Gender			
	Male	261	91.6%
	Female	12	4.2%
	Transgender	9	3.2%
	Other	3	1.0%
	Missing	7	
Married			
	To a man	6	2.1%
	To a woman	4	1.4%
	Not married	274	96.5%
	Missing	8	
Educational Attainment			
	Less than high school degree	137	47.6%
	High school degree	104	36.1%
	Undergraduate or more	47	16.3%

	Missing	4	
Employment			
	Full time paid job	50	17.4%
	Part time paid job	35	12.2%
	Unemployed	202	70.4%
	Missing	5	
Student Status			
	Full time student	61	21.8%
	Part time student	19	6.8%
	Not a student	200	71.4%
	Missing	12	
Annual Income (Rand)			
	No income	141	52.0%
	R1-R4,800	64	23.6%
	R4,801-R19,200	39	14.4%
	R19,201 or more	27	10.0%
	Missing	21	

*percentage of non-missing values

The results from Horn's Test of principal factors (parallel analysis) showed a four-factor solution. The scree plot for the final factor analysis with four factors, including a random comparison from the parallel analysis, is shown in Figure 3. Of the 32 original items, seven not loading on any factor were removed (across three domains), one item with a factor loading value of less than 0.4 was dropped, and one additional cross-loading item was dropped (dropped items are shown in grey in Appendix A). Items remaining in the final factor analysis had high loadings (Table 4). The final 23-item scale revealed a four-factor solution, theoretically congruent with our four-domain model of enacted, anticipated, internalized, and orientation concealment stigmas. For each domain, participants missing more than 25% of item responses in that domain were excluded; there were 25 participants excluded from the enacted and orientation concealment domains each, 18 from the anticipated domain, and 18 from the internalized domain. The overall scale indicated high internal reliability (alpha=0.87). The subscales also demonstrated internal reliability for all domains: enacted (alpha=0.66), orientation concealment (alpha=0.86), anticipated (alpha=0.87), and internalized stigma (alpha=0.80).

Table 5 shows associations between stigma domains and related constructs. Enacted stigma was associated with two related constructs, a lower likelihood of having had

sex with a woman in the past 12 months and identifying as gay rather than bisexual. Sexual orientation concealment was associated with four of six related constructs, a higher likelihood of having had sex with a female partner in the past 12 months, higher likelihood of identifying as bisexual rather than gay, past experiences of stigma in a healthcare setting, and a marginally significant lower likelihood of obtaining condom-compatible lubricant. Anticipated stigma was associated with two related constructs, a higher likelihood of having disclosed same-sex behaviors to a healthcare provider and past experiences of stigma in a healthcare setting. Internalized stigma was associated with four related constructs, past experiences of stigma in a healthcare setting, identifying as bisexual rather than gay, lower likelihood of obtaining condoms, and higher likelihood of having had sex with a woman in the past 12 months.

Figure 2. Sexual identity/behavior stigma scale frequencies by domain among 292 men who have sex with men and transgender women in Cape Town and Port Elizabeth, South Africa, 2014

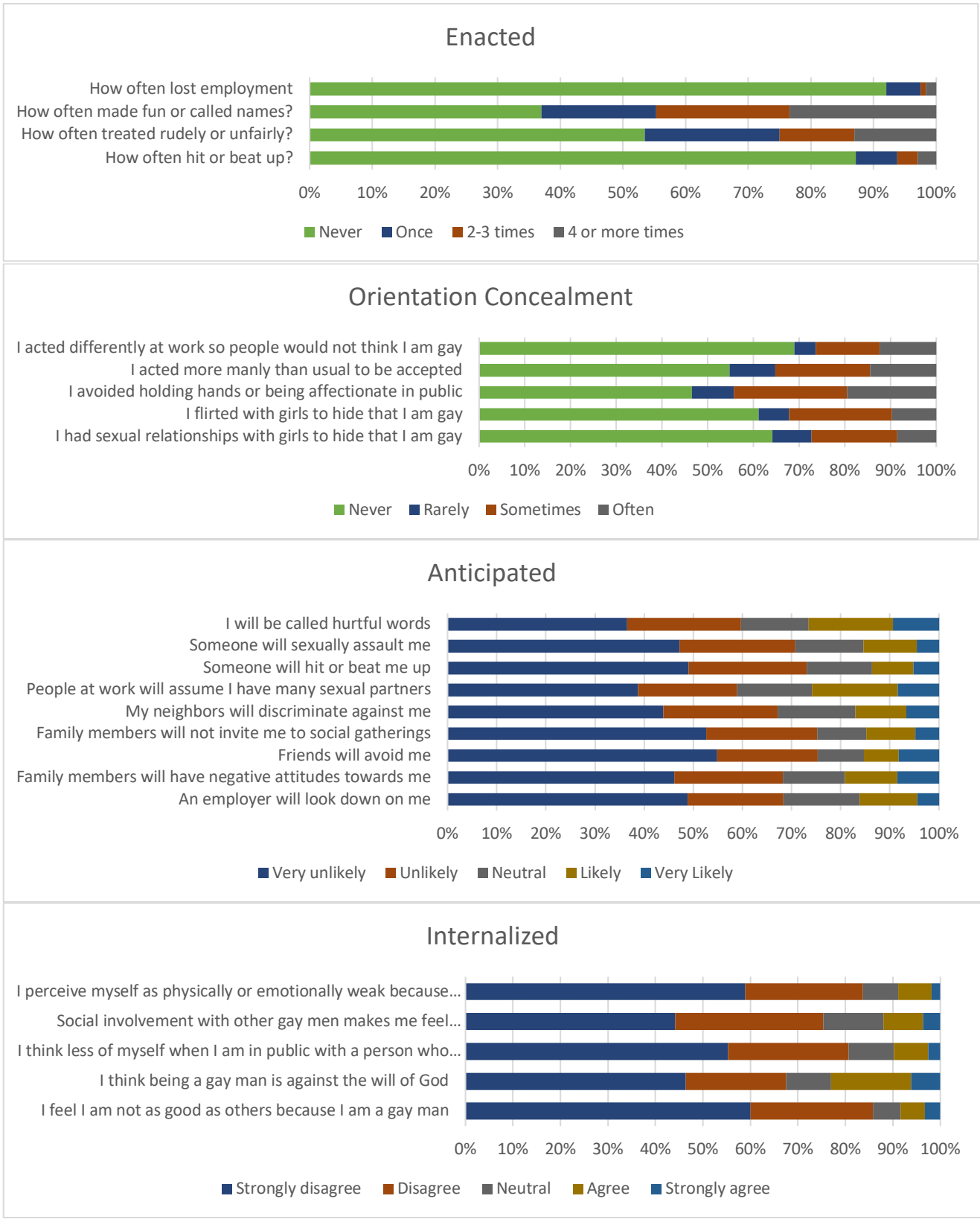


Table 3. Sexual identity/behavior stigma scale average item responses in factor analysis conducted among 292 men who have sex with men and transgender women in Cape Town and Port Elizabeth, South Africa

		Overall Scale			
	Item	**Mean**	**SD**	**Range**	**1 or more times**
Enacted	How often hit or beat up	1.22	0.64	[0,3]	13%
	How often treated rudely or unfairly	1.85	1.07		47%
	How often made fun or called names	2.31	1.20		63%
	How often lost employment	1.12	0.47		8%
					1 or more times
Orientation Concealment	I had sexual relationships with girls to hide that I am [gay or other participant-selected term]	1.72	1.05	[0,3]	36%
	I flirted with girls to hide that I am gay	1.81	1.09		39%
	I avoided holding hands or being affectionate in public	2.17	1.21		53%
	I acted more manly than usual to be accepted	1.95	1.16		45%
	I acted differently at work so people would not think I am gay	1.70	1.11		31%
					Likely or Very likely
Anticipated	An employer will look down on me	2.03	1.23	[0,4]	16%
	Family members will have negative attitudes towards me	2.13	1.33		19%
	Friends will avoid me	1.93	1.29		15%
	Family members will not invite me to social gatherings	1.92	1.21		15%
	My neighbors will discriminate against me	2.13	1.26		17%
	People at work will assume I have many sexual partners	2.37	1.37		26%
	Someone will hit or beat me up	1.97	1.20		14%
	Someone will sexually assault me	2.02	1.21		15%
	I will be called hurtful words	2.40	1.37		26%
					Neutral, agree, or strongly agree
Internalized	I feel I am not as good as others because I am a [gay or other participant-selected term] man	1.66	1.02	[0,4]	14%
	I think being a gay man is against the will of God	2.15	1.33		32%
	I think less of myself when I am in public with a person who is obviously a gay man	1.76	1.06		19%
	Social involvement with other gay men makes me feel uncomfortable	1.96	1.11		25%
	I perceive myself as physically or emotionally weak because I am a [gay or other participant-selected term] man	1.68	1.01		16%

Overall scale is the average score for each variable across all participants.

Figure 3. Factor analysis scree plot with final model and random parallel analysis comparison conducted among 292 men who have sex with men and transgender women in Cape Town and Port Elizabeth, South Africa

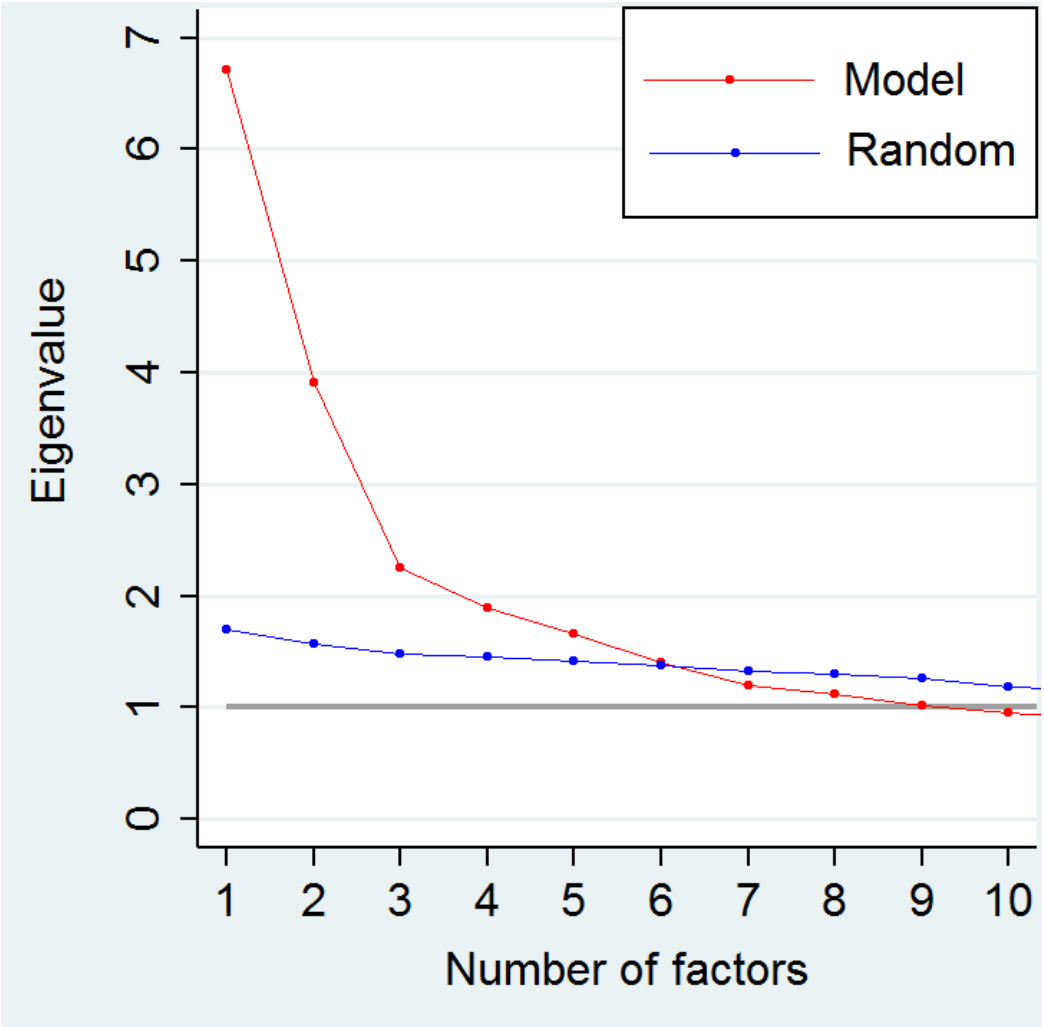


Table 4. Factor analysis item loadings grouped by theoretical sexual identity/behavior stigma domains from analysis conducted among 292 men who have sex with men and transgender women in Cape Town and Port Elizabeth, South Africa

	Item	Factor Loading			
		1	2	3	4
Enacted	How often hit or beat up				0.52
	How often treated rudely or unfairly				0.82
	How often made fun or called names				0.64
	How often lost employment				0.49
Orientation Concealment	I had sexual relationships with girls to hide that I am [gay or other participant-selected term]		0.76		
	I flirted with girls to hide that I am [gay or other participant-selected term]		0.80		
	I avoided holding hands or being affectionate in public		0.60		
	I acted more manly than usual to be accepted		0.66		
	I acted differently at work so people would not think I am [gay or other participant-selected term]		0.72		
Anticipated	An employer will look down on me	0.60			
	Family members will have negative attitudes towards me	0.73			
	Friends will avoid me	0.62			
	Family members will not invite me to social gatherings	0.66			
	My neighbors will discriminate against me	0.72			
	People at work will assume I have many sexual partners	0.57			
	Someone will hit or beat me up	0.57			
	Someone will sexually assault me	0.60			
	I will be called hurtful words	0.67			
Internalized	I feel I am not as good as others because I am a [gay or other participant-selected term] man			0.70	
	I think being a gay man is against the will of God			0.57	
	I think less of myself when I am in public with a person who is obviously a gay man			0.62	
	Social involvement with other gay men makes me feel uncomfortable			0.41	
	I perceive myself as physically or emotionally weak because I am a [gay or other participant-selected term] man			0.76	

Eigenvalues less than 0.4 are not displayed.

Table 5. Associations between prevalence constructs expected to be associated with domains of sexual identity/behavior stigma and correlational validity with MSIS Scale

Item	N (%)	Enacted		Orientation Concealment		Anticipated		Internalized	
		B	**95% CI**	**B**	**95% CI**	**B**	**95% CI**	**B**	**95% CI**
1. Healthcare stigma†		0.04	(-0.01, 0.08)	0.07	(0.04, .10)*	0.08	(0.04, 0.11)*	0.06	(0.03, 0.10)*
		OR	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
2. Disclosure to provider	50 (.31)	1.41	(0.85, 2.33)	1.13	(0.78, 1.64)	1.78	(1.17, 2.69)*	1.06	(0.68, 1.65)
3. Sexual identity (coded as gay=0, bisexual=1))	192 (.67)‡	0.42	(0.24, 0.72)*	3.37	(2.35, 4.85)*	1.03	(0.75, 1.42)	1.54	(1.12, 2.14)*
4. Any female partners last 12 months	63 (.22)	0.41	(0.23, 0.73)*	2.33	(1.68, 3.23)*	1.18	(0.85, 1.62)	1.60	(1.15, 2.23)*
5. Obtained condom last 3 months	227 (.78)	0.92	(0.59, 1.43)	0.94	(0.68, 1.29)	0.95	(0.69, 1.31)	0.69	(0.50, 0.96)*
6. Obtained lubricant last 3 months	151 (.52)	1.18	(0.81, 1.72)	0.76	(0.58, 1.00)*	1.07	(0.81, 1.40)	0.75	(0.56, 1.01)

† Healthcare stigma summary variable was calculated as an average of all non-missing values among 8 variables measuring discrimination in public or private healthcare settings

* CI does not cross null

‡ Prevalence of participants identifying as gay

Discussion

The Multidimensional Sexual Identity Stigma (MSIS) scale exhibits content validity, internal reliability and construct validity among a sample of MSM in South Africa. Overall, there were high levels of sexual identity stigma facing MSM in South Africa, highlighting the need for a continued focus on multilevel stigma reduction interventions. Most epidemiologic studies have measured only one or two types of stigma, making comparisons between types and/or domains not possible and ultimately limiting the generalizability and function [84]. Particularly important is the ability of the MSIS to measure four distinct types of stigma facing MSM, providing nuanced measurement that can be used in this and future research to examine distinct pathways between different stigma domains and health outcomes. The MSIS Scale provides a validated measure that can be used to evaluate progress of stigma reduction programs across contexts, which has been lacking in the field thus far [85]. Comparable stigma findings in both sites indicates that this scale may be appropriate for use in measuring sexual identity stigma among MSM in other parts of Southern Africa,

particularly in urban and peri-urban settings. Furthermore, an important use of this tool in the future will be for measuring the effectiveness of interventions aimed at reducing stigma facing MSM. The final tool should be validated in other settings, including adaptation to local contexts as appropriate.

Using Earnshaw's HIV Stigma Framework allowed for assessment of the relative contributions of different components of stigma. Measuring multiple domains of stigma is important because each domain may uniquely impact health and well-being outcomes, as has been demonstrated among gay men in other settings [74,86]. Enacted or experienced stigma has previously been associated with interpersonal outcomes [87], and in this study enacted stigma was found to be associated with bisexual identity and decreased likelihood of having had sex with a woman. Anticipated stigma is hypothesized as most likely associated with both physical and behavioral indicators of health [74]. These findings support this hypothesis, as anticipated stigma was associated with disclosure to a healthcare provider and experiences of stigma in healthcare settings. However, those with higher anticipated stigma were more likely to have come out to a provider and more likely to have experienced stigma in a healthcare setting, so it is possible that negative experiences with healthcare providers increases anticipated stigma and vice versa. Longitudinal data, however, is needed to provide insight into potential causal direction of these associations. Earnshaw predicted that internalized stigma would be associated with behavioral indicators of health [74], and indeed in the SHP, men with higher degree of internalized stigma were less likely to have obtained condoms. These findings are similar to a group of MSM in the United States in which participants who were higher in internalized sexual identity stigma engaged in unprotected anal sex an average of 0.75 more times in the previous six months and had on average 0.11 more unprotected partners in the previous six months than those who ranked lower in internalized sexual identity stigma [86].

Orientation concealment is a new domain, so while there is not yet a comparison to other cohorts, it can be compared to our other measured domains. Orientation concealment was similarly associated with healthcare stigma as were the anticipated and internalized

domains. Orientation concealment also was strongly associated with bisexual identity (over gay-identifying) and having female partners. One potential explanation for this is that men identifying as bisexual make more effort to hide their sexuality than men who identify as gay or homosexual, or feel more comfortable being out in public with their female partners. Another potential explanation, partly supported by our qualitative data and in the text of an orientation concealment item, is that men with high orientation concealment may be engaging female partners in order to protect the privacy of their identity. Both in qualitative and quantitative assessments, sexual orientation concealment behaviors were common in this cohort. Given salience of orientation concealment and its possible implications for health behaviors, future longitudinal analyses are needed to assess the impact of this type of stigma on health behaviors such as uptake of HIV testing or combination prevention services offered to MSM.

Limitations

This study has several limitations. There is a potential for selection bias in this study if participation in the overall cohort study was somehow related to stigma experiences and other constructs of interest. However, the high levels of stigma reported at baseline are comparable to levels found in multiple cross-sectional studies of MSM in sub-Saharan Africa [5]. There is no gold standard assessment of sexual identity stigma among MSM for comparison purposes, resulting in the need to rely on less direct assessments of validity (content, internal, and convergent). The majority of the MSM that participated in this study live in urban or peri-urban settings, which may limit the generalizability of these findings to rural areas.

Conclusion

The MSIS scale demonstrated content validity, internal reliability, and construct validity. These findings advance the field of sexual identity stigma research in terms of the accurate measurement of multiple domains of this stigma facing MSM, particularly in South Africa, and provide new insights into relevant mechanisms through which this type of stigma

may impact health. Future research should involve longitudinal applications of the MSIS scale and an investigation into how these domains may influence HIV prevention uptake and engagement of MSM in health services for the reduction of health disparities.

Chapter 3: Assessing the association of baseline levels of stigma on HIV service and prevention uptake

Introduction

Men who have sex with men (MSM) and transgender women (TGW) are globally disproportionately affected by HIV [4], with HIV prevalence consistently higher among MSM and TGW than other adults across international settings [3]. While relatively fewer studies have reported HIV outcomes at later stages of the HIV treatment cascade, a meta-analysis of data after 2011 found the pooled proportion of MSM in Africa that were aware of their positive HIV status was low (18.5%)[88]. HIV prevention for MSM and TGW is critical to reducing health disparities experienced by MSM and TGW and for decreasing overall population HIV prevalence. This is particularly relevant in settings like South Africa, where HIV is 19% among the adult population and estimated to be as high as 22-48% among MSM [10].

Several proven prevention methods aimed at behavioral change and biomedical intervention, such as condoms, pre-exposure prophylaxis, and treatment as prevention, are core components of HIV prevention strategies; however, mathematical models demonstrate that under realistic scenarios of scale-up, no single one of these method alone is sufficient to reduce incident HIV infections to a level that would bring an end to the epidemic [89,90]. Therefore, researchers and practitioners have become increasingly interested in measuring and reducing the impact of structural drivers that increase vulnerability to HIV, such as stigma, poverty, and human rights violations, which could facilitate uptake of each of these interventions [89,91,92]. Stigma occurs when an individual or group of individuals possess a socially devalued identity.[13] For MSM and TGW who often identify with one or multiple stigmatized identities, the consequences of stigma can have physical and mental health implications [3,5].

Uptake of HIV prevention services and care is often low among MSM and TGW in settings where same-sex behavior is strongly rejected by traditional, cultural, and community

values [89]. Despite strong legal protections in the Constitution of the Republic of South Africa for expressing one's sexual and gender identity, MSM and transgender women in South Africa still report experiences of homophobia (sexual identity stigma) and discrimination [93,94]. Furthermore, many MSM and TGW experience intersectional stigmas, or the convergence of multiple stigmatized identities, which can have greater than additive negative effects on health and wellbeing [57,95]. Particularly, due to both the higher prevalence of HIV among MSM and TGW and negative social attitudes and assumptions regarding MSM in South Africa, many MSM and TGW often also face HIV-related stigma [61]. A study of MSM living with HIV in Cape Town found that overall this cohort of men experienced more discrimination than their non-MSM counterparts living with HIV [61], demonstrating how devalued identities can intersect, heightening risk for negative outcomes [74]. HIV-related stigma and sexual identity and/or behavior stigma have both been shown to decrease engagement with HIV treatment and prevention services, ultimately restricting progress towards reductions in HIV disparities and outcomes [17,18,96].

To understand the potential influence of stigma on HIV prevention engagement, this study aimed to determine the associations between stigmas (sexual identity/behavior and HIV-related) at baseline and subsequent engagement with HIV prevention services (PrEP uptake and prevention visits attended) offered during the HIV prevention project's 12-month implementation period. This is critical to understanding if any type of stigma acts as a barrier to HIV prevention engagement and will ultimately inform targeted stigma reduction strategies to decrease disparities in HIV among MSM and TGW.

Methods

Cohort sampling and design

Study data come from a 12-month prospective cohort of MSM and TGW in South Africa, the Sibanye Health Project (SHP), which has been previously described [71]. Briefly, 201 MSM and TGW were enrolled at baseline and offered a package of HIV prevention interventions including condom choices with an assortment of styles, sizes, and features;

condom-compatible lubricant choices, including water- and silicone-based types, HIV prevention counseling, couples HIV testing and counseling (CHTC), and pre-exposure prophylaxis (PrEP) for eligible men and TGW. The package also included community-level interventions to improve health literacy and uptake of prevention services by MSM and TGW. This included training of health care providers and clinic staff on providing care sensitive to the needs of LGBT populations, including provision of sexual health services to MSM. The baseline survey completed by participants also included a stigma questionnaire, which included multiple domains of sexual identity and behavior stigma (enacted, orientation concealment, anticipated, and internalized) and HIV-related stigma. Participants completed regular study visits at baseline, month three, month six, and conclusion of the study (12 months). Eligible men were male at birth, aged 18 years and older, self-reported that they had anal intercourse with a man in the past year, were current residents of the study sites of Cape Town or Port Elizabeth, were willing to provide contact information, and had a phone for purposes of study follow-up. Participants were recruited at community events and venues, online, and by participant referral. Most (80%) of the cohort was HIV negative at baseline. By design the study recruited at baseline 20% HIV positive participants, so that HIV status could not be inferred by study participation.

Study Measures

All participants completed a baseline survey that included the Multidimensional Sexual Identity Stigma (MSIS) Scale. The MSIS was validated for use with SA MSM and TGW (Appendix A) and included four domains of sexual identity/behavior stigma (enacted, concealment orientation, anticipated, and internalized). The stigma assessment also included HIV-related stigma (an HIV attitudes and discrimination scale administered to HIV negative participants) and a healthcare stigma domain [17,97,98]. Summary scores for all four domains of sexual identity stigma and the healthcare stigma domain were created by taking an average response of all items included in a domain. If participants did not answer

more than 25% of variables in a domain, the overall score for that domain was reported as missing. Additionally, summary scores were generated by converting the sum of Likert values for all variables in a domain into percent of maximum possible (POMP) score [99]. If participants did not answer more than 25% of variables in a domain, the overall POMP score for that domain was reported as missing. POMP scores were used in graphics comparing the four domains to standardize the scales, the range of which were different between some of the domains due to structuring of the Likert scales. HIV-related stigma was calculated as the mean Likert value of five questions about negative attitudes held towards people living with HIV. The two primary outcomes for this study were metrics assessing the degree of engagement with the intervention: PrEP uptake and the number of drop-in visits completed. PrEP uptake was measured dichotomously as either being on PrEP at study completion (12-months) or not, which was self-reported to study staff at last study visit. A secondary analysis repeated these regressions for PrEP uptake measured as ever started PrEP during the study period. PrEP was offered at multiple study visits to eligible participants. Additionally, optional drop-in visits were available at any time for participants to receive counseling, HIV or STI testing, condoms, and lube. The more participants attended optional drop-in visits the more they had the ability to access additional prevention services and goods, but also spent more time engaging with culturally competent clinic staff.

Analytic Methods

Exploratory analyses assessed participant demographics and average value of stigma for all domains as a measure of central tendency. A correlation matrix including the four sexual identity/behavior domains created. To assess the association of baseline stigma with PrEP uptake, two models were used. Model 1 determined the association of baseline sexual identity stigma and HIV-related stigma with being on PrEP at the end of the study, and Model 2 examined the association of baseline sexual identity stigma and HIV-related stigma with ever starting PrEP during the study. Two different PrEP outcome models were

analyzed because some participants may have started and stopped due to side effects or other barriers but still had the protection provided by PrEP during part of the intervention period. Unadjusted and adjusted odds ratios (OR, aOR) for two measurements of PrEP uptake by baseline sexual identity stigma and HIV-related stigma domains (Models 1 and 2) were analyzed using logistic regression using Stata/SE 14.2 (College Station, TX). Potential confounders were factors established in the literature to be associated with stigma and HIV prevention engagement including: any drug use in the past 6 months [100,101], outness to a healthcare provider [102–105], pre-intervention involvement with an LGBT community organization [103,104], and baseline likeliness to start PrEP (likely associated with actual PrEP uptake and those with higher stigma may be less willing to access service such as PrEP). Model selection was done using a backwards change in estimate approach whereby covariates were excluded one at a time if removing them from the model did not change the exposure estimates by more than 10% in either direction, and the model was constrained to retain the four exposure domains of sexual identity stigma (enacted, orientation concealment, anticipated, and internalized) and the HIV-related stigma exposure. Pearson's goodness of fit statistics were used as a secondary assessment of model fit.

To assess the association of baseline sexual stigma and HIV-related stigma with the number of drop-in visits completed, a third model was used. Unadjusted and adjusted incidence rate ratios (IRR, aIRR) completed with the four domains of sexual identity stigma and HIV-related stigma as exposure variables were calculated using negative binomial regression. All participants were eligible for drop-in visits during the same 12-month intervention period. A likelihood ratio test indicated significant over dispersion, indicating negative binomial regression to be favorable over Poisson regression. The potential confounders were the same as used for Models 1 and 2. Model selection was done using a backwards change in estimate approach, constraining the model to retain the four exposure domains of sexual identity stigma (enacted, orientation concealment, anticipated, and internalized).

Ethics

Institutional review board approval was obtained by Emory University, Desmond Tutu HIV Foundation (DTHF), the Human Sciences Research Council (HSRC), and the National Health Laboratory Service prior to implementation of study activities. The project was funded by the US National Institutes of Health (1R01A1094575), with supplemental funding provided by the US Centers for Disease Control and Prevention (U23GGH000258). Approval from the National Institute of Allergy and Infectious Disease, Division of AIDS, Prevention Sciences Review Committee was obtained prior to initiation of study procedures.

Results

Study demographics and covariates are described in Table 6. Participants were predominantly Black African (81.9%), homosexual (58.4%) or bisexual (32.5%), male-identifying (91.8%), and not married (95.4%). Most participants were unemployed (67.0%) and reported no annual income (52.7%).

Table 6. Baseline participant demographics of 201 participants in SHP cohort, Cape Town and Port Elizabeth, South Africa, 2015-2016

Variable	Categories	n	Percentage*
Site			
	Cape Town	100	49.8%
	Port Elizabeth	101	50.2%
Race/Ethnicity			
	Black African	163	81.9%
	Coloured	30	15.1%
	White	5	2.5%
	Other	1	0.5%
	Missing	2	
Sexual Identity			
	Heterosexual or straight	17	8.6%
	Homosexual or gay	115	58.4%
	Bisexual	64	32.5%
	Other	1	0.5%
	Missing	4	
Gender			
	Male	180	91.8%
	Female	9	4.6%
	Transgender	7	3.6%
	Missing	5	

Married			
	Not married	186	95.4%
	To a man	5	2.6%
	To a woman	4	2.1%
	Missing	6	
Educational Attainment			
	Less than HS degree	101	51.0%
	HS degree	71	35.9%
	Some university	26	13.1%
	Missing	3	
Employment			
	Unemployed	132	67.0%
	Part time paid job	27	13.7%
	Full time paid job	38	19.3%
	Missing	4	
Student Status			
	Not a student	142	74.0%
	Part time student	17	8.9%
	Full time student	33	17.2%
	Missing	9	
Annual Income (Rand)			
	No income	98	52.7%
	R1-R4,800	45	24.2%
	R4,801-R19,200	25	13.4%
	R19,201 or more	18	9.7%
	Missing	15	

* percentage of non-missing values

Baseline sexual identity stigma is shown summarized in Figure 4. Sexual identity stigma scores were fairly similar across domains, with orientation concealment being the highest percent of maximum possible score.

Figure 4. Box plots of baseline sexual identity/behavior stigma domains of 201 men who have sex with men and transgender women, Cape Town and Port Elizabeth, South Africa, 2015-2016

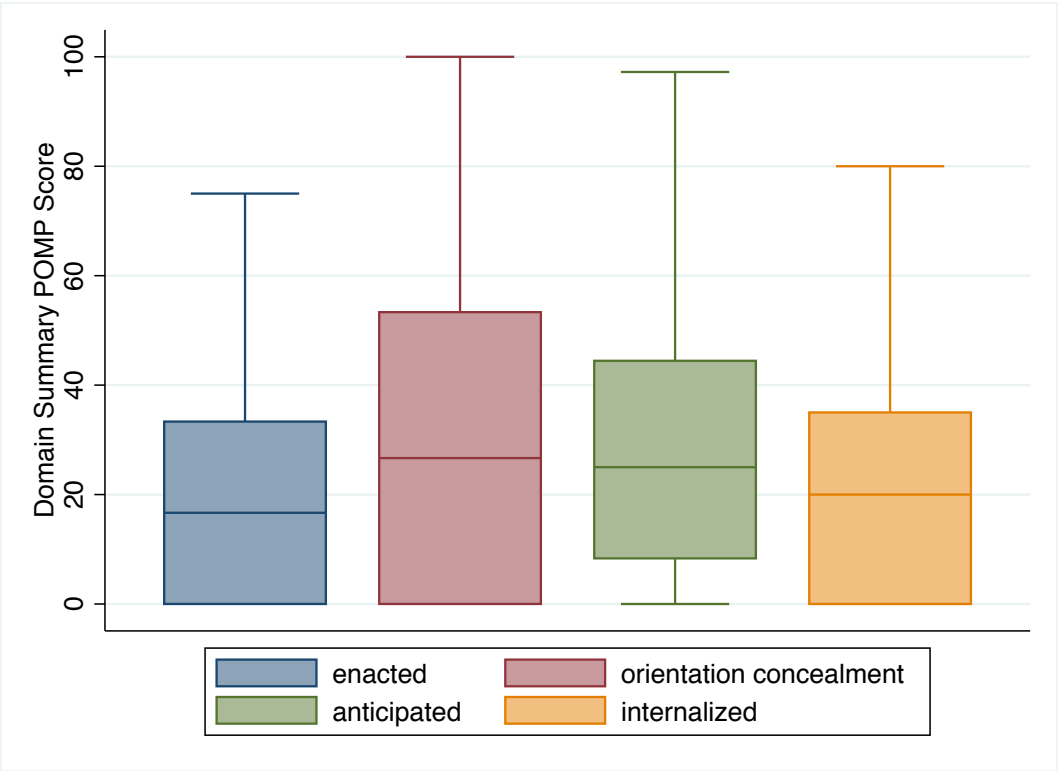


Figure 4 summarizes baseline percentage of maximum possible scores for enacted stigma (25th percentile=0.0, 50th percentile= 16.7, 75th percentile=33.3), orientation concealment (25th percentile=0.0, 50th percentile= 26.7, 75th percentile=53.3), anticipated stigma (25th percentile=8.3, 50th percentile= 25.0, 75th percentile=44.4), and internalized stigma (25th percentile=0.0, 50th percentile= 20.0, 75th percentile=35.0).

All four domains of sexual identity stigma were positively correlated with one another except for enacted stigma and orientation concealment, however pairwise correlation between domains did not exceeded 0.34 for any two domains (Table 7).

Table 7. Correlation matrix for baseline sexual identity stigma domains among 201 men who have sex with men and transgender women, Cape Town and Port Elizabeth, South Africa, 2015-2016

	enacted	concealment	anticipated	internalized
enacted	1.00			
concealment	-0.05	1.00		
anticipated	0.28	0.29	1.00	
internalized	0.16	0.34	0.34	1.00

Compared to gay-identifying participants, bisexual MSM reported lower levels of enacted stigma (OR= 0.42, [95% CI: 0.24, 0.72]), higher orientation concealment (OR= 3.37 [95% CI: 2.35, 4.85]), and higher internalized stigma (OR= 1.54, [95% CI: 1.12, 2.14]) in bivariate analyses. Relatively few participants identified as a transgender woman (n=7) or female (n=9).

Sexual Identity Stigma and HIV-related Stigma on PrEP Uptake

None of the potential confounding variables were retained in the models after the change in estimate model selection approach was conducted, because none of the variables when removed led to a greater than 10% change in estimate of any of the stigma domains. A sub-analysis constraining PrEP likeliness to remain in the model due to likely importance of this factor on actual PrEP uptake yielded similar results. No domain of stigma was associated with PrEP uptake measured either as being on PrEP at the end of the study (Model 1) or ever enrolling on PrEP during the study (Model 2); see Table 8.

Table 8. Associations of baseline sexual identity stigma domains and HIV-related stigma on PrEP uptake among 201 men who have sex with men and transgender women, Cape Town and Port Elizabeth, South Africa, 2015-2016

Domain	Bivariate Associations – any PrEP **OR [95% CI]**	**Model 1 – PrEP end of study aOR* [95% CI]**	**Model 2 – any PrEP aOR* [95% CI]**
Enacted	1.14 [0.67, 1.96]	0.89 [0.48, 1.66]	1.06 [0.55, 2.03]
Orientation concealment	0.87 [0.61, 1.23]	0.94 [0.62, 1.42]	0.78 [0.51, 1.19]
Anticipated	0.98 [0.70, 1.37]	1.08 [0.70, 1.67]	0.97 [0.61, 1.54]
Internalized	0.97 [0.66, 1.42]	0.89 [0.52, 1.50]	1.10 [0.63, 1.91]
HIV-related	0.77 [0.49, 1.23]	1.00 [0.57, 1.74]	0.77 [0.43, 1.36]

ORs are univariate associations with ever enrolled on PrEP during the study (yes, no)
* aORs are adjusted for other domains in the model

Sexual Identity Stigma and HIV-related Stigma on Drop-In Visits Completed

After backwards change in estimate approach was completed, no confounders remained in Model 3 (with four sexual identity stigma domains and HIV-related stigma). None of the domains of sexual identity stigma or HIV-related stigma was associated with the number of drop-in visits completed (Table 9). In bivariate analysis, increased enacted sexual

identity stigma slightly increased number of drop-in visits. Additionally, in a sub-analysis where the model was constrained to only the sexual identity stigma domains (HIV-related stigma was dropped from the model), enacted stigma was associated with an increased number of drop-in visits (aIRR=1.30, [95% CI: 1.02, 1.65]). This indicates that a one-point increase of average enacted stigma variable response on the Likert scale was associated with a modest increase in the number of drop-in visits.

Table 9. Associations of baseline sexual identity stigma domains and HIV-related stigma on number of drop-in visits completed in Sibanye Health Project among 201 men who have sex with men and transgender women, Cape Town and Port Elizabeth, South Africa, 2015-2016

Domain	Bivariate Associations- drop-in visits **IRR [95% CI]**	**Model 3 aIRR* [95% CI]**
Enacted	1.26 [1.03, 1.56]	1.25 [0.96, 1.61]
Orientation concealment	0.95 [0.81, 1.11]	0.91 [0.76, 1.09]
Anticipated	1.07 [0.92, 1.24]	1.04 [0.86, 1.26]
Internalized	0.97 [0.83, 1.13]	0.99 [0.79, 1.24]
HIV-related	0.90 [0.73, 1.11]	0.93 [0.73, 1.19]

*aIRRs are adjusted for other domains in the model

Discussion

Within the context of a study providing a package of HIV prevention interventions to MSM and TGW in South Africa, we sought to identify the associations of multiple types of baseline stigmas on engagement with HIV prevention services. In this study none of the measured domains of sexual identity stigma or HIV-related stigma were associated with PrEP uptake; the decision of whether or not to start and continue PrEP is likely the result of a larger set of social and contextual factors. Similarly, neither HIV-related stigma nor most of the sexual identity stigma domains was associated with the number of drop-in visits.

Our results indicating that stigma was not associated with PrEP uptake were unexpected. Stigma, particularly HIV-related stigma (e.g. fear that sexual partners or family/friends will think they are living with HIV due to PrEP use), has been described by others as a barrier to PrEP uptake [106–109], Negative HIV-related attitudes were not associated with PrEP uptake. However, the HIV-attitudes domain captured the participant's

beliefs relating to HIV rather than measuring broader community and societal beliefs on HIV, which may be the driving factor as has been found in other settings [108,110]. Additionally, MSM with the highest degree of stigma are likely missing from this and all data due to difficulty recruiting those with high levels of orientation concealment. Those with the highest degree of orientation concealment are less likely engaged in MSM-specific care at all [111,112], and therefore would likely not have been enrolled in this study. This finding may also indicate that repeated offers of PrEP could be overcoming the negative effects of stigma, but future research would be needed to further understand this hypothesized relationship.

Enacted stigma was the only domain associated with a higher number of drop-in visits. In this study, participants reporting higher enacted stigma were modestly more likely to attend additional services and have contact with the study clinics and staff. This finding highlights the importance of spaces and providers offering culturally competent care, because MSM and TGW with higher levels of enacted stigma may seek out sensitized care after negative experiences in their communities or other healthcare settings. Non-sensitized healthcare providers can increase the risk of a patient experiencing enacted stigma in healthcare settings and therefore safe spaces with culturally competent staff should be expanded, easily accessible, and can be leveraged to provide services to LGBTQ people experiencing stigma. These spaces can offer stigma reduction and HIV services, and may be critical points of contact for hard to reach populations. The null findings for the other domains of stigma and drop-in visits could be because the men and TGW in this study already had greater social involvement with LGBT organizations and spaces before the study (e.g. selection bias); MSM who were not engaged with culturally competent care might have been more impacted by experiences of stigma. Higher levels of health agency or connectedness with community groups have been reported to decrease the impact of some types of stigma on engagement with care [113,114], and our study participants may represent those who are more connected to LGBT community spaces. This hypothesis is supported by their recruitment from events, venues, and study clinics. Future research

should include, as much as possible, the most marginalized MSM and TGW to understand barriers to HIV prevention and care engagement and to link them with culturally competent care. Potential ways to identify and enroll marginalized MSM/TGW include sampling techniques like respondent-driven sampling and through recruitment at MSM/TGW hotspots.

Orientation concealment was the most commonly reported sexual identity stigma, and stigma in the domains of enacted, anticipated, and internalized was similar across participants. Orientation concealment was more common for bisexual men than those identifying as gay; this is a logical association because relationships with women could decrease visibility of their sexual identity. These data are consistent with other literature showing higher concealment among bisexual individuals [115,116]. Orientation concealment has been found to be associated with lower life satisfaction [117], depressive symptoms [118], lower self-worth [119,120], higher levels of stress biomarkers [121]. Additionally, previous literature shows that bisexual men may avoid sexual orientation disclosure as a stigma management strategy [116]. Due to the negative effects of orientation concealment, it is important to consider differences in identity among MSM in stigma research, because bisexual men have different experiences of stigma than gay men and other men who have sex with men. Future stigma reduction interventions should consider tailoring specific services to bisexual men to reduce the negative impacts of binegativity. In addition, although the number of transgender women in this sample was relatively small (n=16 combining those who identified as transgender and as female; the study only enrolled individuals who reported male sex at birth), the stigma experiences of these women were higher in all domains except for orientation concealment. These data and other data from sub-Saharan Africa have shown that transgender women are often more visible in society compared to gender conforming men, which can increase their susceptibility to discrimination, stigma, and abuse [105,122]. Again, this highlights the importance of tailoring interventions not only to MSM but also to transgender women due to differences in stigma and discrimination and the need for targeted stigma reduction interventions for these women.

This study has some limitations. Because this was a pilot study that was not powered for the stigma scales, the sample size is relatively small for assessment of stigma outcomes, and future large-scale longitudinal stigma research should be powered to confirm or refute these findings. The study design of the Sibanye Health Project also limits some of the interpretation of findings, particularly for PrEP uptake: all study participants came for regular study visits every three months, and were regularly offered PrEP at these visits if they had not already enrolled in PrEP. In a different setting without regular receipt of care and offers of PrEP, sexual identity stigma might have been associated with PrEP uptake. Research in cohorts with less structured care offerings is needed to assess this possibility. Additionally, stigma and other social drivers have been difficult to map onto biological HIV outcomes [92], and mediating factors such as mental health and substance use are necessary to full characterize the pathways through which stigma impacts health. However, in the Sibanye Health Project pilot study, the only mental health indicator was a question asking if participants had received mental health services in the past 12 months. Only three participants had received some sort of mental health service, which likely is a manifestation of low availability of and access to these services in their local communities rather than an assessment of needs for mental health services. Future research should include more detailed data on mental health, stress, and social support, as these likely play an important role in mediating the effects of stigma onto biological outcomes [117,123,124]. Indeed, one study of MSM in Cape Town conducted a path analysis and found depression and self-efficacy may mediate the effect of homophobic stigma on unprotected anal intercourse [93]. The collection of such data is therefore an important step in fully characterizing these causal pathways. Additionally, those with highest levels of stigma may not be included in this study, because these MSM are likely harder to access and recruit.

Despite these limitations, these data present important findings about sexual identity stigma and HIV-related stigma among MSM and transgender women in South Africa. Safe spaces offering culturally competent care for LGBTQ people can be used as important points of connection for those facing stigma, and stigma reduction strategies should be

specially targeted to the diverse groups they aim to serve. Additionally, this research outlines important next steps in the field of stigma research, and the need for robust measurement of potential mediating factors of the impact of stigma on HIV prevention engagement. By increasing the engagement of MSM and TGW with HIV prevention services and access to non-stigmatizing clinics and community spaces, improvements in HIV care, outcomes, and disparities for MSM and transgender women can be realized.

Chapter 4: Role of Engagement with Culturally Competent HIV Prevention and Care Safe Spaces in Changes in Sexual Identity Stigma

Introduction

Understanding the health impacts of stigma has been of growing interest for researchers, community health organizations, and implementing partners in various settings globally, particularly among LGBT communities in settings where they face high levels of discrimination [47]. Stigma can be described as the marking or discrediting of a person or group on the basis of either perceived or real identity, behavior, or attribute [125]. Sexual identity stigma is stigma faced due to one's sexual identity or behavior and has been associated with adverse HIV-related outcomes among men who have sex with men (MSM) and transgender women (TGW), including increased sexual risk practices and reduced rates of HIV testing [34,35,126–128]. Furthermore, a psychological mediation framework proposed by Hatzenbuehler shows that sexual identity related stress and stigma can lead to coping behaviors and emotional regulation, that in turn increase health and mental health risks among sexual minorities [40]. Characterizing the complex set of personal, social, and structural factors that contribute to sexual identity stigma affecting MSM is critical to reduce this stigma and to to accurately measure these reductions if achieved through stigma reduction interventions.

MSM and TGW in sub-Saharan Africa face higher levels of stigma compared to much of the western world due to higher levels societal homophobia/transphobia and in some cases criminalization of same sex practices [129]. South Africa specifically has protected the freedom to express one's sexual identity in its constitution; however, these legal protections do not always translate into lived experience for MSM and TGW and cannot fully protect against societal norms around sexual identity, gender expression, and homophobia [11].

There is some evidence that sexual identity stigma can be modified through stigma reduction programs and engagement with culturally appropriate, sensitized care [130,131].

Although interventions cannot necessarily fully change the state of the environment that MSM live in [132], promoting community empowerment and contact with sensitized providers and others within a common stigmatized community may serve as strength-based moderators that can reduce stigma and disparities in health outcomes [78]. Accurate measurement of stigma in longitudinal designs is critical for ascertaining the validity of changes in stigma. We analyzed data from a cohort of MSM and transgender women (TGW) in South Africa enrolled for 12 months in an HIV prevention intervention package which included differential engagement with culturally competent services and sensitized clinic staff and providers. We sought to assess if engagement with culturally competent care results in changes in reported sexual identity/behavior stigma and healthcare stigma among the participants.

Methods

The Sibanye Health Project (SHP) was a 12-month prospective study of MSM and TGW in Cape Town and Port Elizabeth, South Africa; the methods have been previously described [71]. Briefly, 201 MSM and TGW were enrolled at baseline and during the 12-month intervention period, all participants were offered a package of HIV prevention interventions including condom choices with an assortment of styles, sizes, and features; condom-compatible lubricant choices, including water- and silicone-based types, HIV prevention counseling, couples HIV testing and counseling (CHTC), and pre-exposure prophylaxis (PrEP) for eligible men. All clinic staff and providers were trained in providing culturally competent care for MSM and TGW, providing a non-stigmatizing safe space for participants to engage with care.

The purpose of this analysis was to understand if sexual identity stigma is modifiable through engagement with non-stigmatizing HIV prevention and care services offered through the SHP and examine factors associated with any changes of stigma identified.

Study Measures

All participants at baseline and endline (12 months) completed a survey that included the Multidimensional Sexual Identity Stigma (MSIS) Scale. The MSIS was validated in this population (Appendix A) and included four domains of sexual identity/behavior stigma (enacted, orientation concealment, anticipated, and internalized); the scale was developed based on previously validated scales in other populations that aligned with Earnshaw's Stigma Measurement model [39]. For each domain, a summary score was used that was an average of the participant's Likert scale values across all variables included in the domain. If participants did not answer more than 25% of variables in a given domain, the overall score for that domain was reported as missing. Healthcare stigma was measured as the average of a participant's responses to variables reporting stigma experiences in public clinics. At baseline, this measured healthcare stigma in the previous 12 months and at endline it measured healthcare stigma during the 12-month SHP intervention period. Engagement with the SHP safe clinic spaces was measured with two primary exposures, PrEP engagement (any PrEP uptake during the study) and number of drop-in visits completed, both representing substantial time spent with HIV prevention or care services in a non-stigmatizing environment.

Analysis

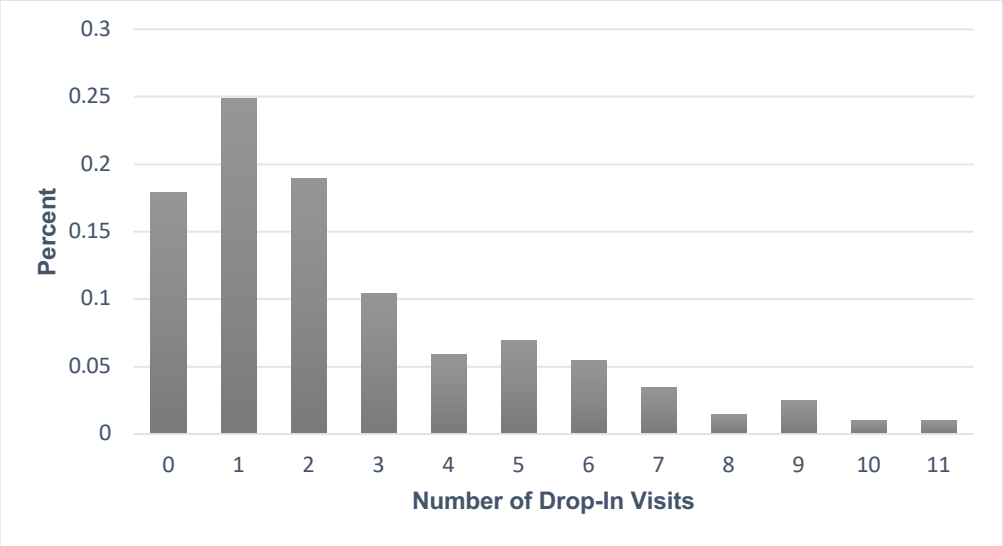
Changes in stigma were assessed by domain (enacted, orientation concealment, anticipated, internalized, and healthcare stigma), by subtracting the baseline summary stigma score from the endline summary score. One sample t-tests of change scores assessed significance of changes in stigma within each domain over the intervention period, compared to a null hypothesis of no change (H_0: change=0). Change in healthcare stigma was used as a positive control, because a decrease in healthcare stigma is expected due to the endline healthcare stigma domain measuring stigma during the intervention period, when all participants were receiving culturally competent, non-stigmatizing care.

For domains with significant change scores, a generalized linear model using the identity link was used to assess association of markers of SHP engagement (any PrEP uptake and number of drop-in visits) with change in stigma domain. Graphical methods were used to assess appropriateness of the normality assumption. Beyond the two exposure variables for engagement, additional covariates for analysis were informed by previous literature on factors associated with engagement with HIV prevention and care services among MSM and TGW. The covariates include: any drug use in the past 6 months [100,101], outness to a healthcare provider [102–105], involvement with an LGBT community organization [103,104], and baseline likeliness to start PrEP (likely associated with actual PrEP uptake). The backwards change in estimate approach was used to assess potential confounders: covariates were excluded one at a time if removing them from the model did not change the exposure estimate by more than 10% in either direction. Collinearity for the regression analyses was checked via a multiple regression analysis to calculate variance inflation factors of all covariates in the model.

Results

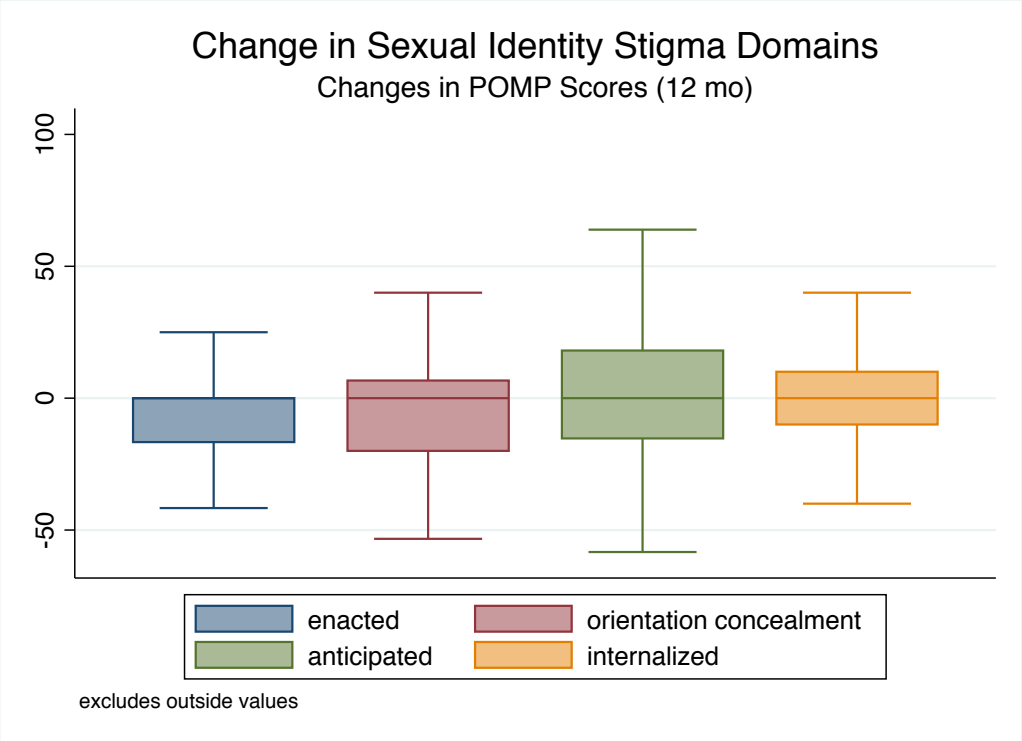
This study included 201 MSM and TGW followed for 12 months in the SHP. Of the 201 participants, 82 (40.8%) ever enrolled on PrEP during the study and 68 (33.8%) were still on PrEP at the end of the study. The average number of drop-in visits completed by participants was 2.65 (range 0-11), see Figure 5.

Figure 5. Distribution of drop-in visits completed over 12-month follow up period of Sibanye Health Project, conducted among 201 men who have sex with men and transgender women, Cape Town and Port Elizabeth, South Africa, 2015-2016



There were significant decreases in enacted stigma (mean= -0.28 [95% CI: -0.38, -0.17]) and orientation concealment (mean= -0.17 [95% CI: -0.30, -0.03]) during the study period. The average changes in anticipated and internalized sexual identity stigma after the 12 months of engagement with the SHP were not significantly different from zero. Changes in sexual identity stigma domains are shown in Figure 6; for comparability and due to differences in scale between domains, in Figure 2 the change scores were converted into percent of maximum possible (POMP) scores for comparability between domains. Healthcare stigma significantly decreased during the intervention (mean= -0.15 [95% CI: -0.24, -0.06]) and there were no significant differences in the change in healthcare stigma between the two sites (Port Elizabeth and Cape Town).

Figure 6. Changes in sexual identity stigma domains over 12-month follow up period of Sibanye Health Project, conducted among 201 men who have sex with men and transgender women, Cape Town and Port Elizabeth, South Africa, 2015-2016



Factors associated with change in enacted sexual identity stigma were assessed (Model 1); neither of the engagement variables (ever enrolling on PrEP or number of drop-in visits) was associated with changes in stigma, but reporting any drug use in the 6 months before enrollment was associated with an increase in enacted stigma over the subsequent 12 months (Table 10). This means that participants who had used any drug in the 6 months before enrollment reported about half a point increase on the enacted stigma scale (scale range: 0-3). For context, a one-point increase would mean an additional 1-2 instances of being hit or beaten up, treated rude or unfairly, being made of or called names, or lost employment on average in the previous 12 months.

Table 10. Model 1 assessing factors associated with change in enacted stigma among 201 men who have sex with men and transgender women, Cape Town and Port Elizabeth, South Africa, 2015-2016

Covariate	Beta	95% CI
Ever enrolled PrEP	0.23	[-0.07, 0.53]
Number of drop-in visits	0.01	[-0.05, 0.07]
Likeliness of starting PrEP (y/n) at baseline	0.10	[-0.31, 0.51]
Drug use in the past 6 months at baseline	0.43	[0.14, 0.72]
Told healthcare worker has sex with men	-0.08	[-0.38, 0.22]

Additionally, factors associated with change in orientation concealment were assessed (Model 2); again, neither of the two engagement variables (ever enrolling on PrEP or number of drop-in visits) was associated (Table 11). However, interaction with an LGBT organization and baseline likeliness to start PrEP were each associated with decreases in orientation concealment (measured on a scale of 0-3).

Table 11. Model 2 assessing factors associated with change in orientation concealment among 201 men who have sex with men and transgender women, Cape Town and Port Elizabeth, South Africa, 2015-2016

Covariate	Beta	95% CI
Ever enrolled PrEP	0.05	[-0.41, 0.51]
Number of drop-in visits	0.06	[-0.03, 0.15]
Likeliness of starting PrEP (y/n) at baseline	-0.83	[-1.46, -0.20]
Interacted with an LGTB organization past 12 mo	-0.50	[-0.95, -0.05]
Told healthcare worker has sex with men	0.02	[-0.45, 0.49]

Discussion

We investigated the modifiability of sexual identity stigma and healthcare stigma among men who have sex with men and transgender women who took part in a combination intervention package of HIV prevention and care services in South Africa. In this one-arm intervention, participation in the intervention was associated with significant decreases in both enacted stigma and orientation concealment, but other domains of sexual identity stigma did not significantly decrease over the 12-month period. Engagement with the intervention and safe space clinics and staff did not explain these decreases in stigma, but there are several hypotheses that could explain these results. The decreases in enacted stigma may have been due to actual decreases in experiences of enacted stigma, a change in the way participants assessed and reported their experiences at endline, or to increased social support from clinic staff and peer networks acquired through engagement with the intervention. Healthy adaptive coping strategies such as increased social support, selective disclosure, and engagement with positive social networks have been found associated with lower levels of enacted stigma in other settings [133], and engagement with the Sibanye Health Project offered opportunities for counseling and access to peer networks. Others

have shown that creating a positive attitude towards a stigmatized identity can set a proactive framework, an 'empowerment' model over a 'coping' model for dealing with stigma [133–135]. Selective social comparisons, or comparing oneself to others who have the same stigmatized identity rather than those who don't, can protect self-worth and in turn change behavior [134,136]; this could have played a role in decreases in orientation concealment due to higher engagement with other MSM/TGW and sensitized clinic staff in the safe spaces. The association of engagement at an LGBT organization with a decrease in orientation concealment also supports this hypothesis. As expected, the positive control - healthcare stigma - did decrease significantly on average in this cohort, which demonstrated that the SHP clinics and staff provided improved, non-stigmatizing care compared to the clinics the participants had visited prior to the intervention. Gained self-esteem and empowerment through the SHP may have served as protective factors for participants against identity concealment and experiences of enacted stigma, and inclusion of social support and mental health domains should be included in future research with MSM and TGW to assess this possibility.

Measurement of a 'safe space' can be difficult, and its impact is likely comprised of a set of complex social factors and components of the space and services offered there. In this analysis, we measured differential engagement with the SHP spaces and services through PrEP uptake and drop-in visits. These markers of engagement were not found associated with changes in sexual identity stigma, but it is likely there are other important components of such spaces on stigma for these participants that were not measured in this study. Quality of provider interaction is one such measure, and the provider-patient interaction is a critical component of creating safe spaces for LGBT persons [26,137]. Future work in South Africa should identify and measure specific components of interventions and safe clinic spaces that could be leveraged to maximize decreases in stigma among MSM and TGW.

This analysis has some limitations. It is important to note that all changes found occurred as part of a one-arm intervention of a package of prevention services. That is,

there is not a conceptually obvious counterfactual comparison between a group with the intervention and those who did not receive the intervention. Rather, 'engagement' with SHP was differential by type of services that participants chose to receive and by amount of engagement. In this sense, engagement with SHP and culturally sensitized clinics and staff can be conceptualized as a dose response, with those who began PrEP and those who opted to come for many drop-in visits representing participants having greater exposure to sensitized, safe spaces for MSM and TGW to receive care. Additionally, recruitment of marginalized communities relied on referral and existing social and sexual networks, meaning that the SHP is likely missing the most highly stigmatized group of MSM and TGW (e.g. selection bias that might be differential by outness or experience of stigma). Healthcare stigma significantly decreased over time in this study, but the true impact of providing non-stigmatizing services may have been underestimated if participants either had accessed non-stigmatizing clinics before or if they had negative healthcare experiences in other clinics during the study period. Finally, future work should include robust measurement of mental health that was not available in this study, because mental health likely plays a role in perceptions of and changes in stigma [138].

This manuscript suggests that some domains of sexual identity/behavior stigma might be modifiable among a cohort of MSM and TGW. Decreases in enacted stigma, orientation concealment, and healthcare stigma were found over a 12-month period, and future work should evaluate such changes over longer periods of time and should identify specific components of safe spaces (including assessment of provider interaction) that are associated with changes in stigma. Non-stigmatizing clinic spaces and services should be leveraged as components of HIV interventions and programs for MSM and TGW to reduce experiences of sexual identity and behavior stigma and to promote positive adaptive coping strategies.

Chapter 5: Care Provided in Sensitized Clinic Decreases Stigma and Increases HIV Prevention Engagement

Introduction

Men who have sex with men (MSM) and transgender women (TGW) often encounter stigma in a multitude of settings, including at home, in healthcare spaces, and in their communities. This is particularly true in settings with long-standing societal norms around sexual and gender identity, like much of southern Africa [139]. South Africa was the first country in the world to protect sexual orientation and gender identity as human rights in its Constitution, however this doesn't always translate into lived experience for many LGBT persons [140,141]. Many MSM and TGW in South Africa experience stigma due to their sexual or gender identity, gender presentation, race/ethnicity, and/or disease status [142].

Stigma experiences in healthcare facilities or by health providers contribute to health disparities among MSM and TGW [143]. Some of the most common forms of stigma experiences relating to healthcare settings include fear of seeking healthcare by MSM/TGW, avoidance of healthcare services due to concerns of sexual identity/behavior disclosure, and being made to feel shame or guilt about one's sexual practices [144,145]. In addition to stigma due to sexual or gender identity, HIV-related stigma contributes to HIV prevention and treatment gaps for MSM and TGW in South Africa [146]. HIV-related stigma refers to stigma experienced by someone living with HIV, and also negative attitudes and beliefs about people living with HIV [147]. Pooled estimates from across the African continent have shown that black MSM are 15 times more likely to be living with HIV than general populations, and HIV-related stigma along with sexual identity stigma exacerbate these disparities in HIV among MSM and TGW [61,148].

Training healthcare providers and clinic staff to be LGBT-sensitized is a critical part of decreasing stigma in healthcare spaces and increasing access of services among MSM and TGW [144]. MSM participants in a South African study reported patterns of healthcare worker behavior that either discouraged them from accessing care at specific clinics or from

disclosing their sexual identity/behavior [149]. They also reported two of the most important characteristics of a clinic to be 'friendly staff' and 'confidentiality of visit', aspects that can be improved with sensitization trainings in clinics [149]. Training clinicians and clinic staff has been shown to increase knowledge about the needs of MSM and TGW and reduce homoprejudice by providers [150]. While research has shown that clinic sensitization can reduce provider prejudice, less is known about the potential to decrease different types of stigma facing MSM and TGW through engagement with such 'safe space' clinics (i.e. MSM/TGW-friendly, sensitized clinics). We hypothesize that accessing sensitized clinics would result in decreases in some types of stigma facing MSM and TGW, particularly healthcare stigma, ultimately increasing access to health services like HIV testing.

This study aimed to contextualize findings about stigma facing MSM and TGW in South Africa, understand how stigma may influence engagement with HIV prevention services, and identify possibilities for stigma reduction within the context of a safe space clinic. This study was conducted at Desmond Tutu HIV Foundation, an MSM/TGW-friendly, sensitized clinic in Cape Town.

Methods

Study Setting and Population

This qualitative study was conducted among 20 MSM and TGW in Cape Town, South Africa. The study was conducted by Emory University and The Desmond Tutu HIV Foundation (DTHF), which is in close proximity to many township communities, and collaborates with the University of Cape Town. Participants were recruited from the DTHF clinic with the help of a local research coordinator. Eligible participants were 18 years or older, born biologically male, lived in or around Cape Town, had anal sex within the last 12 months, and were able to complete an interview in English.

Data Collection

A semi-structured qualitative tool was used to gain information that contextualized the experiences of sexual identity/behavior stigma and HIV-related stigma among participants. Interviews conducted in a private room within the Desmond Tutu HIV Foundation clinic and were audio recorded and transcribed. The interviews included question focused on experiences and perceptions of sexual identity/behavior stigma, HIV-related stigma, stigma encountered in community spaces and healthcare facilities, disclosure of sexual identity/behavior to family and providers, and any barriers to HIV prevention or care services, particularly HIV testing. Interviews provided context for experiences of reported stigma (i.e. where did the event occur, by whom) and how participants felt these experiences impacted their decisions around HIV-related healthcare seeking. Data collection and analysis was guided by Charmaz's model of grounded theory analysis implementation [151]. Grounded theory refers to a systematic method for constructing a theoretical analysis from data, with explicit analytic strategies and implicit guidelines for data collection [151,152]. Some key tenants of grounded theory are simultaneous data collection and analysis, drawing on data to develop new conceptual categories, and theoretical sampling (the sample is not meant to be representative, but rather one that helps build theory and understanding) [151]. During data collection, small changes in wording were made to questions and prompts to resolve issues of cultural understanding of the questions asked that arose in the first several interviews.

Analysis

We used MAXQDA to organize and analyze all 20 qualitative interviews (VERBI Software, MAXQDA 2020, software, 2019, maxqda.com). The first author (C.A.B.) conducted all interviews and read all interview transcripts multiple times. C.A.B. took an iterative, mixed-coding approach to coding and data analysis, beginning by defining a set of deductive codes based on elements of the stigma scales used and a focus on engagement

in HIV prevention and care. These codes were applied to three interviews, and inductive codes that arose were added to the codebook along with definitions and examples. This coding scheme was then applied to all interviews. Interviews were analyzed for code frequencies and co-occurrences to further identify and delineate thematic patterns. Code segment co-occurrences were of particular focus, and were used to align types of stigma or experiences with different spaces (e.g. sensitized clinic, public clinic, mobile testing).

Ethics

This study was approved by the institutional review board of the University of Cape Town and the institutional review board of Emory University. Participants provided written informed consent.

Results

Interviews were conducted from January-March 2020. Participants were black or coloured MSM (18/20) and TGW (2/20) aged 22-41 who were mostly HIV-negative (18/20). Participants were recruited from the DTHF clinic, and therefore had all previously engaged with the MSM-sensitized, non-stigmatizing care offered at the Desmond Tutu HIV Foundation. Emergent themes included the complex factors around engagement with safe spaces (i.e. spaces offering culturally competent, non-stigmatizing care for MSM and TGW) versus community/public clinics, changes in stigma, and the personal impact of engagement with safe spaces.

Negative experiences in non-sensitized clinics

Although all participants were engaged with sensitized providers at DTHF, all had either received care at some point in the past from a public/community clinic or had purposely avoided receiving care at a such a clinic due to anticipated stigma due to their sexual or gender identity. Participants frequently reported experiences of both sexual

identity/behavior stigma and HIV-related stigma (regardless of HIV status) in such settings. Over half of the coded segments identifying a public clinic were also co-coded with healthcare stigma (43 co-occurrences/85 coded public clinic segments). Selected code co-occurrences are shown in Table 13, with color dark blue showing few co-occurrences and dark orange representing the most highly co-occurring codes. One participant summarized sexual identity/behavior stigma in public clinics saying, "*gay people were doing really badly in the local clinics, if ever you're coming and then they'll be like, 'ahhh fuck you, you are not doing like… you are supposed to protect yourself, why are you having anal sex'? And all of those things so the nurses they would be throwing those things to you say, 'okay you've got STI, your anus is this and this and that and that, you're not protecting yourself, why do you do this, why are you having sex through anus?' and so forth."*

Concerns around confidentiality in public/community clinics were common, which a participant described, "*you know in community clinics sometimes there is no confidentiality, for instance if I'm a gay person who wears like drag and let's say I'm (living with) HIV and you know in community clinics you know like (going through) this door, you need to take your ARV's, so sometimes people the way they look at you, they kind of like judging you, so that also have an impact on us, that's why we don't prefer to go government clinics*." To this end, participants cited separation by HIV status or HIV testing in public clinics when they go for testing, which served as a deterrent of HIV testing or of access to HIV treatment. One participant described the intersection of both sexual identity/behavior stigma and HIV-related stigma saying, "*because in public clinics, sometimes it becomes a struggle as a young gay man to gain access of health care services because you are gay… and most of the time they (healthcare providers) expect you to be HIV positive when you go for the test*."

Table 12. Co-occurrence of selected codes from analysis of 20 in-depth interviews conducted among 20 men who have sex with men and transgender women in Cape Town, South Africa, 2020

	misinformation/ misconceptions	increased engagement	HIV testing	safe space	public clinic	identity confidence	barrier to care	disclosure	enacted	orientation concealment	HIV-related stigma	healthcare stigma
misinformation/misconceptions												
increased engagement												
HIV testing												
safe space												
public clinic												
identity confidence												
barrier to care												
disclosure												
enacted												
orientation concealment												
HIV-related stigma												
healthcare stigma												

Number of co-occurrences
0-9
10-19
20-29
30-39
40+

Safe space engagement increases HIV prevention engagement

All participants were recruited and enrolled within the DTHF clinic space, so at the time of interview were already engaged with MSM friendly, sensitized care. All participants described positive experiences with the care they received in safe spaces (i.e. sensitized clinics, most commonly DTHF), and the comments around improving this care regarded expanding these services into increased mobile unit visits and/or sites in townships. Of particular importance was that participants commonly noted that their engagement with safe

space clinics like DTHF resulted in increased HIV testing and sexual healthcare. In the 20 interviews, there were 44 co-occurrences of safe space codes and the code marking increased engagement with health services. One participant said about DTHF, "*I end up wanting to come more often, reason being because, everyone likes to be here, from my side I like being here, I like being here and then I…even if I…I end up wanting to get more services from here*." Participants described staff from safe spaces calling them not only to remind them of appointments, but also to generally check in on them; this seemed to contribute to participants desiring more engagement with the clinic.

Engaging with sensitized clinics likes DTHF also eliminated the concerns about HIV-related stigma that were cited in public clinics, which contributed to increased seeking of sexual healthcare and HIV testing in safe spaces over access to testing in public or community clinics. Additionally, many of the participants that were accessing pre-exposure prophylaxis (PrEP) through DTHF noted that the HIV-testing required when receiving PrEP (every two months) was an increase in testing over the testing they had received prior, so in this way receipt of PrEP also increased access to care and testing.

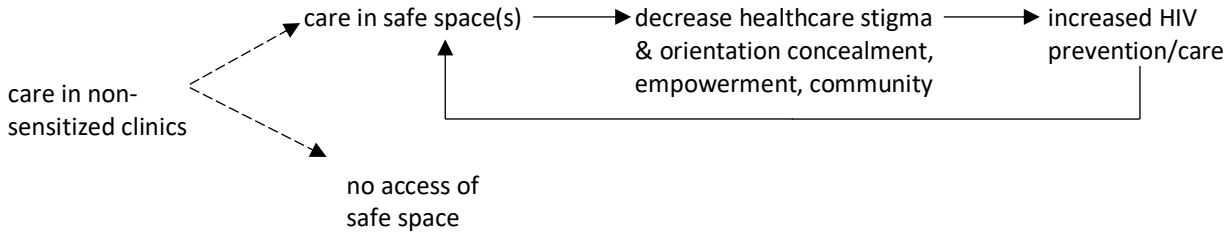
Engagement with safe spaces decreasing stigma

Descriptions of the impact of engagement with safe spaces in this group of MSM/TGW often included a decrease in some type of stigma, most commonly orientation concealment. Many participants cited the quality of interactions with providers and staff at safe spaces as a key component of their decision to receive care there. After engagement with safe space clinics, participants described becoming empowered and more able to advocate for their needs and rights. One participant stated that after engaging with a study through DTHF, "*I feel I'm more proud now, I've accepted myself more… I'm on a constant journey to find myself so, I would say I know myself now, and I'm still in a journey to get to know myself better so I'm really no affected by how someone else wants to perceive me or, I'm not afraid anymore."* The theme of increased self-acceptance was common when asked

about how safe space engagement has impacted a participant's life, illustrated in part by the 20 co-occurrences of 'safe space' and 'identity confidence' (Table 1). One described his experience with DTHF, "*it was the best experience ever I ever had! There were some moments you come in at a door, you come in at an atmosphere that you feel you are safe, you are in a safe space, you are in a safe space, you don't think twice about coming here and then you don't get afraid of seeing the counselor or being open or telling them about your life, your lifestyle, you just become free."*

Beyond decreases in identity concealment, by avoiding non-sensitized clinics, participants noted less healthcare stigma and enacted (experienced) stigma in healthcare settings. One participant noted that "*before I came here I never liked HIV testing because I was always nervous, scared… I never like went for it because when I came here, it's where I was like started taking note of my health and everything around me*." When asked if she ever goes back to any public/community clinic, one transgender woman noted the difference in HIV-related stigma between care in public clinics and safe spaces saying, "*the only thing that is upsetting me with regards to the clinic is that you sit there and then people will know when you go into those rooms there is HIV testing or people who have HIV.* ***Interviewer: Do you still go to any clinic outside of Desmond Tutu or the transgender clinic?*** *Participant: No, I just come here. I just come here, I feel safer here."* The stories and timeline of places participants had received care, subsequent changes in stigma, and HIV-related outcomes appeared to follow a positive, reinforcing cycle (Figure 7) whereby safe spaces offered spaces with decreased stigma, validated identity, and a sense of community, which ultimately increased HIV prevention and care engagement, and retained participants in care over time. In this study, all participants had engaged with care in a safe space, therefore the dashed lines in Figure 7 represent different populations who have either accessed or not accessed such care; those with no access were not included in this study.

Figure 7. Positive cycle of care after engagement with a safe space



Personal impact of safe spaces

Beyond the public health implications of engagement with safe spaces, like HIV testing, participants also commonly cited the positive personal impact of engagement with sensitized, safe space clinics. Many described improved mental health, growing confidence in their sexual/gender identity, and some described spreading information and awareness that they learned at DTHF to other MSM/TGW in their friend group and community. One participant stated that DTHF had a "*big impact on my life, it changes my whole perspective of life because they make me feel that I am strong, I can do this and I can do that, not that I'm worth nothing you see?*" Another described spreading information learned at DTHF to his community, saying "*it has changed a lot in my life cause I've been wiser since I've been here, I received lot of information… and also stronger, mentally strong, emotionally, now I can stand in my community and educate them and tell them exactly what is it that is happening out there but before then I was not able to do that because I was like, I don't have enough information to tell them exactly what is it that is going on in the world! But right now, because of that confidence this place has given me, I can be able to stand up in the community and say, 'this is what is happening… I have the information so this is how you can access the information*." This type of knowledge spreading has the possibility to link additional MSM/TGW to care, creating a community-level analog of the cyclical framework depicted in Figure 1, whereby increased care in safe spaces not only increases the engagement in care for that person, but helps recruit others into the safe space as well.

Discussion

This study aimed to examine multiple aspects of stigma facing MSM and TGW, engagement with sensitized, safe space clinics, and mechanisms by which stigma and engagement impact one other. A main finding was understanding the power of safe space clinics to decrease stigma facing MSM/TGW and to ultimately increase HIV testing and healthcare engagement.

Aspects of safe spaces that were most important to participants were confidentiality and the quality of interactions with clinic providers and staff. In many of the public/community clinics that participants had attended, patients were separated by HIV-status or by whether or not they were testing for HIV, and there were concerns of confidentiality around HIV testing and care. Separation of patients by HIV status or testing can be linked to stand-alone HIV testing in some settings versus integrated HIV services, but experiences of stigma and disclosure can happen in either context [153,154]. Regardless of the clinic or setting, healthcare providers should incorporate practices to prevent accidental disclosure of status, such as not color-coding patient cards by HIV status and using a common waiting room for all patients. Concerns about confidentiality during HIV testing or treatment are also common in other African settings, regardless of sexual or gender identity [148,155,156]. For MSM and TGW, these concerns are often compounded by fear of sexual identity or behavior disclosure in clinics. In safe spaces, participants felt able to openly disclose their identities and behaviors to providers, which contributed to decreases in sexual/gender identity concealment.

One of the most common consequences of engaging with a safe space clinic was increased engagement with sexual healthcare, particularly HIV testing. Participants described looking forward to clinic/study visits due to positive interactions and relationships with clinic staff, and ultimately most participants said their frequency of HIV testing increased substantially after first accessing a safe space for care. Expanding sensitization trainings to as many health providers as possible could help decrease stigma for MSM and TGW in

healthcare settings, with the goal of increasing access to HIV services and reducing HIV disparities among MSM/TGW. In some settings, HIV self-tests could complement sensitization efforts in clinics, to quickly increase rates of HIV testing among those who typically avoid healthcare facilities. A study among MSM in Mpumalanga Province, South Africa found high acceptability of self-testing and increased HIV testing frequency as a result of self-tests [157]. This could help prevent stigmatizing experiences in non-sensitized clinics for those without access to a safe space, however as we've shown there are many benefits of safe space engagement that would be missed. Future research should investigate the feasibility of expanding both sensitization efforts in clinics and HIV self-testing where safe spaces are not yet available.

This study has several limitations. Due to recruitment within the Desmond Tutu HIV Foundation clinic, all participants were already engaged with non-stigmatizing care at the time of the interview. This resulted in a group of participants without a comparator group of persons who never entered sensitized care or persons who might be less satisfied with experiences at the clinic and therefore not return. Participants were able to compare their current experiences with past experiences at other clinics, but this could be subject to recall bias. Additionally, many of the participants were enrolled in PrEP through DTHF as part of a study that required frequent HIV testing. In these cases, the interviewer asked the participant about changes in HIV testing frequency from before ever engaging with DTHF, to after engagement (but before enrollment into the PrEP study). Finally, this study did not include anyone that had never been engaged with healthcare, who likely represent the most stigmatized population. In fact, this study recruited in a clinic that could be considered the gold standard for excellence in care, particularly for key populations, making external generalizability difficult.

Despite these limitations, this qualitative study highlights opportunities for stigma reduction in clinic spaces and demonstrates that providing non-stigmatizing care can increase HIV prevention engagement. Sensitized, MSM/TGW-friendly 'safe spaces' offer non-stigmatizing environments for HIV prevention and care services, and more broadly can

support identity acceptance and the spread of knowledge among sexual/gender minorities. Increasing efforts to sensitize clinic providers and staff in all clinic settings will improve access to such spaces, and can ultimately help reduce disparities in HIV testing and care among men who have sex with men and transgender women.

Chapter 6: Conclusions and Public Health Implications

This dissertation sought to quantify multiple types of stigma in order to understand the complex associations and pathways between stigma and HIV-related outcomes. The creation, validation, and application of the MSIS scale highlights the utility of quantitative measurement of stigma. This is not the first scale to do so, and it is not a perfect scale, indeed no scale is; however, the MSIS joins a body of evolving research addressing a core component of stigma mitigation efforts: stigma measurement. We cannot know if we can reduce stigma until we can accurately measure stigma. The MSIS also demonstrates the complexity of what 'stigma' is. Stigma in these analyses was broken down into various measurable domains (e.g. enacted, anticipated, orientation concealment, and internalized), be measured in different settings (e.g. healthcare spaces, at home, societal stigma), and be attributed to various identities (e.g. sexual identity, sexual behavior, gender identity, disease status, race, ethnicity). This allowed for a nuanced assessment of the relative importance of specific domains of stigma and how they individually are associated with markers of intervention engagement. While this analysis used one particular scale, the MSIS, to measure multiple domains and types of stigma, stigma still is in a way fluid, in that it largely context-dependent. Therefore, the MSIS is not as much a tool to be applied in the same form to every setting, but it is part of a larger initiative to adapt existing stigma measurement tools to fit specific cultural contexts. Finding overlap in measurement between adapted tools will provide opportunity for comparison between settings, but using culturally-specific and relevant tools within a given setting increases the validity of measurement and can be a better indicator for changes in stigma over time in that context, among a certain target population.

Calls for stigma measurement in longitudinal designs indicate the importance of utilizing existing stigma measurement tools. Existing scales can be adapted and implemented within studies among high risk populations for a variety of outcomes, in this case for key populations in the context of HIV research. Continuing to more broadly use,

adapt, and improve stigma tools will ultimately improve our ability to characterize the complex pathways from stigma to a variety of health outcomes, and ultimately will lead to more effective and directed stigma reduction efforts. For stigma research among populations at high risk for HIV, particularly including MSM and TGW in South Africa, the effect of stigma on biologic HIV outcomes is indirect. For example, if we compared HIV incidence over ten years for a group of MSM with very high enacted stigma at baseline, to a group of MSM with very low enacted stigma at baseline, if there is a difference in incidence we wouldn't say that the experience of enacted stigma itself increased HIV infection. The effect of any stigma on such biologic outcomes acts through mediating factors, such as access to healthcare, engagement with prevention services, mental health, and social support. These potential mediating factors need to be accurately measured and incorporated into longitudinal designs so that these pathways can be better characterized. While SHP did not collect detailed mental health or social support data, we chose to investigate associations with stigma and engagement with HIV prevention care and uptake of prevention services (i.e. PrEP).

In the SHP cohort, stigma was not associated with PrEP uptake, which could mean that PrEP uptake can be resistant to stigmatizing factors, although further research is needed. Additionally, some important findings were made relating to some domains of stigma and engagement with HIV prevention and care services. We found that those with higher enacted sexual identity/behavior stigma at baseline accessed more drop-in visits at sensitized clinics. We also found that participants in the SHP on average had a significant decrease in healthcare stigma and orientation concealment. Although these decreases could not be found associated with the markers of engagement we assessed (i.e. PrEP uptake and drop-in visits), further research should include not only those engaged with sensitized clinics (as in the SHP) but also those accessing only non-sensitized clinics as well as those never previously engaged with care. Our qualitative work also demonstrated decreases in some types of stigma among MSM and TGW accessing care at Desmond Tutu HIV Foundation, which could in a way be considered the gold standard of care for MSM/TGW in South Africa. This group of participants endorsed the importance of non-stigmatizing care in

not only increasing their access of healthcare services and HIV testing, but also for decreasing orientation concealment, and increasing their confidence in their identity. Particularly important in establishing a safe space was the quality of interactions with providers and staff at a sensitized clinic. Many participants described experiences of enacted stigma such as name calling or identity disclosure by nurses at public/community clinics, and fear of these experiences continuing in such settings led to them seeking out care at DTHF. It is possible that those who have experienced enacted stigma in public clinics seek safe spaces like DTHF for future care, which is supported both by our quantitative and qualitative findings. This dissertation examined two types of stigma, sexual identity/behavior stigma and HIV-related stigma, and there are many other identities that may be related in an intersectional manner, creating greater than additive impact of the stigmas together. Future work with a particular focus on populations with multiple stigmatized identities will help improve outcomes for those facing the highest levels of stigma.

Ultimately, providing non-stigmatizing care for MSM and TGW in South Africa can help reduce HIV disparities by increasing access to culturally relevant and appropriate health services, like HIV testing, PrEP, and HIV treatment. The question of how best to enact this change remains, whether it is better to sensitize providers and staff in as many existing public or community clinics as possible, or to increase the number and geographic spread of highly specialized, sensitized clinics like DTHF. The answer likely will require a combination of both, and will be context-specific. Future research among MSM and TGW around the world should further build on investigations of care preferences, and such investigations should include assessment of multiple domains of stigma. Continued measurement of stigma in the context of HIV prevention and sexual health programs will improve our understanding mechanisms by which stigma impacts important health outcomes for men who have sex with men and transgender women.

Appendix A: SHP Sexual Identity Stigma Questions

*Variables written in grey indicate variables that were dropped after factor analysis

Enacted Stigma

In the past 12 months, how often have the following happen to you because you were a *[preference]* man?

	Never	Once	2-3 times	4 or more times	Does not apply
1. Hit or beaten up?					
2. Treaded rudely or unfairly?					
3. Made fun of or called names?					
4. Felt uncomfortable in a crowd of MSM in your city?					
5. Lost employment or dismissed from job?					
6. Were rejected by family members?					
7. Excluded from activities traditionally reserved for men?					

Orientation Concealment

Stigma is generally defined as when a group of people are discredited by their society, often because others dislike their particular characteristic, occupation, or behavior.

In the past 12 months, how often did you do the following due to stigma against you as a (preference) man?

	Never	Rarely	Sometimes	Often	Does not apply
8. I stayed inside to avoid facing stigma against *[preference]* man					
9. I had sexual relationships with girls to hide that I am a *[preference]* man					
10. I flirted with girls to hide that I am a *[preference]* man					
11. I avoided holding hands or being affectionate with a male partner in public environments.					
12. I acted more manly than usual in order to be accepted.					
13. I acted differently at work so people would not think that I am a *[preference]* man					
14. I avoided going out at night, such as going dancing.					

Anticipated

If people are aware or become aware that you are a *[preference]* man, how likely is it that they will treat you in the following ways in the future because you are a *[preference]* man?

	Very unlikely	Unlikely	Neutral	Likely	Very likely
15. An employer will look down on me					
16. Family members will have negative attitudes towards me					
17. Friends will avoid me					
18. Family members will not invite me to social gatherings					
19. My neighbors will discriminate against me					
20. People at work will assume I have many sex partners					
21. My community will treat me with less respect					
22. Someone will hit or beat me up					
23. Someone will sexually assault me					
24. I will be called hurtful words when I go outside my home					

Internalized

How do you feel about being a *[preference]* man? Please rate how much you agree with the following statements.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
25. If I could change being a *[preference]* man to be a man who has sex only with women, I would do it.					
26. If people call me names, I am good at ignoring it.					
27. I feel ashamed of being a *[preference]* man.					
28. Social involvement with other *[preference]* men makes me feel uncomfortable.					
29. I feel I am not as good as others because I am a *[preference]* man.					
30. I think less of myself when I am in public with a person who is obviously a *[preference]* man.					
31. I think being a *[preference]* man is against the will of God.					
32. I perceive myself as physically or emotionally weak because I am a *[preference]* man.					

Appendix B: SHP HIV-Related Stigma Questions

HIV Negative Men (Attitudes/Discrimination)

Please rate how much you agree with the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. *[Preference]* men with HIV should be treated with respect*					
2. I am uncomfortable around *[preference]* men with HIV					
3. I would not want a person with HIV to be around children in my family					
4. I visited a friend or family member less once I knew they had HIV					
5. I treat *[preference]* men with HIV the same as I treat other *[preference]* men*					

*reverse coded

Men Living with HIV

HIV Enacted

In the past 12 months, how often did the following happen to you because you are HIV-positive?

	Never	Once	2-3 times	4 or more times	Does not apply
I. I lost friends by telling them I am HIV-positive					
II. Family members looked down on me					
III. People treated me with less respect					
IV. People didn't want me around their children once they knew that I am HIV-positive					
V. People cut down visiting me once they knew that I am HIV-positive					

HIV Anticipated

If people are aware or become aware that you are HIV-positive, how likely is it that they will treat you in the following ways in the future because you are HIV-positive?

	Very unlikely	Unlikely	Neutral	Likely	Very likely
VI. People will discriminate against me					
VII. People will judge me					
VIII. People will think I am disgusting					
IX. People will reject me					
X. People will be uncomfortable around me					
XI. People will look for flaws in my character					

HIV Internalized

Please rate how much you agree with the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
XII. Being HIV-positive makes me feel that I'm a bad person					
XIII. I feel I'm not as good as others because I am HIV-positive					
XIV. Being HIV-positive makes me feel unclean					
XV. I never feel ashamed of being HIV-positive					

Appendix C: SHP Healthcare Stigma Questions

Public Clinics

In the past 12 months, how often have the following happened to you because someone knew or assumed you were a *[preference]* man?

	Never	Once	2-3 times	4 or more times	Does not apply
1. I felt afraid to go to healthcare services at public clinics					
2. I avoided going to healthcare services at public clinics					
3. I was denied healthcare services at public clinics					
4. I was not treated well when receiving healthcare services at public clinics					

Private Clinics

In the past 12 months, how often have the following happened to you because someone knew or assumed you were a *[preference]* man?

	Never	Once	2-3 times	4 or more times	Does not apply
5. I felt afraid to go to healthcare services at private clinics					
6. I avoided going to healthcare services at private clinics					
7. I was denied healthcare services at private clinics					
8. I was not treated well when receiving healthcare services at private clinics					

Appendix D: Qualitative Interview Questions

Participant ID:

Date: Month_____ Day _____

Interview Guide
Today we are going to talk about healthcare, HIV, having sex with men, and your lives.
Orientation Concealment – 15 minutes
Probe around the questions in this category, how they do or do not fit together, importance of these behaviors in his life/community, importance of these behaviors for healthcare access. Possible questions include:

- (Show participant questions in Orientation Concealment domain): Tell me how you feel about these questions. Do you think they go together or not? Why?
- Do you feel like there are questions that should be included in this category that were not?
- How common do you think these behaviors are for yourself? For other men who have sex with men (MSM) you know?
- What do these things mean in your life?
- Do you think these behaviors impact the way you seek health care of any kind? How so?
- Do you think these behaviors impact the way you seek sexual health services, like HIV/STI testing? How so?

Stigma and HIV care and prevention engagement – 25 minutes
For the following questions, "HIV testing or care" includes things like: HIV testing, couple's HIV testing, PrEP, or regular HIV care. What do you know about PrEP?
[If don't know: Pre-exposure prophylaxis (or PrEP) is a daily pill that people who are at risk for HIV can take daily to help prevent HIV. When taken daily and consistently, PrEP is highly effective for preventing HIV from sex or injection drug use.]
Probe around how different types of stigma may or may not influence engagement with HIV prevention or care services. Possible questions include:

- Can you talk about times you go for HIV testing, or situations/times when you decided not to go for HIV testing?
- Have you ever told any health care provider that you have sex with men?
    - If so, tell me about that experiences (those experiences).
    - If not, what are the reasons that you haven't told?
    - Have you had any experiences where you felt stigmatized by the provider?
- Do you feel that people known to be living with HIV in your community are treated differently? If so, how so?
- What sort of assumptions do you think people in your community have around men who have sex with men with regard to HIV?
- Do you feel that other men who have sex with men who you know think about HIV differently than others in the community/town/township? How so?
- Do you feel that stigma around HIV in your community influences your decisions about seeking HIV prevention or care services? If so, how?
- What factors do you think are most important in your decisions to seek HIV testing or care?

- What is most likely to prevent you from seeking HIV testing or care?
- Have you told members of your family that you have sex with men? *Probe around who/why and experiences*
- Have you told members of your community other than family that you have sex with men? *Probe around who/why and experiences*
- Do any of the types of stigma we've talked about today influence whether or not you seek HIV testing or care? Can you explain?

Non-stigmatizing care – 10 minutes

You have either received care from Sibanye or from DTHF. Both have providers trained in care specific and appropriate to MSM. This include training of clinicians and staff on providing non-stigmatizing care. What was your experience with these care services?

- Did the quality care at these places have an impact on your life?
- Did it encourage you to come back for testing or services more often?
- What kinds of influence can having a place where staff are trained to provide non-stigmatizing care have? What kinds of things can non-stigmatizing care not change in your life?

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