A syndemic exploration of sexual compulsivity among methamphetamine-using sexual minority men living with HIV

by

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A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Social Welfare

in the

Graduate Division

of the

University of California, Berkeley

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Spring 2020

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Abstract

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Sexual minority men (SMM) have historically been exposed to stressors that translate into poor social and health outcomes. Methamphetamine use is an outcome representing a powerful health disparity for SMM. Sexual compulsivity (SC) has been centered in SMM's health research; however, its role in SMM's methamphetamine use remains underdeveloped. Guided by syndemics theory, intersectionality, and revised stress and coping theory, the purpose of this mixed methods study is to contextualize the role of SC in the methamphetamine-using behaviors of SMM living with HIV. Data were collected from 2014-2019 through an RCT testing a positive affect intervention in San Francisco. Cross-sectional survey data (N= 129) were used for quantitative analyses and participants (n = 24) were purposively sampled to take part in semi-structured interviews for qualitative analyses. Narrative analysis revealed that most participants experienced adverse events as youths, specifically related to sexuality. Additionally, they reported that sex was related to methamphetamine initiation and subsequent use, and that methamphetamine was disruptive to relationships. Narrative analyses surfaced a sequential pattern of *disconnection* at *foundational*, *relational*, and *recovery* levels, revealing themes of negative affect, isolation, SC, depression, trauma, and other mental health issues across the life-course. Network analysis suggests two specific significant positive associations: between depression and negative affect and between PTSD and depression. Constructivist grounded theory analysis highlighted six themes regarding participants' relationships with/on methamphetamine. Findings highlight the influence of life-long experiences of syndemically related psychosocial factors in the methamphetamine-using behaviors of SMM. Findings suggest peer-based interventions focus on holistic, integrated approaches to tend to SMM's histories of adverse events and mental health issues, which diminish relational capabilities. SC should be understood as a potentially maladaptive coping strategy developed by SMM as a response to stigmatization and discrimination. Taken together, these findings can help inform cutting-edge methamphetamine use and mental health interventions for SMM.

Dedication

"To the mothers and the queens,

To the lovers and the fiends."

To Nidia, María Luisa, Nila, Tata, Zory, and Myrna: I am embraced by the arms of giants. There is something truly effortless to the way you give your love and your selves to others. The ways in which you weave nurture into everything you do is unequaled. Thank you for always knowing what to do with me, even when I didn't know what to do with myself.

To my chosen family, queer and otherwise: constantly redefining what beauty and community look like. Thank you for becoming a true extension of my core. We are tasked with creating space for those who never had it and for those who just need more room to grow. My work in the ivory tower would have been impossible (and truly boring!) had I not been brought up in the glitter gutter.

To all my partners, in love and in crime: perpetually crafting myriad iterations of intimacy and trust. I am a handful, and it takes unspeakable amounts of patience to deal with me. Thanks for all who have taken on the challenge and who have taught me the lessons I wasn't willing or ready to be taught.

To my mentors/peers: drawing horizontal lines. This work is not easy and these relationships are not always steady. I have always been fortunate to work alongside folks who truly crave knowledge and justice. They have been both teachers and students, and this process has taught me that I will forever be both teacher and student. Many, many thanks to my committee: Kurt, Tina, Seth, and Adam for never accepting anything but my very best. Thank you for helping me tell a dignified story based on the lived experiences of these 129 men. Men who could have been me, men who have been my friends, men who reflect the best of our community and who have faced the worst from our society.

This dissertation was forged by perseverance, kinship, passion, and resilience: and it is only the beginning.

Chapter 1: Introduction

Sexual minority individuals have been exposed to social and structural discrimination across history, which has resulted in long-standing, chronic stressors (Meyer, 2003). Among these expressions of discrimination are the cataloguing of homosexuality as a mental disorder until as recently as the 1970s and current debates about their fitness to participate in social institutions such as marriage, the military, and even the workforce. The phenomenon which Meyer (2003) defined as the Minority Stress Model was meant to explicate why the rates of several mental health disorders were higher among sexual minorities as compared to their heterosexual counterparts. However, many misunderstood these sexual minority related processes as conveying that sexual minorities are inherently susceptible to mental illness, rather than understanding the oppressive social and structural mores conducive to stigma that intimately affect their well-being (Hatzenbuehler, 2016). Stigma is defined as an experience that "exists when elements of labeling, stereotyping, separation, status loss, and discrimination occur together in a power situation that allows them" (Link & Phelan, 2001, p. 377). Sexual minority men (SMM) in particular, have traditionally been characterized as socially and sexually deviant, which contributes to the proliferation of stigma and accompanying maladaptive coping strategies. The advent of the AIDS epidemic in the 1980s exponentiated the experiences of stigma toward SMM (Gamson, 1989).

Research on SMM proceeding the early days of the AIDS epidemic often focused on the interaction between their sexual attitudes and behaviors and high rates of seroconversion (Kalichman et al., 1994). Much attention was granted to the construct of sexual compulsivity (SC) as a potential way to understand the sexual behavior-based pathways of HIV infection among SSM. Data suggest that SMM are more likely to endorse SC than the general population, a reported disparity that has lent itself to further stigmatize this group (Parsons et al., 2013). Moreover, while a considerable amount of research has been conducted on this subject, some of the underlying mechanisms are still left unexplained, particularly from a truly biopsychosocial perspective, resulting in the promotion of a sexually pathologizing view of SMM (Chaney & Brubaker, 2012; Grov et al., 2010; Parsons et al., 2013). Additionally, the field of HIV prevention has been interested in how the use of illicit substances such as stimulants serves as a pathway to HIV infection through sex dating back to the early 1990s (Kalichman et al., 1996).

There is substantial evidence of the noxious effects of stimulants, such as methamphetamine among SMM across several life domains. The use and effects of this substance among SMM is contextualized in and by social and sexual settings and behaviors (Kurtz, 2005; Ross, Mattison, & Franklin, 2003; Semple, Patterson, & Grant, 2002). Nevertheless, the study of the interaction between SC and methamphetamine use is often confounded by HIV prevention research (Boddiger, 2005; Colfax & Shoptaw, 2005; Mimiaga et al., 2008; Shoptaw & Reback, 2006). Given that most behavioral interventions for methamphetamine-using SMM, within or outside the purview of HIV prevention, have achieved mostly modest and short term success (Carrico, Zepf, Meanley, Batchelder, & Stall, 2016), an expansion of our knowledge to address this psychosocial and health problem is crucial. Clearer mechanisms that better explain the relationship between SC and methamphetamine use among SSM paying attention to social, cultural, and structural contexts may prove indispensable for developing holistic, strengths-based, and effective substance use interventions.

The purpose of this study is to use Syndemics Theory to contextualize SC within the complex lived experiences of methamphetamine-using SMM living with HIV, which could

inform intervention efforts to effect optimal social and health outcomes among this population. Aided by Stress and Coping Theory and Intersectionality frameworks, this study applies a mixed methods approach to provide a more nuanced perspective of how adverse events and psychosocial factors propel syndemic conditions along the course of methamphetamine use among this population.

A mixed methods design is used to elucidate a more nuanced understanding of how SC manifests in the lived experiences of participants, by exploring their engagement with methamphetamine from initiation through their present lives, framed by co-occurring and synergistic adverse events and conditions. Narrative analyses infused the proceedings of this study with sequential, temporally based understanding of how syndemically related psychosocial factors operate across the lifespan and influence the methamphetamine-using behaviors of SMM. Network analyses allowed for the syndemic relationship between SC and other adverse events and factors to be mapped out in such a way that it explicates the strength and direction of their associations. Constructivist grounded theory approaches supplemented these two first stages with a more focused scheme to identify and unpack themes conducive to crafting novel theoretical and methodological approaches to tend to this health and social malady.

Substance Use and Sexual Minority Men

Individuals who develop substance use disorders face a debilitating, chronic condition that increases the risk for functional impairments in multiple life domains (National Institute on Drug Abuse, 2012). For instance, although the use of illicit drugs is often cited as a social enhancer, extended substance use may result in aggressiveness, depression, and social isolation (Homer et al., 2008). Moreover, individuals with an alcohol or substance use disorder (SUD) diagnosis are more likely to attempt suicide than those without such a diagnosis (Prince, 2018). Additionally, individuals who engage in problematic drug use, are susceptible to housing instability and homelessness, which could lead to syndemic health risks, as well as difficulties engaging in treatment (Nyamathi et al., 2017; Reback et al., 2010). The CDC defines syndemics as ‘‘two or more afflictions, interacting synergistically, contributing to excess burden of disease in a population’’(Herrick et al., 2011, p. 26), however, more advanced understandings of syndemics have underscored the role of social and structural factors in precipitating poor health outcomes (Singer & Clair, 2003; Singer et al., 2017). Substance use is particularly problematic for SMM, due to its relationship with the HIV epidemic. With regards to HIV, substance use, particularly stimulant use, has been cited as a pathway for infection, transmission, and advanced disease progression among SMM (Carrico et al., 2016). Involvement with the criminal justice system is another issue relevant to substance use behaviors because it serves as a pathway for both entry and re-entry, due to difficulty accessing and engaging in treatment, as well as contributing to the aforementioned risk of syndemic conditions (Begun et al., 2016).

According to the National Epidemiologic Survey of Alcohol and Related Conditions, SMM had over three-times greater odds of using drugs, as well as screening positive for alcohol dependence, during the past year (McCabe et al., 2009). Additionally, SMM had more than four-times greater odds of screening positive for substance dependence in the past year, when compared to their male heterosexual counterparts. Specifically, there is evidence that stimulant use is a particularly prevalent and noxious behavior among SMM. SMM often report using stimulants, particularly methamphetamine, as a means to enhance both social and sexual

performance (Kurtz, 2005; Ross, Mattison, & Franklin, 2003; Semple, Patterson, & Grant, 2002), which positions them on a trajectory to develop SUD.

In the United States, approximately 5% of the general population reports *lifetime* methamphetamine use (National Institute on Drug Abuse [NIDA], 2013), however estimates of the prevalence of *recent* methamphetamine use among SMM are two to four times greater (Carrico et al., 2012; Shoptaw & Reback, 2007; Finlayson et al., 2011). In San Francisco (SF), more than 10% of SMM reported recent methamphetamine use, using time-location sampling that recruited SMM while attending gay-identified venues (Raymond et al., 2013; NHBS 2014). Another study from SF found that SMM experienced elevated prevalence of stimulant use (Flentje, Heck, and Sorensen, 2015). Gay and bisexual men were 6.43 and 2.94 times, respectively, as likely to endorse methamphetamine as their primary substance of use, when compared to heterosexual men.

Gay (but not bisexual) men are also more likely to start using their primary substance later in life, when compared to heterosexual men, particularly when it came to stimulants, and self-identifying as gay was found to be a predictor for more days of methamphetamine use when compared to heterosexual men. Similarly, data from Washington State suggest that treatment-seeking SMM were more likely to present with methamphetamine use as a primary focus for treatment relative to heterosexual men (Cochran et al., 2006). Given the primacy with which SMM engage in methamphetamine use, and the fact that this use is tied to both demographic (i.e., age, race/ethnicity, sexual orientation, etc.) and structural factors (i.e., experiences of discrimination and/or trauma, context of HIV diagnosis, etc.) consistent with the oppressed lived experiences of SMM, the study focuses on the relationship between this substance and SMM.

SMM of color

Although SMM seem to encounter SUD disparities overall, there is a dearth of research investigating heterogeneity in terms of race/ethnicity to inform intervention efforts for ethnically diverse groups. Recent meta-analyses suggest that Black SMM have 29-47% lower odds of engaging in substance use relative to White SMM (Millett et al., 2007; Millett et al., 2012). Nevertheless, there is evidence that suggests a potential reversal in these trends. A study with a sample of 1,565 young Black SMM conveyed that more than 20% reported stimulant use and 60% reported binge drinking, both in the past two months (Carrico et al., 2017). Similarly, through a sample of 197 Black SMM in Boston, Mimiaga and colleagues (2010) found that one-third reported using stimulants monthly or more, during the past year. Further, a cross-sectional study with 1,196 ethnic minority SMM in Los Angeles suggests that African American, Asian/Pacific Islander, and Latino SMM's experiences of racial discrimination are associated with increased substance use (Paul et al., 2014). Conversely, there is wide-ranging recognition regarding the primacy of sexual minority stress processes as factors precipitating substance use among SMM (Lewis et al., 2012), an understudied perspective that could be elaborated upon through an Intersectionality approach.

Sexual Compulsivity and Methamphetamine

The Sexual Sensation Seeking (SSS) Scale was developed by Kalichman and colleagues (1994) during the first decade of the AIDS epidemic as an adaptation of Zuckerman and colleagues' (1964) Sensation Seeking Scale. Shortly after, Kalichman and Rompa (1995) sought to also validate a Sexual Compulsivity (SC) scale to further assess these constructs' role in the

sexual behaviors of those most vulnerable to HIV infection, particularly SMM. In short, SSS refers to a "trait defined by the need for varied, novel, and complex [sexual] sensations and experiences" (Kalichman & Rompa 1995, p. 586), whereas SC is "defined as an insistent, repetitive, intrusive, and unwanted urge to perform specific acts often in ritualized or routinized fashions" (Kalichman & Rompa 1995, p. 587). While the broader SSS denotes a level of risk-taking to attain such experiences, SC is conceived as more problematic and disruptive due to the dystonic intensity and frequency of its performance.

Both scales achieved construct validity in this early study (Kalichman & Rompa, 1995), as well as being associated with condomless intercourse and sex with multiple partners. SC was additionally associated with lower self-esteem and resistance to reduce high-risk sexual behaviors. While these findings were prevalent among both SMM and low-income heterosexual individuals, for the former sample both scales also correlated with substance use. Subsequently, Kalichman and colleagues (1996) found that SSS accounted for the relationship between substance use and condomless anal sex among SMM.

Data from a small sub-sample (n =23) of recently seroconverted SMM in Australia suggested that engagement with "esoteric" sexual practices akin to seeking new sexual experiences was contributing to the seroconversion trend, and suggested that the sociocultural contexts in which sex manifested be further explored (Kippax et al., 1998). Halkitis, Parsons, & Stirratt (2001) reported on the rise of methamphetamine use among SMM since the early 1990s and invoked language such as "instant bottoms" to convey not only the role that methamphetamine has in enhancing sensation, but also as a gateway toward more expansive/adventurous and risky sexual relations.

A decade following the development of the above scales and their use to assess the relationship between these constructs and substance use, Gonzalez and colleagues (2005) sought to understand the executive functioning parallels between HIV and addiction. With a sample of 263 polysubstance-using, mixed serostatus individuals from the Chicago area, they found that while there were neurological similarities between HIV and addiction, such as memory deficits, decision-making, and response inhibition, to further understand the underlying mechanisms would entail taking into account longstanding personality traits that may predate seroconversion and/or substance use initiation.

Along similar neurological lines, Ersche and colleagues (2010) conducted a study in the UK featuring substance users, their sibling, and a control group (N = 89) in which they found that general impulsivity may mediate stimulant dependence and that general sensation-seeking is more likely to be an effect of stimulant use. Also from the UK, a study with a sample of 91 individuals who used either cocaine, methamphetamine, or neither reported that those who primarily used methamphetamine reported higher levels of impulsivity, sensation-seeking, and lifetime stress when compared to the non-substance-using- controls (Mahoney III et al., 2015).

Torres and Gore-Felton (2007) posited in a conceptual paper that SMM who exhibit SC traits might manifest this feature as an anxiety reduction mechanism due to social suppression and isolation. They note that missing out on development milestones, such as dating during their teenage years, as well as lacking familial support due to being the only sexual minority in the family might lead to anxious traits that might be temporarily appeased through sexually compulsive behaviors. Their analysis suggests that SC might be more of a coping mechanism than exclusively a means to engage in sexual behaviors, placing SC in a broader sociocultural context, rather than an exclusively psychological one, similar to tenets of Cognitive Escape theory which suggests that risk-taking and other maladaptive behaviors may be responses to a

desire to escape rigid, if not oppressive, norms (McKirnan et al., 1996). Acknowledging this context invites cross-cutting theories and frameworks such as Syndemics and Intersectionality to supplement theories of stress and coping.

Semple and colleagues (2006) explored the role of SC in the sexual behaviors of HIV-positive methamphetamine-using SMM. The San Diego-based study found that aging was positively associated with SC, and that SC was also positively associated with being high before or during sex, as well as disinhibition (a feature more often associated with SSS). Additionally, they found SC to be inversely associated with self-esteem. Data from a similar sample found that marathon sex (i.e., prolonged sexual activity over hours and even days) was prevalent among this population, and correlates were found between SC and sexually oriented reasons for methamphetamine use, poly-substance use and recent use of poppers and erectile dysfunction medications (Semple et al., 2008).

Data from stimulant-using SMM in SF found that greater depressed mood, as well as SC were independently associated with increased odds of stimulant use (Carrico et al., 2012). A study (Woolf-King et al., 2013) utilizing data from a probability sample of SSM (N = 711), also from SF found that erectile dysfunction medication served as a moderator between SC and serodiscordant unprotected anal intercourse, such that SC was associated with higher odds of serodiscordant unprotected anal intercourse. Utilizing the same data source, a more recent study (Jerome et al., 2016) assessed some of the psychological mechanisms of SC among SMM. Their analyses suggest that SMM may use stimulants, such as methamphetamine, to avoid negative affect, thus engaging in sexually compulsive behaviors, lending further support to the notion that SC can serve as a coping mechanism to social stressors. Additionally, these findings suggest that traumatic stress in particular was associated with SC, which speaks to the underlying vulnerabilities related to trauma across the life-course in SMM.

Recently, the American Psychiatric Association attempted to include Hypersexual Disorder in the DSM-V, which could have served to explain legitimate, underlying mechanisms that make it difficult for individuals such as SMM to control their sexual behaviors. Estimates suggest that hypersexuality rates among SMM range from 14-28%, based on community sampling (Parsons et al., 2013). Their research, constituted of a sample of 202 "highly sexually active" (nine or more male sexual partners in the prior 90 days, with at least 2 in the prior 30 days) SMM in New York City, suggested instead that hypersexuality "can better serve as a diagnostic designation for this condition in spite of efforts to identify the presentation of symptoms as a behavioral addiction or comprised of features of impulse control or compulsivity disorder (Parsons et al., 2013; p. 3).

The above findings suggest the need to account for the diverse pathways through which SMM seek sexual pleasure, as well as the ways and direction in which these behaviors are conducive to a healthy lifestyle, rather than maladaptive practices. Lastly, Grov and colleagues (2010), used data from the same study (Parsons et al., 2013) sampling 50 highly sexually active SMM, half of whom scored high in the SC scale, trying to assess the role of affect in HIV sexual risk behavior. Because SC is characterized by distress, they thought that identifying distress's role in these men's sexual behaviors would lead to understanding how the mechanisms that lead to negative outcomes operated. Although their data did not show an association between SC and increased sexual behavior or sexual risk taking, more nuanced findings with regard to affect and sexual behaviors were revealed. For instance, negative activation (i.e., fear, anger, sadness, disgust, etc.) was associated with a decrease in sexual behavior or sexual risk taking, contrary to previous research. Interestingly, they found that sexual activation (operationalized as feeling

sexually aroused, interested, etc.) had a less pronounced association to increased sexual behaviors and risks among SMM who scored higher on the SC scale, perhaps because the operationalization of sexual activation did not account for the more distressful aspects of SC. Anxious arousal (endorsing feeling jittery, keyed up, etc.) was associated with increased odds of having sex, number of acts, and number of partners in a given day, but not with unprotected sex or sex under the influence. Lastly, for men who scored higher on the SC scale, endorsing low positive activation (lethargy, anhedonia, etc.) was associated with more partners; however, for those reporting low SC, endorsing high positive activation (joy, enthusiasm, etc.) was associated with more partners.

This review suggests that SC has been associated with several features and experiences across many life domains, including psychological, social, structural, affective, and demographic, among others. However, the mechanisms in which they operate within and across these domains remains underexplored. Some of the extant research suggests a need to pay closer attention to the social and cultural settings in which these mechanisms are developed, as well as their connection to other conditions such as HIV and substance use. Investigating these pathways may lead to the design and deployment of more holistic and effective interventions for both substance use and optimal health outcomes for SMM.

Theoretical Frameworks

Syndemics

Syndemics can be most usefully described for the purposes of this study as "a set of intertwined and mutually enhancing epidemics involving disease interactions […] that develop and are sustained in a community/population because of harmful social conditions and injurious social connections" (Singer & Clair, 2003, p. 429). Although derived from biomedical models of disease assessment and intervention, our understanding of syndemics has grown to recognize that social factors such as stigma, racism, poverty, and other forms of structural violence may be more relevant to disease progression than biological factors (Singer & Clair, 2003). For instance, among PLWH, psychological stressors have been found to be associated with advanced progression toward an AIDS diagnosis (Singer & Clair, 2003). In fact, one of the first models to emerge from Syndemics Theory was SAVA (Substance Abuse, Violence, and AIDS), which presented these three epidemics to not only be concurrent, but inseparable and independent threats to the health of low-income, inner city individuals. Singer and colleagues (2006) further elaborate on the effect of historically and geographically influenced sociocultural factors in syndemic proliferation. Namely, they assert that individuals and communities burdened by compound experiences of oppression are more likely to engage in short-term pleasures and material gains as a response to disparities in these domains.

According to Pachankis (2015), not only do SMM experience several psychosocial problems such as depression, anxiety, substance abuse problems, intimate partner violence, body image and eating disorders, and SC, at higher rates than their male heterosexual counterparts, but these disparities often co-occur. The proliferation of these deleterious outcomes is predicated by the heightened levels of structural stigma to which SMM are vulnerable to. Structural stigma expands the focus and context of stigma beyond the features and experiences of individuals and groups and centers on the societal, cultural, and institutional expressions that foster negative outcomes for its targets (Hatzenbuehler, 2016). Additionally, these syndemic conditions have shown to be associated with stigma-based stress rooted on sexual minority status. However,

while these stressors are socially proliferated, mainly due to the ways in which a heteronormative society shapes the lived experiences of SMM, it is important to take into account other factors not associated with sexual minority-based stressors, such as biological background and psychological predispositions (Pachankis, 2015). That is, in order to design and deploy interventions to ameliorate the syndemic experiences of SMM, it is imperative to identify the shared sources of these burdens through and across diverse life domains.

Regarding the role of history and the life-course, Egan and colleagues (Egan et al., 2011) note that some syndemic outcomes afflicting SMM are associated with adverse childhood and adolescent developmental experiences. Based on their data from South Florida, New York City, and Baltimore they also underscore the role of geography on the subject of syndemics, claiming that SMM who migrate to larger urban settings, in part to mitigate the experiences of discrimination they faced during their upbringing, continue to be susceptible to syndemic risks. Additionally, they note that the intersection of sexuality and race should be further investigated, given that the experience and expressions of these identities was predicated by place (i.e., place of origin vs place of migration) (Egan et al., 2011). Other data from the UK suggest that SMM use substances in sexual settings, such as sex clubs, in order to escape hostile social norms and settings (Pollard et al., 2018). To further situate this within a syndemics framework, Pollard and colleagues (2018) report on data sources from the UK that demonstrate the relationships between isolation, SC, and substance use as a means of shame-avoidance derived from societally-reproduced homophobia. These perspectives support the importance of contextualizing syndemic experiences in sociocultural ways, rather than lay the burden exclusively on the individual.

The proliferation of syndemics frameworks in research related to SMM has been almost exclusively nested within the context of HIV risk and prevention (Biello et al., 2016; Halkitis et al., 2013; Harkness et al., 2019; Mizuno et al., 2015; Parsons et al., 2012; Tulloch et al., 2015), however, some of the findings feature insights into the role of SC and substance use. For instance, Parsons and colleagues (2012) found that SC was associated with depression and partner violence among their sample of 669 SMM in NYC. Mizuno and colleagues (2015) used data from a multi-city study featuring 1,052 HIV-positive injection drug users to support a syndemics approach to SMM's health outcomes assessing six psychosocial problems: poly-drug use, abuse in adulthood, psychological distress, homelessness, low social support, and incarceration. They found that greater number of psychosocial problems was significantly associated with higher prevalence of negative health outcomes such as access to HIV care and HIV viral load. Biello and colleagues (2016) utilized a model of syndemics featuring seven psychosocial problems: depression, suicidal ideation, hazardous alcohol use, drug use during sex, childhood sexual abuse, intimate partner violence, and SC. Among their sample of 2,020 HIV-positive SMM across Latin America, they found that experiencing five or more of these problems was associated with 42% lower odds of currently receiving HIV care including ART. Additionally, based on a dose-response relationship analysis, compared to those experiencing none of the above problems, individuals experiencing one problem had 23% lower odds, and individuals with five or more had 72% lower odds of achieving full adherence to ART.

Observing these syndemics across the lifespan is relevant to their contextualization. In their research with 1,551 SMM on a multi-site, US-based study, Herrick and colleagues (2013) found that most of the life-course predictor variables in their model (e.g., victimization, internalized homophobia) were significantly associated with both the syndemic conditions and the component psychosocial health outcomes (i.e., depressive symptoms, stress, stimulant use, SC, intimate partner violence). Additionally, early life events such as childhood victimization

and sense of masculinity attainment remained significant after controlling for other factors.

Further exploring how the pathways through which syndemic conditions operate may result in more effective, holistic social and health interventions for SMM (Halkitis et al., 2013; Pachankis, 2015). Additionally, some researchers (Herrick et al., 2011; O'Leary et al., 2014) suggest looking into the role of resilience-based interventions as a means to counteract the effects of syndemics. They cite features such as sexual creativity, self-monitoring, volunteerism, shamelessness, and social support, among others as some of these potential resilience-oriented features.

The preceding review suggests that the study of syndemics, particularly among SMM, requires the invocation of complementary, cross-cutting perspectives to efficiently ameliorate social and health disparities. The data point to many ways in which the accrual of identity-based stressors across the lifespan contributes the proliferation of syndemics and maladaptive coping strategies, such as methamphetamine use.

(Revised) Stress and Coping Theory

At its broadest, Stress and Coping Theory posits that individuals invoke the emotional and cognitive repertoire at their disposal to identify, manage and cope with stressful circumstances (Lazarus, 1993). In a succinct overview of Stress and Coping Theory, Lazarus (1993) underscored the importance of viewing coping as a *process*; one that is tied to the social cues and conditions that promote or hinder one's ability to hone defense mechanisms against stress. He also endorsed situational and relational factors that influence the coping capacities of individuals. Given this, if an individual belongs to a marginalized group and has internalized the societal negative perceptions of his or her group, he or she may evidence diminished ability to cope with stress. Subsequently, and contextualized on the coping processes of SMM living with HIV and their caretakers, Folkman (Folkman, 1997) underscored the role of appraisals in the coping process. Her revised model focused on the role of positive affect in the processes of coping with distress, in the form of three distinct pathways. The first focused on positive psychological states that resulted from meaning-based processes that were used to cope with the stressor itself. The second describes coping as a response to distress, rather than a response to the conditions that precipitate the distress. The third one takes the positive psychological states back to coping and appraisal. This revised model elevated the role that context had in the study of stress and coping, through the exaltation of positive affect as a means to facilitate individuals' responses to distress. Revised stress and coping models (Folkman & Moskowitz, 2000) do not see positive affect as a trait exclusive of negative affect and experiences. In fact, the revised model seeks to position positive affect as a trait that coexists with negative experiences and reactions and calls for research to investigate ways in which they coexist, as well as harness traits and conditions that help sustain positive affect in the midst of distress. A key to elevating the role of positive affect in further understanding coping processes seems to reside in the role of meaning-focused coping. This process of positively reappraising a distressing event based on deeply held values and beliefs requires more comprehensive analysis. The proceedings of a recent randomized-controlled trial (RCT) with individuals newly-diagnosed with HIV in SF (Moskowitz et al., 2017) suggest that the manner in which we assess and measure positive affect and its effects need to be better grounded in the expansive day to day experiences of individuals. That is to say that perhaps employing solely survey-based design might not effectively capture the nuanced ways in which individuals experience and deploy positive affect, in the context of

acute or chronic distress. Engaging with frameworks and methods that explore and contextualize these experiences in more critical and nuanced ways, such as Syndemics Theory and Intersectionality, may be key to more efficiently measure these processes and design more effective interventions to address negative social and health outcomes.

(Queer) Intersectionality

Intersectionality posits that individuals' identities are intricately and inextricably bound by and through discourses and systems of privilege and oppression and that attempting to analyze one identity in lieu of another would be akin to reproducing hegemonic forces (Crenshaw, 1989, 1991, 1992). The early stage of the Intersectionality project was rightfully promoted by and for Black women, but as the movement expanded, the identity features represented in its analyses diversified, as well. Though essentially centered on identities, as Intersectionality evolved and availed itself to scrutiny, critical extensions of this framework have centered on the understanding that these undervalued and underprivileged identities are produced through systems of inequality, which relate to both self-identification and stigmatization (Taylor, 2019).

As a project contemporary to Crenshaw's, Darren Rosenblum (1994) applied an Intersectionality framework to Queer Theory, through a Law lens. He argued that in the same manner that antiracist and Feminist agendas (which centered Black women's needs based on either their blackness or femaleness) fell short, liberal gay and lesbian projects are also limited when identifying the community exclusively on same-sex orientation and partnership. He called for a broader queer continuum that not only acknowledged class, race, ethnicity, sexual and gender identity diversity, but to make these claims political as a means to transcend politics of difference into agendas for change (Rosenblum, 1994), akin to Keeanga-Yamahtta Taylor's (2019) call for coalition building. In a manner similar to Crenshaw (1989), Rosenblum refers to the condition of "but-for-queer" referring to individuals who aside from identifying as queer exist in a space of privilege, afforded to them by other demographic traits.

Clare Beckett (2004) in her work intersecting lesbian and disabled identities, goes a step further by signaling heterosexuality as a "social institution that masks, devalues and trivializes difference" (p. 44). Julie Fish (2008) adds that within the study and activism of lesbian, gay, bisexual, and transgender health (LGBT) health, the delineation of these othering boundaries have resulted in LGBT people being subject to homogenizing discourses that have obstructed intragroup differences. This, she argues supports heteronormative discourses that cast LGBT people as a homogenous group, afforded with privileges, that she cautiously suggests might be a byproduct of identity politics propelled by White, middle- and upper-class gay men and lesbians. She thus proposes a need to divest from these categorical ideations that ignore the demographic, social, and structural intragroup differences in the LGBT community in which health inequalities are cemented.

In her introduction to a special issue about Intersectionality and Gender published in *Sex Roles*, Stephanie A. Shields (2008) referred to difference as a "seductive oversimplification" (p. 303) and questioned the understanding of identity as something that is inherently fluid, however, understood as static for the sake of comfort. Her core argument suggests that while identities, through Intersectional lenses acknowledge intimate, interpersonal, and structural nuances, need also be understood through their distinct historical and contextual locations (Shields, 2008).

Extending on the sociologically centered narrative of Queer Intersectionality, Antonio Pastrana (2010) introduces the term *racial capital* to denote "a form of power that is linked to

how individuals experience racialized lives" (p. 94). He uses this Bourdieu-inspired concept to illustrate the notion that, in intersectional terms, race can serve as either an advantage or disadvantage, contingent upon the context. For example, he noted that in the context of LGBT community organizing, if an ethnic minority member has a negative self-appraisal of their racialized self, their efforts to organize through queer sites may not be as successful (Pastrana, 2010). Additionally, a seemingly demographic feature that has been under-assessed through queer intersectional means is age and aging. Binnie and Klesse (2013) shed light on the erroneous understanding of age as a fixed trait and suggest that it be viewed as a relational feature. Specifically, they note that: "Age, generation and temporality are always mediated by other social divisions, such as gender, class, race/ethnicity and nation […]" (p. 593); a lens which should be useful in better understanding social and health problems affecting LGBT populations.

Burnes and Singh (2016) approach Queer Intersectionality from a socioeconomic and class perspective, underscoring the effect that capitalist ideals and mechanisms have on the well-being of LGBT populations. For instance, they note that cultural forms of capital that allow LGBT individuals to deploy language that allows them to access certain LGBT-specific social spaces are tied to material capital. As an example, some individuals that identify as "queer" in many aspects of their lives, on account of the more politically-grounded connotations of the term, might feel the need to self-label as "gay" or "lesbian" in some spaces, in order to be seen as less militant. Along the lines of material capital, many members of the LGBT community may not be able to attend social events geared towards them, on account of lacking the resources to pay a cover charge, for instance. As such, they argue that their inability to access such spaces may result in social isolation and maladaptive practices.

Through an LGBT-parent families purview, Few-Demo and colleagues (2016) offered a solid argument for the reconciliation of Intersectionality and Queer Theory. They suggest that the former "provides a framework to explore the intricacies of power dynamics within discriminatory discourses and interactions" while the latter "provides a lens to analyze those […] processes that transcend normative notions of gender and sexuality […]" (Few-Demo et al., 2016, p. 90). That is, Intersectionality allows us to elaborate on the structural discourses that promote and sustain dynamics of power, privilege, and oppression, while Queer Theory assists us in assessing the ways in which these discourses directly affect individuals and groups that do not belong to gender and/or sexual majorities.

Recently, McConnell and colleagues (2018) integrated both the Minority Stress Model and Intersectionality to better understand community resilience among SMM. They found that while White SMM can invoke attachments to the LGBT community as a means to mediate stigma and stress, SMM of color experience high rates of race/ethnicity-based discrimination in LGBT community settings. They suggest that individuals belonging to less privileged groups carry a heavier psychological burden on account of prejudice than their more privileged counterparts, which often results in lower self-worth and perceptions of control.

With regards to the complexity of diverse and overlapping gender and sexuality categories, Ghabrial and Ross (2018) recently underscored the dearth of literature regarding bisexual individuals, specifically, bisexuals of color. They note that while the multiplicative effects of such intersecting identities may place them at higher risk of poor physical and mental health, studies addressing bisexual populations neglected to recruit samples that were ethnically representative of the population, that very few reported the mental health outcomes of bisexual people of color, and that even less studies were specifically dedicated to that community.

Another understudied topic from an Intersectional perspective is that of substance use among LGBT populations. While the Institute on Medicine has called for the use of cross-cutting perspectives such as Intersectionality to address substance use among LGBT populations since 2011 (Lewis et al., 2012), there continues to be a scarcity of Intersectional research on this area. Although some studies (Goldstein, Burstyn, LeVasseur, & Welles, 2016) approximate an Intersectional approach by utilizing interactions in their quantitative statistical analyses, the field seems to be lagging on the utilization of Intersectionality as a framework and/or methodology. Mereish and Bradford (2014) recently conducted a quantitative study in New England, where they surveyed 2,556 patients (of which 1,465 self-identified as sexual minorities) about their lifetime substance use problems, among other demographic factors. The overall purpose of the study was to support and expand the literature on race, gender, and sexuality health disparities, focusing on substance use through logistic regressions analyzing the interaction between and among the three aforementioned demographic variables. They underscored that merely controlling for race in a seemingly diverse sample does not account for Intersectionality. Moreover, they suggest that employing an additive approach to engaging with intersecting identities is inherently problematic because it implies that individuals rank said identities. They offer up the example of presuming that race is more relevant to their sample than their sexual orientation, by function of the former being the statistically significant independent variable in their analysis (Mereish & Bradford, 2014). In their study, they found that Intersectionality as a framework should acknowledge intersecting identities as providing both protective and risk factors with regards to substance abuse. They found that White sexual minority men and women presented with higher risk of lifetime substance abuse issues than their heterosexual counterparts on account of society's heterosexists values, that supersede the privileges afforded to them by being White. Moreover, the interlocking relationship between heterosexism and sexism puts White sexual minority women at higher risk. SMM of color, however, did not differ greatly in lifetime substance abuse risk profile when compared to their heterosexual counterparts, potentially because they might have been able to invoke the privileges of their gender identity as a means toward resilience. For sexual minority women, however, the interlocking systems of oppression based on gender, sexuality, and race put them at the highest overall risk of lifetime substance abuse behaviors. While this cross-sectional, quantitative study had several limitations, particularly by lumping Black and Latinx participants together, it does offer some insight into the nuanced relationships and outcomes that might emerge by using Intersectionality as a framework and methodology to better understand substance abuse among sexual minority populations.

Moreover, the acknowledgement that Intersectionality operates under the premise that these experiences are socially produced and reproduced across history and the life-course, it is important to acknowledge the ways in which the accrual of the stressors attached to their identities are sustained. Intersectionality frameworks, thus should be utilized alongside Syndemic and Stress and Coping Theory to better assess the ways in which synergistic adverse conditions, such as methamphetamine use and HIV operate to the detriment of multiply oppressed populations such as SMM.

Current Study

The current study examines the association between SC and methamphetamine-using behaviors among SMM living with HIV. The study utilizes Syndemics Theory, Revised Stress and Coping Theory and Intersectionality frameworks as analytical tools to better understand

understudied pathways and mechanisms that may precipitate and sustain methamphetamine use among HIV-positive SMM. More specifically, the following research questions are addressed:

- What is the relationship between SC and methamphetamine initiation & subsequent use, including recovery efforts among SMM living with HIV?
- What are the interrelationships between syndemic factors linked to sexual minority status among methamphetamine-using SMM living with HIV?

Chapter 2: Methods

Study Design

This study is part of a larger one, the Affect Regulation Treatment to Enhance Methamphetamine Intervention Success (ARTEMIS) study, a San Francisco-based RCT. ARTEMIS is a Revised Stress and Coping Theory-based RCT consisting of an individually-delivered five-session intervention promoting positive affect regulation. The study was performed in conjunction with the SF AIDS Foundation's Positive Reinforcement Opportunity Program (PROP) that was delivering a contingency management intervention for methamphetamine-using SMM.

The five sessions focused on eight skills thought to propel the effects of PROP for reducing methamphetamine use, specifically for HIV-positive SMM: (1) noticing positive events (2) capitalizing on positive events (3) gratitude; (4) informal and formal mindfulness; (5) positive reappraisal; (6) personal strengths; (7) attainable goals; and (8) acts of kindness. Data collection included a screening baseline, a second baseline visit that included randomization into either the intervention or attention-control condition, and four follow-up visits at 3, 6, 12, and 15 months. Research question are addressed in the current study by using cross-sectional survey data for the quantitative analyses, and in-depth exit interviews of survey participants for the qualitative analyses. All study procedures are approved by the Internal Review Boards of the University of California, San Francisco and the University of Miami.

The author served as project director for ARTEMIS from its inception in 2014, until beginning doctoral studies in the Fall of 2015. He was responsible for conducting screening interviews, as well as baseline and follow-up assessments. Additionally, he served as liaison between the study's community partners, laboratories, and research staff. From the Fall of 2015 until the Spring of 2018, he continued as a research associate, primarily to collect the data for the qualitative arm of the study.

Procedures

Participants completed a baseline assessment that included self-report measures, a urine sample for on-site toxicology screening, and a peripheral venous blood sample to measure T-helper (CD4+) count and HIV viral load. The survey consisted of 22 sections measuring demographic information, psychosocial factors, healthcare utilization, substance use, and sexual behavior. Self-reported substance use measures were completed by participants using computer-assisted self-interviewing to enhance reliability and validity. All participants received a $50 pre-loaded debit card as an incentive for completing the baseline assessment.

After participants completed their final follow-up visit, 15 months after randomization, they were asked for permission to release their contact information to the author in order to participate in exit interviews. The author received a password-protected email notification with a file containing participants' name, phone number, and email. Next, the author scheduled one-on-one interviews at the site of the study, Alliance Health Project, near the Castro district in SF with willing participants. After signing a supplemental consent form, participants partook in a recorded interview with the author. The interview guide covered topics referring to HIV diagnosis, methamphetamine initiation, use, recovery efforts, and insights about their participation in the study. Participants received $25 in cash as an incentive to participate.

Interviews ranged from one to two hours in length, and were transcribed by an outside party. Twenty-four participants were interviewed and although we hoped to recruit even numbers based on their randomized group conditions, as well as ethno-racial identity, it was challenging to track participants after initial involvement with the study. For instance, some participants use "burner" phones, meaning that they are constantly changing their phones and numbers, some had moved, some had full voicemails, and some simply did not return our calls. Despite these recruitment difficulties, our sub-sample was generationally, ethnically, and culturally diverse.

Measures

Quantitative Assessment

The quantitative network analysis employed twelve variables from the survey data: three dichotomous and nine continuous. Of the nine continuous measures, the internal consistency reliability scores for seven of them were computed by the ARTEMIS research staff utilizing the study's sample as described below.

Sexual Compulsivity. SC refers to an individual's ability to control sexual thoughts and behaviors as measured by the 10-item Kalichman Sexual Compulsivity Scale (Kalichman et al., 1994). Responses are on a 4-point Likert scale from (1) Not at all like me to (4) Very much like me. The scale is associated with condomless intercourse, sex with multiple partners, lower self-esteem, and resistance to reducing high-risk sexual behaviors among SMM (Kalichman et al., 1994; Kalichman & Rompa, 1995). An alpha coefficient score of 0.92 was obtained for the current sample. Examples of items include, "My desires to have sex have disrupted my daily life" and "I sometimes fail to meet my commitments and responsibilities because of my sexual behaviors".

Negative affect. An adapted version of the Differential Emotions Scale (DES) assessed the frequency of negative affect (Izard, 2013). The negative affect subscale from the DES consists of 12 negative emotion-based items, from the original 26, presented in a 4-point Likert scale from Never (0) to Most of the time (4) during the past week. An alpha coefficient score of 0.88 was obtained for the current sample. Examples of items include, "How often have you felt ashamed or humiliated?" and "How often have you felt lonely or rejected?"

Depression symptoms. The CES-D scale is a 20-item self-report scale designed to measure symptoms of depression experienced during the past week (Radloff, 1977). The 4-point Likert scale goes from (0) Rarely or none of the time (less than 1 day) to (3) Most or all of the time (5-7 days). An alpha coefficient score of 0.90 was obtained for current sample. Examples of items include, "I felt that people disliked me" and "I could not get going."

Post-Traumatic Stress Disorder (PTSD) symptoms. The Post-Traumatic Stress Disorder Checklist (PCL) measures PTSD symptoms based on the DSM-IV, including hypervigilance, avoidance, and arousal (Blanchard et al., 1996). The PCL uses a 5-point Likert scale to assess how often respondents have been bothered by symptoms in the past month, ranging from (1) Not at all to (5) Extremely. An alpha coefficient score of 0.92 was obtained for the current sample. Examples of items include, "Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?" and "Feeling as if your future will somehow be cut short?"

Alcohol use. The AUDIT (Alcohol Use Disorder Identification Test; Saunders et al., 1993) is a 10-item scale that has been widely used to assess problematic alcohol use. The scale measures frequency and negative consequences of alcohol use. Current frequency of drinking is

measured through three items; first on a 5-point scale ranging from Never (0) to 4 or more times a week (4); followed by number of drinks per episode on a 5-point scale from 1-2 (0) to 10 or more (4); and frequency of six drinks or more at a on a 5-point scale from Never (0) to Daily or almost daily (4). Negative consequences of drinking during the past year are assessed two ways, first on 5-point scales ranging from Never (0) to Daily or almost daily (4). The items assessing negative consequences of drinking during the past year use on 3-point scales including No (0), Yes but not during the past year (1), and Yes (2). An alpha coefficient score of 0.89 was obtained for the current sample. Examples of items include, "How often do you have six or more drinks on one occasion?" and "How often during the last year have you failed to do what was normally expected of you because of drinking?"

Family and social relationships. The Addiction Severity Index (ASI; McLellan et al., 1992) is a widely used structured and multidimensional clinical interview and evaluation tool used for individuals experiencing problematic substance use. The ASI addresses seven life domains using a combination of nominal, ordinal, and continuous variables. Because of the mixed nature of ASI items, continuous items are recoded as categorial, on Lickert-type scales with no more than five categories in order to compute scores and other statistical measures (Cacciola et al., 2011). In the current During this study, two subscales from the fifth edition of the ASI (McLellan et al., 1992) were used.

The Family and Social Relationships subscale, used in the current study, features 35 items assessing social problems and support as well as experiences of and responses to abuse and victimization. This subscale uses. The first item asks participants about their marital status (e.g., married, widowed, never married, etc.), followed by an item assessing satisfaction using a 3-point Lickert scale: No (0), Yes (1), Indifferent (3). The next item asks what the respondent's living arrangement has been in the past 12 months (e.g., with family, alone, no stable arrangement, etc.), followed by assessment of satisfaction using a 3-point Lickert scale: No (0), Yes (1), Indifferent (3). The next two items ask if participants currently live with someone with an alcohol problem, then if they live with someone who uses illicit drugs; both items use a dichotomous Yes (1) or No (0) scale. The next item ask with whom participant spends most of their free time, using a nominal scale: Family (1), Friend (2), Alone (3); followed by assessment of satisfaction as described above. The following items ask if participants have experienced problems getting along with anyone in their life in the past 30 days (Yes (1) or No (0)). They are then asked nine follow-up dichotomous items assessing problems experienced getting along with specific relatives or peers (e.g., mother, sexual partner, neighbor, etc.). The next two items ask if they have been physically or sexual abused in the past 30 days (Yes (1) or No (0)). The last items ask about conflicts with family and friends in the past 30 days. For each group, they are first asked for how many days, how bothered they are by these conflicts, and how important counseling currently is for these conflicts; both of the latter assessed on 5-point Lickert scales ranging from Not at all (0) to Extremely (4). The parent RCT study from which the current study's data originated did not calculate an internal consistency score for this sub-scale from the ASI's fifth edition. However, a study assessing the internal consistency of the full ASI (Leonhard et al., 2000) reported an alpha coefficient score of 0.74 for this subscale from a sample of patients in inner-city alcohol and substance abuse treatment clinics (N = 8,984). Examples of items include, "How troubled or bothered have you been in the past 30 days by these family problems?" and "How important to you now is treatment or counseling for these social problems?"

Psychiatric status. Another subscale of the Alcohol Severity Index (ASI; McLellan et al., 1997) was utilized to measure recent psychiatric symptoms, as well as associated distress, impairment and service utilization, as related to substance use. This subscale features 14 items and uses a combination of nominal, ordinal, and continuous variables. The first two items ask how many times in the past 12 months participants have been treated for emotional or psychological problems in inpatient, then outpatient settings. Next, they are asked if they receive a pension for a psychiatric disability, using a Yes (1) or No (0) dichotomous scale. The next four items ask if they experienced: serious depression; serious anxiety; hallucinations; and trouble concentrating in the past 30 days. All four items were assessed using a Yes (1) or No (0) dichotomous scale. The next three items are also related to the past 30 days, and ask if participants had: trouble controlling violent behavior including episodes of rage, or violence; experienced serious thoughts of suicide; and attempted suicide. All three items were assessed using a Yes (1) or No (0) dichotomous scale. Next, participants are asked if they were prescribed medication for any psychological/emotional problem in the past 30 days (Yes =1 or No=0). Participants are then asked how many days in the past 30 they experienced these psychological or emotional problems, followed by two items. Lastly, they are asked two follow-up items, asking how troubled they have been by these problems and how important counseling currently is for these problems; both assessed with 5-point Lickert scales ranging from Not at all (0) to Extremely (4). The parent RCT from which the current study's data originated did not calculate an internal consistency score for this sub-scale of the ASI's fifth edition. However, a study assessing the internal consistency of the full ASI (Leonhard et al., 2000) reported an alpha coefficient score 0.84 for this sub-scale from a sample of patients in inner-city alcohol and substance abuse treatment clinics (N = 8,984). Examples of items include, "How much have you been troubled or bothered by these psychological or emotional problems in the past 30 days?" and "How important to you now is treatment for these psychological or emotional problems?"

Methamphetamine use. A single item was used to assess how often in the past three months participants had used methamphetamine. Responses were measured using an 8-point Lickert scale ranging from (0) Not at all to (7) Daily.

Injection drug use (IDU). Frequency of IDU for each listed substance (including methamphetamine) was assessed on an 8-point Likert-type scale ranging from 0 (Didn't use) to 7 (Daily).

Homelessness. Participants were asked if they had experienced homelessness in the past year (Yes/No).

Disability benefits. Participants were asked if they were currently receiving Disability benefits (e.g., SSI/SSDI) (Yes/No).

Incarceration. Participants were asked if they had ever been in jail (Yes/No).

Qualitative Assessment

Interview guide. Qualitative analyses use data derived from individual interviews informed by a semi-structured interview guide. The guide sought to underscore the embodied, cognitive, and relational experiences of methamphetamine use from initiation to present day. The guide does so within the context of participants' coming out processes, HIV diagnosis, assessing and accessing recovery pathways, and study participation. The questions and probes, particularly as they referred to methamphetamine use and sex, were designed to elicit narratives around the sensations, emotions, and thoughts contained in these acts (see guide in Appendix).

Analyses of Data

This study employed three analytical approaches to answer the proposed research questions: Narrative analyses, Network analyses, and Constructivist grounded theory. The three approaches were deployed in a sequential manner.

Narrative analyses. Although narrative analyses are considered to be somewhat abstract in their foundation and application (Riessman & Quinney, 2005), they provide a unique opportunity to engage with temporality and sequencing in a way often unavailable in other qualitative approaches (Floersch et al., 2010). Rather than focusing on traditional means of coding, narrative analyses utilize "the multiple modes of representation used to reference and make sense of human experience" (Floersch et al., 2010, p. 411). That is, participants' expressions are reconstructed in such a way that they represent a narrative plot, given that meaning-making is considered to be the core outcome of developing and analyzing narratives (Floersch et al., 2010). This plot is used in the current study to sequentially identify characters, story, and conflict in order to surmise the role of syndemically related psychosocial factors in the methamphetamine-using behaviors of the participants (Riessman & Quinney, 2005). Though there exists an aforementioned lack of consensus around what constitutes a monolithic narrative approach, some in the field suggest that focusing on narrative devices such as problem-solving and interpersonal experiences in plots can embolden the approach to supersede a mere chronological retelling of events (Floersch et al., 2010). For the current study, a multi-step approach is used to better understand the ways in which syndemically related psychosocial factors may emerge, develop, and be sustained across participants' lives.

The first step taken in the narrative analysis was engaging in a deep, open read of each transcript following from the author's experience of being the designer of the interview guide and interviewer. Though notes and some memoing took place during and immediately after most interviews, narrative analysis served as a means for the author to re-engage with the diverse and complex narratives contained in the analytic process. These deep reads produced individual narrative outlines for each interview. Informed by the interview guide, outlines were divided into eight sections: (1) Current, (2) Background, (3) Sexuality, (4) HIV Diagnosis, (5) Methamphetamine Initiation, (6) Subsequent and Current Methamphetamine Use, (7) Service Utilization, and (8) Experiencers with PROP and ARTEMIS.

Although the interview guide design aimed to elicit a mostly linear and sequential narrative, this is not the reality of lived experiences nor participant retelling, a fact that tasked the outlining process with ensuring that plot elements were relayed in a sequential fashion that tended to the core role of temporality in narrative analyses. The dimension of time represented through these outlines allowed for the analysis to underscore the ways in which syndemically related psychosocial factors synergistically contributed to the production and reproduction of maladaptive coping strategies, such as a methamphetamine use.

Because interpersonal relationships and conflicts are of great relevance to narrative analysis approaches, the outlining processes paid close attention to the role that other "characters" had in driving the narrative plots. This is to say that a spectrum of experiences rooted in relational involvements were highlighted in the outlines, such as familial conflict and support, peers enacting methamphetamine initiation and recovery efforts, and relational disruptions due to methamphetamine use. Another dimension of interpersonal relationships embedded in the narrative analysis efforts is that of participant and author. In order to elevate the outlines beyond the realm of a traditional summary, the products resulted in a combination of

both direct quotes from participants and interpretive insight from the author, framed in a prose-like manner. This allowed for the plot to have a narrator who aided in not only supporting the temporal qualities that strengthen a narrative analysis, but also to help underscore the presence and role of the syndemically related psychosocial factors central to addressing the research questions. Though this process did not engage in traditional coding strategies, the organization of quotes and interpretation were categorized in the aforementioned time/event-based sections and were often grouped in reference to the somatic, affective, psychological, and relational nature of the accounts. This process informed an orientation of the emerging themes that was consistent with specific domains of lived experience that provided the structure to develop nuanced patterns of the relations between factors and the methamphetamine-using behaviors of participants.

An additional step in the narrative analysis aimed to further organize the data such that the presence and effect of syndemically related psychosocial factors could be identified. Deemed by the author as *Syndemic Arcs*, this analysis facilitated the development of a prose-based report to map the syndemically related psychosocial factors and provided a blueprint for the broader narrative structuring of the data. The above organization of qualitative data allowed for a structured pathway to perform cross-case analyses consistent with the syndemics-related goals of this study. The deep readings and outlines served to account for sexuality-based distress as an antecedent to methamphetamine initiation and maintenance, as well as the ways in which these processes resulted in interpersonal strife, among other salient events and relationships. These cross-case analyses supported frequency analyses to underscore some of the features most prominent in the sample, as well as a device to support the proceeding analytic steps. These frequency analyses were similar to the charting step in traditional framework analyses (Ritchie & Spencer, 2002). Essentially, these syndemic arcs reinforced the sequential nature of the relationships between the psychosocial factors and the methamphetamine-using behaviors of participants and signaled the most influential stressors in the sample. Additionally, identifying the most salient factors through these steps, informed the subsequent quantitative analyses below.

Network analysis. Network analysis is a statistical approach that presupposes that measures may interact with each other as part of a theoretically-bound network. This analytic approach "has the philosophical advantage of dropping the unrealistic idea that symptoms of a single disorder share a single causal background, while it simultaneously avoids the relativistic consequence that disorders are merely labels for an arbitrary set of symptoms. That is, Network analysis provides a middle ground in which disorders exist as systems, rather than as entities" (Borsboom & Cramer 2013, p. 93). Such networks are viewed as made up of nodes (measures) and edges (connections among measures). In the current study, edges will represent the conditional pairwise relations between two measures controlling for all other measures in the network of measures used in the study. Ideally, the "whole network can be interpreted as a joint partial correlation structure among a set of items" (Rhemtulla et al. 2016, p. 233). Network analyses assesses the pathways through which adverse events and psychosocial factors, common among methamphetamine-using, HIV-positive SMM, may be associated with each other. Particular attention is paid to identifying if and how SC fits into the complex network of relationships made up of measures used in this study. NA allows for a more nuanced understanding of ways in which SC, in concert with other factors, fits into the syndemic experiences of the study population. All Network analysis analyses were conducted using R, version 3.3.2 (R Development Core Team, 2016).

The first step of the quantitative analysis consisted of computing correlations between the psychosocial syndemic factors measures. Polychoric correlations were employed because they are suitable to examining relationships among dichotomous, categorical, continuous, and mixed variables (Holgado–Tello et al., 2008). Correlations were tested for statistical significance.

In the network analysis of this study, edges represent bidirectional partial polychoric correlations between nodes or syndemically related psychosocial factors. Partial polychoric correlations were used to investigate edges evidencing any potential direct causal relationships between measures, because partial polychoric correlations statistically control for all other measures in the network, resulting in information about only the relationship between two syndemic conditions that remains after such statistical control is applied (Borsboom & Cramer, 2013). Additionally, the use of partial polychoric correlations allows for the investigation of edges within the network that may indicate information regarding possible direct relationships (Borsboom & Cramer, 2013).

The exploratory partial polychoric correlation network analysis utilized the graphical LASSO (*glasso*) algorithm (Mazumder & Hastie, 2012), as well as an Extended Bayesian Information Criteria (eBIC) hyperparameter of γ=0.1 to produce somewhat specific (i.e., more connections, including potentially spurious connections, are estimated than would be with a larger hyperparameter), yet sensitive (i.e., more true connections are estimated than would be with a larger hyperparameter) network. A hyperparameter of 0.1 allows for interpretation of a greater number of potential associations between syndemic factors and is appropriate for network analysis applications aimed at discovery, as well as when sample size is small (Epskamp & Fried, 2016). Employing the *glasso* package in R, regularization and setting the eBIC hyperparameter to γ= 0.1 produces a graphical network with the specificity and sensitivity previously detailed. Edge weight significance testing is determined by examining the 95% confidence intervals, which are estimated using bootstrapping techniques. The network was also examined for clusters of factors. In addition, because node strength is the main indicator of centrality, it was examined to determine the most central nodes which refers to how strong the pairwise relationship between two nodes is.

Constructivist Grounded Theory. The third and final stage in this iterative mixed methods analysis is constructivist ground theory (Charmaz, 2006; Strauss & Corbin, 1994). The initial narrative analyses allowed for an open coding process that grouped statements based on the somatic, affective, psychological, and relational methamphetamine-using experiences in the sample, that in turn oriented the network analyses. That is, network analysis was oriented by the most salient constructs and themes that emerged from the narrative analyses, providing an opportunity to identify thematic clusters and pathways that expanded upon the themes that emerged. These iterative processes, centered in extensively revisiting the data, provided a more focused approach to expanding the preliminary thematic categories that contextualized ways in which sex, sexuality, and SC are related to the methamphetamine-using behaviors of participants across diverse life domains.

The process of openly identifying and inductively distilling codes and themes is akin to coding processes consistent with constructivist grounded theory (Apramian et al., 2017; Charmaz, 2006). When arriving at this final stage, the conditions have been set up to engage in more focused means of coding, also in line with constructivist grounded theory, wherein the codes and accompanying constructs serve to engage in robust meaning-making and theory-producing (Rieger, 2019).

Constructivist grounded theory served as an organic and suitable final stage of this analytic process for a number of reasons. First, it reinforces sequencing and temporality at the core of the narrative analyses by linking events such that dynamic change is signaled and centered in the storytelling process, thus creating a cohesive narrative, and forging a timeline to the broader theory-making process (Floersch et al., 2010). Second, constructivist grounded theory is interpretive in nature and manifests through privileging the process of theorizing rather than the theory itself (Apramian et al., 2017). Proponents of this approach are more concerned with the relational processes that shape the lived experience, essentially “in offering a guide to interpretive theoretical practice not in providing a blueprint for theoretical products” (Charmaz, 2006, p. 128). By centering inductive theorizing, constructivist grounded theory allows for the authentic experiences of marginalized voices to ‘reveal links between concrete experiences of suffering and social structure, culture, and social practices or policies’ (Charmaz, 2011, p. 362).

Chapter 3: Findings

Sample Background Characteristics

The sample consisted of 129 HIV-positive methamphetamine-using SMM with ages ranging from 22-60 (M = 43.3; SD = 9.0). Participants self-identified as 44% White, 29% Hispanic/Latino, 16% African-American, and 11% Other or Multi-cultural. Mean time since HIV diagnosis was 13 years (SD = 8.5) and most (83%) had an undetectable viral load. About one-third (33%) had experienced homelessness in the past year with a similar amount (37%) ever having been incarcerated. Half had received substance use disorder treatment in the past 6 months and almost the same amount (49%) were enrolled in disability benefits in the form of SSI/SSDI. Scores for syndemically related psychosocial factors can be found in Table 1.

Qualitative Sub-Sample Demographics

Twenty-four of the 129 participants were purposively sampled based on their race/ethnicity and randomization into intervention or control condition. However, given the lag between parent study completion and recruitment for the current study, an even distribution was not obtained. Nevertheless, ethnic diversity was achieved with over half (54%) self-identifying as non-White: 21% Latino/Hispanic and African-American/Black, and 12% Multicultural. Regarding participation in the parent study, 14 (58%) had been randomized into the control and 10 (42%) into the intervention condition. The mean age of this study's sub-sample was 47 years.

Narratives of Disconnection

Following the flow and sequencing set by the interview guide, the narrative analyses sought to gain a temporally-bound, dynamic understanding of ways in which syndemically-related psychosocial factors emerged, developed, and influenced the initiation and continuation of methamphetamine-using behaviors of the sample. The narratives themselves are bound by sequential events regarding coming out, HIV diagnosis, methamphetamine initiation and subsequent use, recovery efforts, and participation in our research activities. The "Background" section at the beginning of the interviews, along with the section regarding "Sexuality/Coming out" experiences served as an opportunity for participants to freely elaborate on their upbringing and adverse events experienced while minors. That is, antecedents that preceded their relationships with methamphetamine and that ground the study's analytic strategy.

Frequency of Syndemically Related Psychosocial Factors

In order to anchor the synergistic and temporally based nature of the study's variables of interest, the outcomes of a frequency analysis generated from the charting process are reported. These initial findings that emerged from the deep reading and open coding at the core of this narrative analysis strategy help elucidate the role that SC, along with other syndemically related psychosocial factors, had in the methamphetamine-using behaviors of participants through several life domains across the lifespan. Seventeen of the 24 participants (71%) reported experiencing adverse events as minors ranging from the anxiety of withholding their sexual minority identities and negative self-appraisals, that emerged from withholding their sexual

orientation, to chronic sexual abuse as youth. All but one (94%) reported that these adverse events were related to their sexual orientation.

Similarly, 17/24 (71%) reported that sex and/or their sexuality were related to their methamphetamine initiation. These experiences mostly referred to participants being introduced to methamphetamine by sex partners or other SMM. In the context of methamphetamine initiation, over a third (38%) of participants reported that use was disruptive to relationships such as precipitating the end of romantic relationships or preventing communication with family or friends. Regarding subsequent use, over 80% reported sex and/or sexuality as the reasons or avenues sustaining their relationship with methamphetamine. Almost half (46%) of the sample referenced sustained methamphetamine use as disruptive to their relationships.

On the subject of recovery, three quarters of the sample reported having engaged in peer-based approaches, including mandatory support groups while in residential treatment and voluntary 12-step meetings, among others. Lastly, close to half (42%) reported still using methamphetamine to some extent, at the time of the interviews, that took place several weeks to months after participating in the study's follow-up visits.

Narrative Arcs: Adverse Events and Disconnection

Narrative exemplars from three participants are reported here that illustrate, in a sequential manner, how syndemically related psychosocial factors emerged during formative stages, thus informing methamphetamine use and recovery behaviors. Patterns that emerged from this stage of the narrative analysis represent three stages in lived experiences bound by the concept of *disconnection*. Each exemplar begins with a stage deemed *Foundational disconnection* that highlights adverse experiences to which participants were subject during formative, developmental periods. Next, narratives representing *Relational disconnection* convey ways in which methamphetamine use resulted in disruptive experiences with relatives and peers. The final stage centers on *Recovery disconnection* or experiences engaging in formal and informal pathways toward recovery.

The first narrative exemplar delves into the ways in which cultural and societal norms that diminish sexual minority identities and experiences influence the affective and relational development of sexual minority youth. The following is an illustration of *Foundational disconnection*:

"I wanted to get away from my dad. It wasn't very often, but when he raged, I was the object of his rage. So, I got beat up many times. But he never touched my sister or my mother. I think my dad just resented me. He never wanted a son [...] I think that homosexuality, I think it's genetic. [...] it comes up on my dad's side of the family. I think my dad, just from things over the years, was gay. I never was sexually abused by him."

The physical abuse this participant faced at the hands of his presumably closeted father, led to a truncated developmental process that most likely precluded him from developing healthy coping strategies, and in turn experiencing *Relational disconnections* across the lifespan; both situations salient across this sample:

"I don't know, God, sex, maybe? Just dance, fun, high energy, that kind of stuff [...] But it was an escape. It was fun. It was definitely an aphrodisiac, definitely that high energy. It bounced me just up. Well, it blocks your emotions, I think. I think that my emotional development was arrested probably I would say about 13 or 14, 15 years old. So, I really don't have any emotions attached to it per se except not wanting to deal with anything [...] It interfered. It prevented me from getting close to anybody. It prevented me from having any kind of relationship that's

meaningful, that's significant. My entire life revolved around meth and getting high. So, it definitely interfered with my personal relationships."

Further, the arrested developmental processes he cites may have resulted in difficulties engaging in peer-based recovery process in which appraising and sharing emotions and emotionally driven accounts was paramount:

"Well, I think the disconnect for me is that it's a pass-or-fail situation [...] I'm not making a blanket statement here. But just it is very judgmental. There's a lot of gossiping and a lot of bullshit, especially in gay. God, the 12-step programs are jus- and the whole thing about drudging up everything in your life that has ever caused you any kind of resentment and everything's that brought you any kind of discomfort and rehash it with somebody that I don't know. That's something that I don't even do that with my people I'm closest to. But there were a lot of things, a lot of tools, a lot of ideas that I used from that. I think making sure that I am aware of my participation in situations where I feel it weighs on me." (P248, 52, White, Gay)

The participant uses the term disconnected to describe his difficulties with fully engaging in recovery efforts. Nevertheless, much like other participants, he was able to appreciate some of the tools provided in the context of peer-based recovery. The full narrative underscores the ways in which many SMM who use methamphetamine engage with the substance and the socio-sexual linkages it provides as a way of coping with stress, as well as blocking negative past events.

The second narrative exemplar delves into other pathways and effects of methamphetamine use emergent from adverse events over developmental stages:

"Well, I was abused as a kid by a neighbor, and then I became very introverted and hid in myself. Wanted to kill myself, wanted to die."

Though succinct, this account envelops an unfortunately common theme among the participants in the form of child sexual abuse. Moreover, it speaks to the effects of this adverse event, which in this case and others translates into social withdrawal that escalates into suicidal ideation. This iteration of *Foundational disconnection,* organically gave way to *Relational disconnections*:

"I guess I was having a hard time having relationships, because every time I was close, HIV was like conflict. And then, with this person, was okay. We both positives, that's fine. It was not rejection. Was not - feel like everything was okay. So, I mean, it felt right. Well, it felt like the most wonderful thing that, you know, that kind of bonding and exciting and tense [...], euphoric [...] everything was beautiful, everything was good [...] Just feel connecting, and long-lasting. And great [...] well, I just felt like I could function better [...] Not sexually. I'm talking about…about it all. Like, I feel more confident, I feel empowered. I feel with myself, better."

Within the context of initiation, this account underscores a familiar overlap between methamphetamine and the effects of an HIV diagnosis. Having faced rejection because of his serostatus he experienced heightened levels of stigmatization, as did many others in the sample who belonged to a generation that saw a harsher iteration of the AIDS epidemic. In many cases, sexual encounters fueled by methamphetamine use created a sense of ephemeral empowerment that forged emotional attachments previously unavailable. However, as these feelings dissipated, old patterns of avoidance and isolation reclaimed their place:

"I felt less and less worthy. You know, just wanted to stay high to kind of feel something. Connected with someone for using. So, I, you know, just feel rejected and I'm bad. So, I just didn't feel comfortable. [...] Well, up until I started dealing with them now, so before I just - you know, I just isolate myself. And instead of confronting people, I would just run away because I feel like everything was my fault."

For many participants, the lack of affective and social means to cope with past trauma and accompanying negative self-appraisals led to engaging in methamphetamine use to sustain sex-centered short-term relationships. Moreover, truncated socio-sexual identities among SMM can develop into barriers to recovery:
"I just never felt comfortable with my sexuality. I just felt like it's not really - just very uncomfortable. And I still feel uncomfortable. So, talking about my sexuality, you know, to heterosexual - with the residential group. It's not really comfortable. And that was another challenge in the residential programs or outpatient programs in the private institutions." (P280, 55, Latino, Unclear/mostly gay)

Nevertheless, the main barrier for many SMM is relying on systems produced by and for heteronormative communities and values. The third narrative delves into another institution cited by many participants as conducive to fostering *Foundational disconnection*, the church:
"I didn't want to be scared. It wasn't like that. It was a good feeling. Like I was being myself. Being what I - being myself. Being what was always inside of me. Never had the balls or the nuts to be on my own. In terms of the way I was raised because I was raised in the church. All my family are like holy rollers. It's real weird because we went to church all the time. Being gay, you're an abomination. You're going to hell. That, right there, didn't help because I didn't feel like that. I didn't feel like God didn't love me. I didn't feel like I was a - I didn't have those feelings. I kept that to myself, but yeah. I didn't like that."

Although this narrative starts with methamphetamine initiation, he makes a direct connection between use and feelings he developed because of his family's attachment to the church. Harboring negative self-appraisal and affect into adulthood, because of harmful attitudes towards sexual minorities, positioned methamphetamine as an alternative to not only obfuscate these feelings, but a way to approximate a more authentic self. Despite adverse histories related to the church, religion, and spirituality, some participants still subscribed to not only their relationships to these constructs, but also their relationships with themselves:
"It's killing me. Where I'm at now, I'm lucky if I make it - New Year's Day, just making to the next year with both of my limbs is really - I'm thankful for that. […] it's like I'm wrestling with something that isn't there. I draw up; it draws back. […] I'm fighting with it. I need to get in my head, "You can't beat - you can't ... " Wow. I'm an addict, and so - and I keep - oh, my God […] I'm not trying to kill myself but I'm really going to hurt myself if I keep this shit up because I can't beat this. I can't beat what I'm up against. It's bigger than me. It's way bigger. So much bigger than me […] [God], I know you don't approve of the things that I'm doing, but why is this okay?" […] "I can't fight something I can't see […] If a car was coming, bitch, I'm going to move. I'm not going to stand there. With this, I can't - I have no win.", "I feel like someone's done something to me […] I think it follows me" […] "I'm not worth all that, I'm nobody. Who would spend that much time […]?"

This very charged account is representative of the multifaceted experience of making meaning and grappling with methamphetamine use. It was often the case in the sample that participants' idealization of survival hinged on their relationships with themselves, their beliefs, and the world around them. The problematic nature of these circumstances was that most of the time, these relationships or at least the perception of these relationships, were bound by histories of adversity, discrimination, and self-deprecation.
"I liked living in the house that I was living in. It felt good. It felt normal. I started feeling like a part of something; a part of people. I don't know. I felt okay. I felt pretty good. I was feeling like it more and more every day." (P227, 43, Black, Gay)

Unsurprisingly, many participants credited positive experiences of recovery with efforts that represented stability and provided a sense of normalcy to their lives. Overall, participants experienced myriad adverse, if not traumatic experiences during stages in which they were expected to not only develop an identity, but also assemble a repertoire of coping strategies to deal with life's stressors. Existing in contexts that promoted values and norms dystonic to sexual minority identities assisted in the development of negative self-appraisals and maladaptive strategies that further reproduced unstable bonds and lifestyles. The extension of these attitudes, behaviors, relationships, and experiences into attempts at recovery often resulted in unfavorable results, that suggest looking more deeply into the syndemically related psychosocial factors at the crux of the methamphetamine-using behaviors of SMM.

By conducting a preliminary framework analysis through the above narrative arcs, factors most salient among this sample were next identified. By and large, negative affect was at the top of the list because this construct and accompanying measure cover a wide variety of feelings such as shame, anger, and disgust. Next on the list of factors were isolation, SC, mental health, and depression. Ultimately, narrative analysis contributed to answering the first research question, tasked with better understanding the relationship of SC across different stages in methamphetamine use. Additionally, the presence and salience of the factors underscored above, along with the literature on the subject of methamphetamine use among SMM, informed the consequent network analyses from a Syndemics perspective reported below.

Networks of Distress

Associations Between Psychosocial Factors

The first step of the statistical analyses consisted of computing polychoric correlations between syndemically related variables. Table 2 displays the correlation matrix showing multiple significant correlations between the syndemic factors. For example, incarceration, homelessness, disability, and injection drug use are all significantly correlated with every other psychosocial factor in the model. The primary variable of interest, SC, is strongly correlated with methamphetamine use and to a lesser extent alcohol use, psychiatric status, and family and social relationships. There are also large correlations between alcohol use and PTSD symptoms, psychiatric status, methamphetamine use, and family and social relationships. Similarly, there are strong correlations between methamphetamine use and family and social relationships; between negative affect and alcohol use; and between depression and both methamphetamine and alcohol use. These findings contribute to addressing the second research question, regarding the relationship between SC and other syndemically related psychosocial factors.

Network Analysis of Psychosocial Factors

Results of network analysis are depicted in Figure 1 revealing a pattern of interconnectedness among syndemically related psychosocial factors. As previously stated, network analysis edges represent bidirectional partial polychoric correlations between factors. Twenty-one edges are represented in the network out of 66 possible edges, making it relatively dense. Additionally, two distinct clusters can be observed in Figure 1. The first is *psychosocial-affective* in nature, because it contains PTSD and depression symptoms, negative affect, psychiatric status, and family and social relationships. The second distinct cluster is *structural* in

nature, containing incarceration, homelessness, and disability measures. There is a third, slightly less distinct cluster that sits at the center of the network and contains the *substance use* categories: IDU, alcohol use, and methamphetamine use. Edge weights' significance was determined by assessing the bootstrapped 95% confidence intervals which did not contain zero and thus considered to be significant (95% confidence intervals for all edges are presented in Figure 2). Results of the network analysis suggest two specific significant positive bivariate associations between two factors. The first between depression and negative affect (b= 0.26, SD= 0.07, 95% CI [0.12, .038]) and the second between PTSD symptoms and depression (b=.37, SD=.07, 95% CI [0.23, 0.49]).

In addition to the graphical representation of the network, correlations between the three measures of centrality (i.e., betweenness, closeness, and strength) were computed. The correlation between closeness and betweenness or strength (r = .80) was the highest of the three. Given that node strength is the primary measure of centrality, the node strength index was used to identify the most central nodes shown in Figure 3. Accordingly, results of the node strength centrality measure suggest that depression and PTSD symptoms, and negative affect were the most central nodes, with depression appearing to be the most central (all 95% CIs crossed zero). It was also found that two of the constructs that were most salient in the narrative analyses (negative affect and depression) were present in both statistically significant pair-wise relationships. Moreover, while SC connects to two of them, as well as methamphetamine use, disability, and IDU, statistical significance was not found in any of these pairwise associations. The network analyses further addressed the second research question by mapping the interrelationships contained in the network of syndemically related psychosocial factors, as well as specifying the independent, pairwise relationships between two sets of these factors.

Making Meaning of Methamphetamine

The first two steps in this sequential mixed methods analysis surfaced robust and statistically significant relationships between several affective, psychological, structural, and relational experiences and constructs. However, the richness of the qualitative data is primed to provide more advanced understandings of the ways in which diverse types of relationships orient the methamphetamine-using behaviors of participants. Guided by the connections and clustering effected by the network analysis, which were in turn informed by the sequential narrative plots that emanated from the narrative analyses, a more focused coding process providing a more nuanced understanding of the ways in which SMM make meaning of their relationships with methamphetamine is presented via constructivist grounded theory approaches.

The core theme in this section is *Relationships on/with methamphetamine*, as it refers to the relationships participants developed while using methamphetamine, including those developed with the substance itself, across diverse domains.

Coping Through Methamphetamine and Sex

This theme encompasses ways in which sex through methamphetamine use was tied to specific eras of the AIDS epidemic:

"But the - the guys of my generation, we survived AIDS. We saw our friends die. We either got it or didn't get it. We survived it, you know? And then there was sort of like - it was mid-life crisis of wanting to have a sexual renaissance. And so, a lot of guys stop being sober, start hooking -

usually start hooking up. And then, start using. And it was - it's not uncommon." (P163, 51, White, Gay)

Sex as a means of coping was a common experience relayed by participants. However, the heightened stigma and a diminished quality of life experienced by SMM who were diagnosed during earlier stages of the epidemic, often precipitated higher risk behaviors such as methamphetamine use. Accounts such as this underscore the role that both context (i.e., time and space) and relational ties have in the coping strategies of SMM.

Methamphetamine and Euphoria

The term "euphoria" was used numerous times by participants, particularly making reference to methamphetamine initiation. Nevertheless, it often referred to a unique and potent sensorial experience with effects across domains, including the affective and psychological ones:

"Euphoria all while – like I said, wanting to do it again. Just Pandora's box being opened up. 'This is incredible.' For someone suffering from depression for so long, it really – the veil was lifted. I built up emotional walls. I turned off all emotion around me for years. It was great to let that in and to be able to hang out with somebody for hours on end." (P204, 38, White, Gay)

For many men, the euphoria they experienced through methamphetamine served as a way to regulate affect often experienced as relief and escapism. Having histories of mental health issues or other adverse experiences across the lifespan exacerbated these reactions and often translated into the disruption of social bonds.

Methamphetamine and Isolation

In the absence of community and/or connection, many SMM reported that their relationship with methamphetamine often resulted in experiences of isolation. On many occasions, this sub-theme offered alternative accounts of how their engagement with this substance limited their relational opportunities:

"It's pathetic. I don't want to describe it. It's solitude. I don't really want to be around anybody or talk to anybody. That's why I don't take lovers. I don't want any other beings in my presence when I'm high. I love porn. Sad, isn't it?" (P269, 47, White, Gay)

Whether the nature of this brand of isolation is viewed as self-imposed or otherwise, the matter remains that methamphetamine use often translates into SMM being removed from social interaction. Aside from limiting their abilities to forge healthier coping strategies, it also results in negative self-appraisals and other poor affective and psychological outcomes. Interestingly, many members of this sample had a propensity for anthropomorphizing methamphetamine.

Relationships with Methamphetamine

This subtheme elaborates on the tendency of SMM to describe their experiences with methamphetamine as a relationship:

"I identified it as a relationship. I identified with myself that it was a relationship. I'm having this relationship with this drug. And it was something that I would need to break away from. It helped me to define how I was to have this relationship with it. And since I'm a relationship-oriented person, I had to deal with that drug as a relationship." (P183, 50, Black, Bisexual)

In both explicit and implicit ways, SMM reported not being able to be in relationships with others due to their relationship with methamphetamine.

Methamphetamine Forging Synthetic Relationships

This sub-theme often revolved around accounts referring to SMM developing relationships with others based on their shared methamphetamine use. These relationships were often influenced by the illusory, yet potent effects of methamphetamine use:
"So, our relationship in my opinion has just been off a lie because it was being off on a drug. But he ended up being my boyfriend [...] because we talked - because I will say one thing, I'm very honest when talking, getting to know somebody, things like that. So I think that in general kind of opens me up. And I saw something good - not saw. I saw the good in him, and saw that in me. And so I said, let's just be together [...] But ... that feeling of just like - I don't know. I can't really explain it. I guess it's like a flower. And then when you water it, or whatever, it just blossoms. Just like that. Because you know how - have you ever seen one just like that, like in fast motion? That's what it does to you." (P298, 36, "African American mix", Gay)
This account, like many others, expands on the concept of methamphetamine serving the purpose of augmenting sexual experiences and uncovers an additional dimension related to how this drug essentially unlocks previously arrested opportunity to see parts of oneself; parts often obfuscated by social and structural experiences of stigma, discrimination, and victimization.

Methamphetamine as Home

In a variety of cases, participants spoke about not having felt like themselves until they did methamphetamine:
"I just remember thinking I felt, like, at home […]" (P259, 25, White, Gay)
Existing in contexts which devalued their existence, primarily because of sexual minority identity results in many feeling as though they have never been themselves or have never belonged anywhere. This sub-theme sums up how this substance serves as a catalyst to rapidly, and often recklessly, negotiate with myriad experiences residing in somatic, affective, psychological, social, and relational realms. The findings from the constructivist grounded theory analysis presented in this section supported efforts to answer the first research question by elaborating on ways in which methamphetamine use is related to sex and SC.

Chapter 4: Discussion

The purpose of this study was to employ a syndemic approach to assess the role that Sexual Compulsivity (SC) has in the multifaceted lives of methamphetamine-using SMM living with HIV. Specifically, the mixed methods analyses were tasked with addressing two research questions. First, what is the relationship between SC and methamphetamine initiation and subsequent use, including recovery efforts, for this sample? Second, what are the interrelationships between syndemic factors linked to sexual minority status in this sample?

Primary findings convey that syndemically related psychosocial factors preceded and presaged methamphetamine-using behaviors in this study's multiply marginalized sample. Factors most salient were negative affect, isolation, SC, depression, and mental health problems. The synergistic relationship among these factors that often began during participants' youth, informed the onset of poor coping strategies in the form of problematic methamphetamine use and sexual behaviors. Maladaptive coping strategies were contextualized by experiences of disconnection across three distinct levels. *Foundational*, which refers to experiences during developmental or youth stages; *relational*, regarding experiences with peers and networks across the life-course; and *recovery,* relaying experiences tied to efforts to manage their methamphetamine use. Experiences of disconnection operated in a sequential, multi-level manner. Sequential can be understood as linear, across time processes and timelines, while multi-level refers to experiences at the micro (i.e., individual settings), meso (i.e., small groups or networks), and macro (i.e., institutional) levels. Left unaddressed, psychosocial factors, in tandem with experiences of disconnection, disallow SMM from developing and sustaining healthy relationships, accomplishing methamphetamine recovery success, and achieving optimal health and social outcomes.

The fact that many men in the sample report exposure to adverse events as youths because of their sexual minority identities and behaviors, reinforces the role of developmental settings in the production and reproduction of biased sociocultural norms that influence maladaptive coping strategies. Additionally, many stated that sex and sexuality were both related to their methamphetamine initiation and subsequent use. The trend of methamphetamine use among SMM centers on sex and sexuality and can be seen as an example of challenging expectations from heteronormative society and institutions, such as families and peers who openly rejected sexual minorities. Additionally, engaging in methamphetamine use in the context of sex serves as a means for many participants to develop same-sex relationships to which they previously had not had access. Engaging in queer culture under oppressive conditions often results in forging fraught relationships that exacerbate poor social and health outcomes.

The above findings are consistent with the recent work of Pachankis and colleagues (2020) which fleshes out a theory of intraminority gay community stress which posits that SMM are often subject to a brand of minority stress by peers because of social and sexual competition grounded in status. In their multi-study paper (Pachankis et al., 2020), they noted that the role of friendships in sexual fields is an understudied subject that could hold relevant information regarding coping for SMM, relevant to the current study's findings regarding participants' inability to develop and sustain healthy relational ties.

Not surprisingly, methamphetamine use proved disruptive to many of these men's relationships, and while most had accessed peer-based recovery approaches at some point in their lifetime, many reported still engaging in some degree of methamphetamine use at the time of their exit interviews. The above findings contextualize and expand the aims of the current

study's first research question by demonstrating that diverse and synergistic adverse experiences that occur across SMM's lifetimes continue through adulthood and influence their abilities to develop and sustain relationships, as well as achieve recovery success. These findings are consistent with recent data underscoring the role of stigma-driven minority stressors during SMM's developmental stages that result in poor mental health outcomes, including problematic substance use (Pachankis et al., 2019). Current findings also expand upon the recently developed concept of untethered lives (Bränström et al., 2020) among SMM.

The concept of untethered lives broadly refers to ways in which lack of social integration (i.e., living alone, unemployment, social distrust, etc.) among SMM, because of a disconnect between sexual minority status and society's heteronormative expectations, is associated with maladaptive practices and poor mental health and social outcomes. Similar to many SMM, the men in the current study are driven to chart non-traditional social and relational pathways as a response to culturally sanctioned expressions of stigma and discrimination. Similar to the work of teams led by Bränström (2020) and Hatzenbuehler (2016), the current study focuses on sociological and structural factors to broaden the understanding of stigma beyond psychological and interpersonal pathways. Given that SMM in the current study describe their sexually compulsive behaviors as proceeding adverse events during early developmental stages, the findings align with Torres and Gore-Felton's (2007) understanding of SC potentially serving as a coping strategy to undercut anxiety and social isolation. Similar to current findings, which signal lifetime experiences of negative affect, depressive symptoms, and other poor mental health outcomes, support previous research that associates methamphetamine use with such syndemically related psychosocial factors (Jerome et al., 2016; Semple et al., 2006; Woolf-King et al., 2013).

With respect to the second research question, the network analyses elucidate direct relationships between PTSD and depression symptoms, and between depression symptoms and negative affect. These findings extend the relevance of mood, affect, and overall mental health with regards to the broader health of SMM (Batchelder et al., 2019; Carrico & Moskowitz, 2014; Grov et al., 2010; Jerome et al., 2016). Given that many participants who partook in the exit interviews report lifetime histories of trauma and depressive episodes, links between PSTD and depression symptom severity, support the primary findings described above. Although many men interviewed reported engaging in counseling, it was often related to substance use and mood disorders such as depression and bipolar affective disorder. However, PTSD was rarely reported as a target of intervention from participants in the qualitative sub-sample. It is possible that many of these men who experienced traumatic events throughout their lifetimes did not receive trauma-informed care and developed depressive symptoms because of this gap in treatment. Similarly, many participants from the qualitative arm of the study report experiencing feelings and emotions consistent with the broader category of negative affect and perhaps the burden of this chronic experience may also have resulted in the development of depressive symptoms.

A relevant takeaway from the above findings resides in the notion that although this sample was recruited because of methamphetamine use, the network analyses reveal that it was their psychosocial-affective experiences (i.e., depression, negative affect, and PTSD) that surfaced as potential foci of intervention consistent with recent interventions for methamphetamine-using SMM living with HIV that target affect (Batchelder et al., 2019; Carrico & Moskowitz, 2014; Moskowitz et al., 2017) and trauma (Carrico et al., 2015). Findings demonstrate that psychosocial-affective factors appear to reside at the core of methamphetamine use in SMM.

One last relevant finding relates to ways in which this sample elaborated on the meaning assigned to methamphetamine and its usage. While the literature has dedicated considerable effort to identifying the *reasons* why SMM engage in methamphetamine use (Díaz et al., 2005; Halkitis et al., 2005, 2007; Nakamura et al., 2009), the same is not the case regarding the meaning-making attached to it. Participants relay experiences that describe the meaning of methamphetamine use squarely in the relational realm. Many made reference to methamphetamine serving as a pathway to forge relationships while also a reason for relationships faltering. The constructivist grounded theory analysis surfaces several ways in which SC is embedded in these men's lived experiences as a means of developing connections and coping with stressors, particularly mood, affect, and trauma. Moreover, the majority of participants underscore the potent somatic experiences of methamphetamine use that contribute to not only reconfiguring their sexual experiences and developing cognitive impairments, but also hindering recovery efforts.

Findings should be understood in the context of several limitations. Primarily, this is a small convenience sample that makes generalizability difficult, and potentially limits the statistical power optimally needed by network analysis. While the multivariate regression analyses highlight several pairwise relationships in the sample, network analyses only yielded two. Additionally, the nature of network analysis did not allow exploration of the potential roles that certain stigmatized demographic characteristics (e.g., race, age, etc.) might have in the expression of syndemically related psychosocial factors, thus limiting the scope of intersectional analyses.

Because the study sample skewed somewhat older, participants relay experiences specific to harsher iterations of the AIDS epidemic, as well as coming of age during time periods less accepting of SMM that may have contributed to more strident narratives specific to a certain generation of SMM. Additionally, due to the community-based nature of the parent study's sampling, many participants were low-income, unstably housed, and relied on social services, conditions of precarity that may have contributed to the representation of negative social and health experiences and outcomes.

Moreover, most participants from the qualitative sub-sample relate formative years in settings less progressive than SF. These geographic and cultural circumstances may have contributed to the narratives of adverse events during youth and may have put them in a precarious situation for methamphetamine initiation and use, given that this substance only proliferated in certain queer epicenters such as SF, during eras relatively permissive to substance use. Lastly, the author of this study was the sole qualitative coder and analyst. Although collaborators supervised and provided feedback as themes emerged, this study cannot claim to have benefited from intercoder reliability.

Although SC was meant to be central to this study, perhaps the SC scale did not fully capture the sample's experiences with problematic sexual behaviors. For instance, the scale queries whether sex gets in the in the way of work and other commitments, but because the sample mostly relied on social services for sustenance, its experiences may not have been more fully captured. Similarly, because, on average, this is a middle-aged sample with long methamphetamine use, it is possible that their sexual experiences were diminished at this stage in their lives. Lastly, utilizing two sets of data assessing different timepoints (the qualitative being retrospective lifetime accounts and quantitative being cross-sectional data) made it challenging to reconcile the findings.

Despite limitations, this study may be the first of its kind to engage in mixed methods to syndemically assess the role of SC in the methamphetamine-using behaviors of SMM living with HIV, retrospectively across the lifespan. Findings invite the fields of addiction research and practice to engage in more comprehensive, multi-level, and holistic approaches of assessing methamphetamine use and recovery pathways.

Although more traditional features of intersectional analyses, such as race, could not be adequately employed in this study, findings still underscore the repercussions of being multiply oppressed. Specifically, all participants belonged to three distinct groups historically subject to stigma and discrimination: SMM, people living with HIV, and methamphetamine users. Findings underscore how, in synergistic ways, belonging to all three of these groups resulted in barriers to optimal social and health outcomes. These experiences are consistent with an intersectional stigma framework (Turan et al., 2017) that understands adverse events and their sequelae through multi-level perspectives and accounts for the effects of multiply-oppressive social structures in reproducing and sustaining intersecting experiences of stress. Subscribing to this framework places the bulk of the burden on macro-level structures tasked with ensuring legal, political, and cultural protections for SSM by enacting and promoting benevolent policies and norms.

Future steps utilizing the data from this RCT could focus on longitudinal analyses to explore ways in which the positive affect intervention may have affected the syndemically-related psychosocial factors. Forthcoming research could also assess childhood averse experiences, constructs more in line with sexual minority stress, measures that better assess relational and clinical associations and problems, and perhaps hypersexuality in place of SC. Ideally, a larger sample would allow for more robust network analyses. Utilizing intersectional designs in proceeding research is recommended, perhaps, by focusing exclusively on the experiences of SMM of color, given that our knowledge of methamphetamine use and recovery pathways for this population is less understood.

Attending to this study's findings, perhaps testing an intervention that focuses on reducing negative affect in addition to increasing positive affect may prove beneficial. Given that revised stress and coping theory posits that both kinds of affect operate simultaneously (Folkman & Moskowitz, 2000) and that negative affect has a direct role in the experiences of SMM, those living with HIV, those experiencing mental health barriers, and methamphetamine users (Arimitsu & Hofmann, 2017; Chesney et al., 2003; Crepaz & Marks, 2001; Lincoln et al., 2013; Siegel & Schrimshaw, 2007; Solano et al., 2001).

Findings underscore the role that connection, or lack thereof, have in the methamphetamine use and recovery pathways of SMM, highlighting the importance of targeting social and relational domains to better improve this population's outcomes. Also, more integrated services that account for and address the role of other mental health issues and disorders, as well as experiences of trauma could prove imperative in streamlining formal methamphetamine recovery efforts with this population. Because the primarily cognitive and behavioral interventions at our disposal have garnered mostly modest, short-term success (Carrico et al., 2016), innovative interventions are needed to more effectively curb this social and health problem in SMM.

Developing peer-based interventions that target both life-long negative schema, as well as help SMM develop better relational skillsets, could be an important step in producing more effective interventions. The fact that negative affect, depression, and trauma consistently emerged as salient themes across the three stages of analyses suggests that we should understand

these men in a more holistic manner. Perhaps targeting methamphetamine use specifically or even primarily, may result in a disservice to this population. Because participants reported foundational adverse events fueling these psychosocial-affective factors, interventions that address these issues may be beneficial in curbing methamphetamine use. Moreover, given that methamphetamine use disrupted relationships, as well as generate unhealthy ones, a relational focus may help create a healthier recovery landscape for SMM.

This study adds a novel contribution to the lagging field of the meaning of methamphetamine use among SMM. The study surfaces a common thread of disconnection grounded in the effects of living as a multiply oppressed individual and consequent coping strategies. Although SC has been a cornerstone of HIV and substance use research among SMM, this study underscored the understudied relationship that oppressive institutions and agents have in the development of this construct as a maladaptive coping strategy to stress. These findings can help remove the burden of SC as an inherent trait of SMM and instead focus on developing interventions and recovery strategies responsive to systems of oppression. Aided by a syndemic perspective, this strengths-based approach may result in novel ways to design more effective holistic, multi-level interventions to curb methamphetamine use among SMM.

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Tables and Figures

Table 1. Syndemic Variable Values.

Variables	Values Mean (SD) [Range]
Sexual Compulsivity	18.9 (7.54) [10 - 40]
Negative Affect	19.51 (8.54) [0 - 39]
Depression Symptoms	23.95 (12.12) [0 - 52]
PTSD Symptoms	46.68 (14.26) [17- 78]
Alcohol Use	5.36 (7.13) [0 - 32]
Family and Social Relationships	0.15 (0.19) [0 – 0.83]
Psychiatric Status	0.31 (0.23) [0 – 0.89]
Methamphetamine Use	4.5 (1.82) [0 - 7]
	N (%)
IDU	
Less than once a month- Daily	14%
Not at all	86%
Homelessness	
Yes	33%
No	67%
Disability	
Yes	49%
No	51%
Incarceration	
Yes	38%
No	62%

Table 2. Polychoric Correlation Matrix.

	PTS	FAM	PSY	MTH	ALC	DEP	SC	NEG	IDU	DIS	HL	INC
PTS	1	-	-	-	-	-	-	-	-	-	-	-
FAM	0.17	1	-	-	-	-	-	-	-	-	-	-
PSY	0.36	0.37	1	-	-	-	-	-	-	-	-	-
MTH	0.21^{**}	0.16^{***}	0.03^{**}	1	-	-	-	-	-	-	-	-
ALC	0.07^{***}	0.11^{***}	0.22^{***}	-0.03^{***}	1	-	-	-	-	-	-	-
DEP	0.69	0.17^{*}	0.45^{**}	0.21^{***}	0.02^{***}	1	-	-	-	-	-	-
SC	0.43	0.09^{*}	0.15^{*}	0.22^{***}	0.09^{**}	0.42	1	-	-	-	-	-
NEG	0.51^{*}	0.24	0.47	0.06^{**}	0.19^{***}	0.60	0.29	1	-	-	-	-
IDU	0.25^{***}	0.11^{***}	0.05^{***}	0.14^{***}	-0.11^{***}	0.27^{***}	0.22^{***}	0.17^{***}	1	-	-	-
DIS	-0.09^{***}	0.02^{***}	-0.02^{***}	-0.07^{***}	0.13^{***}	-0.07^{***}	-0.25^{***}	0.002^{***}	-0.05^{***}	1	-	-
HL	0.02^{***}	-0.02^{***}	0.01^{***}	-0.11^{***}	-0.02^{***}	-0.005^{***}	0.02^{***}	1.09^{***}	0.20^{***}	0	1	-
INC	0.09^{***}	-0.10^{***}	0.05^{***}	0.24^{***}	0.07^{***}	0.07^{***}	0.07^{***}	0.08^{***}	-0.05^{***}	0.26^{***}	0.30^{***}	1

Note: * = <0.05; ** = < 0.01; *** = <0.001.

Figure 1. Network Analysis of 12 Syndemically related psychosocial factors.

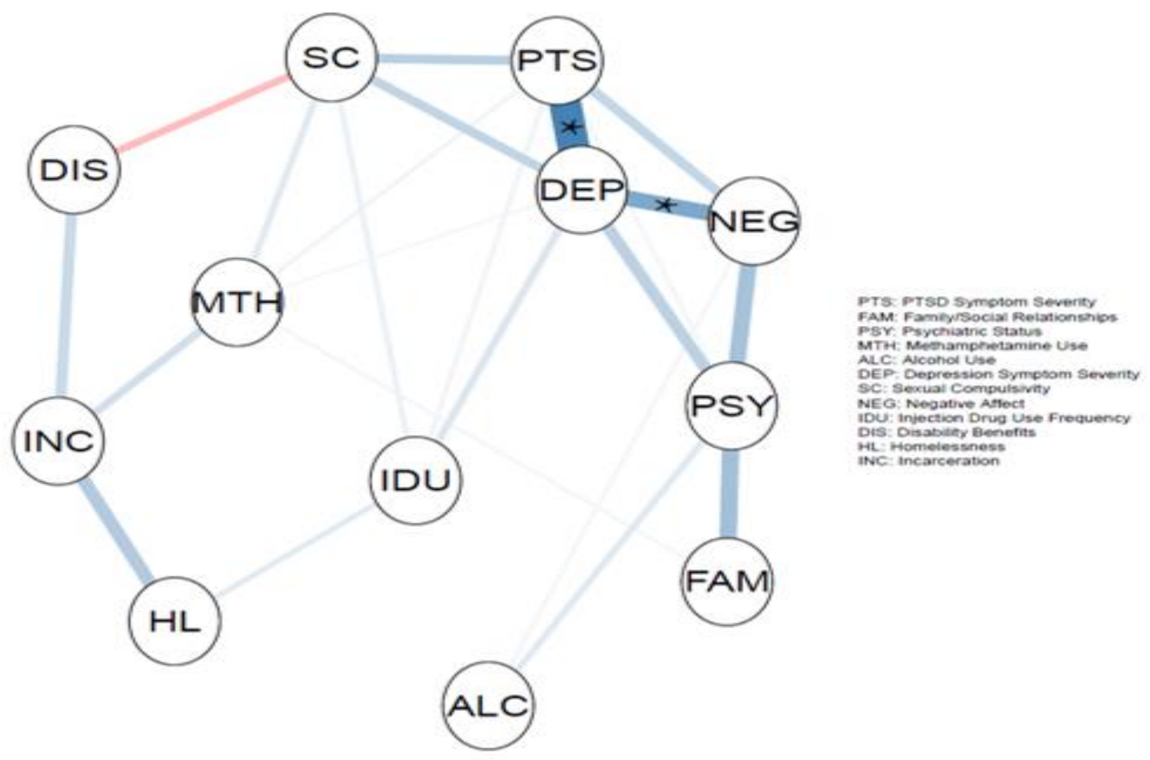


Figure 2. Parameter estimates and 95% confidence intervals for edges in the network.

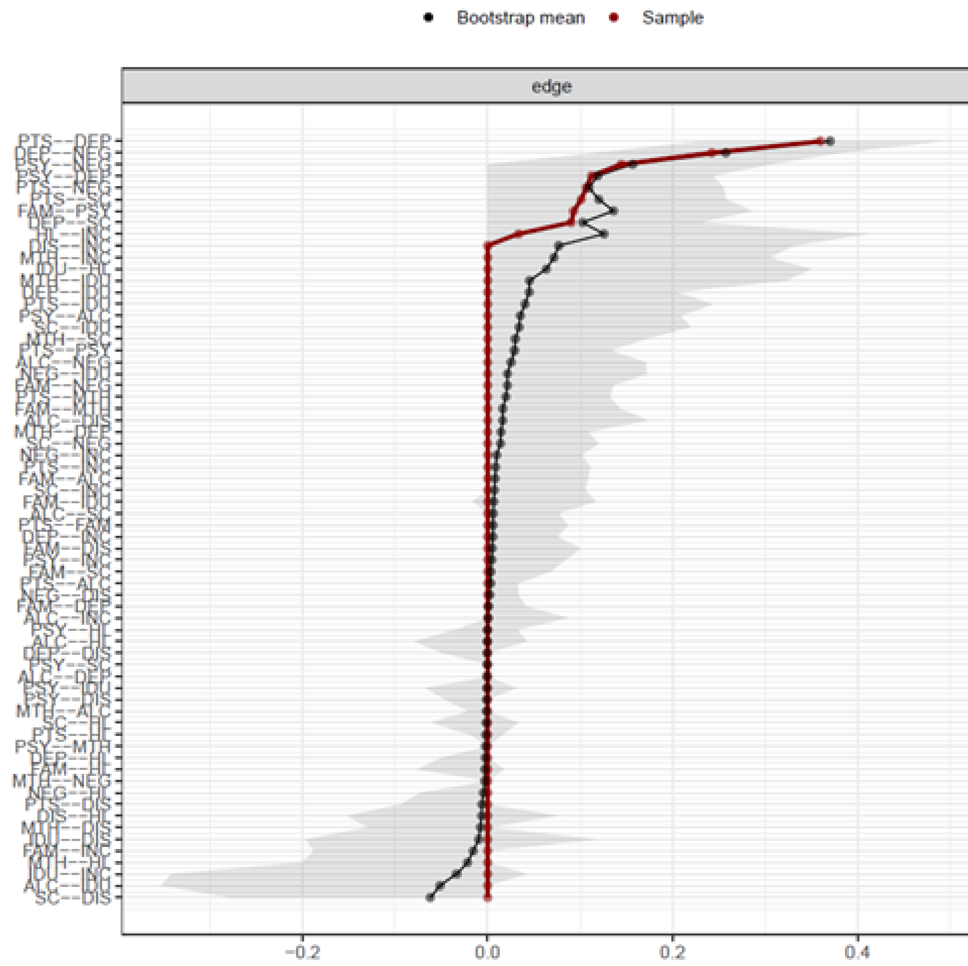
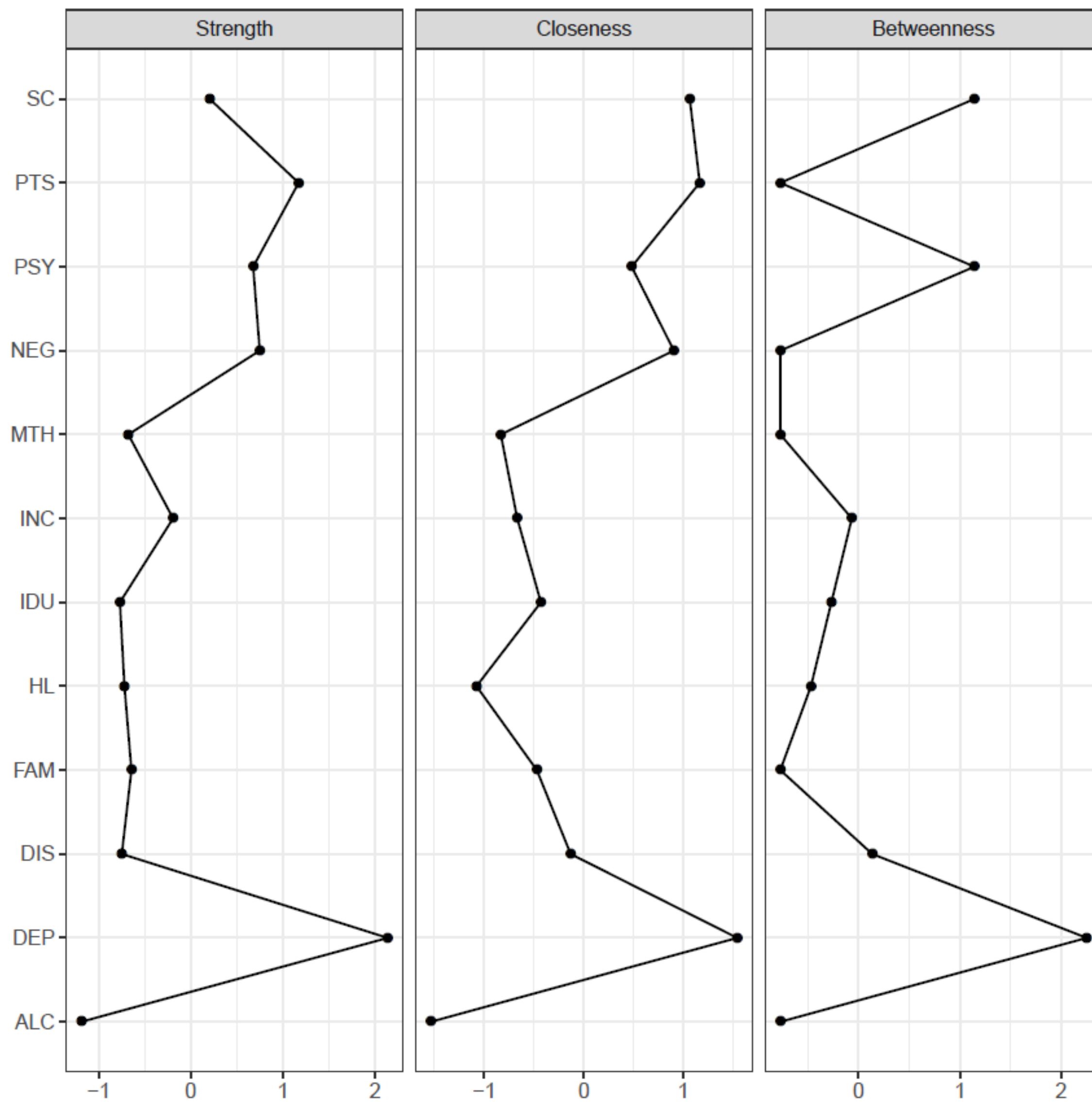


Figure 3. Centrality measures of each node in the network analysis: Strength.



Appendix

Interview Guide

"Structural and Contextual Factors Effecting Methamphetamine Recovery Efforts among HIV+ Men who Have Sex with Men"

> Participation in research may cause a loss of privacy. In this study you will be asked about drug use and other possibly illegal activities. The researchers will keep information about you as confidential as possible, but complete confidentiality cannot be guaranteed. On rare occasions, research records have been subpoenaed by a court.

I. Introduction
- a. Tell me about a typical day in your life.
- a. How long have you lived in SF/Bay Area?
    - i. Where did you move from?
        - 1. How are they different?
- b. How would you define your sexuality?
    - ii. How open are you about your sexuality?
        - 1. If out, briefly describe your coming out process.
        - 2. How has your sexuality affected your relationships with others?

II. HIV
- a. Tell me about finding out you were HIV+.
    - i. What else was going in your life at the time?
    - ii. In what ways did finding out you were HIV+ affect your life?
    - iii. What kind of support did you seek out?
        - 1. Who in your life knows you're HIV+?
    - iv. What role does being HIV+ currently play in your life?

III. Meth Initiation
- a. Tell me about when you were first introduced to meth?
    - i. How old were you?
    - ii. Where were you?
    - iii. Tell me about what was going in your life then? Explore engagement with/in :
        - 1. Family
        - 2. Friends
        - 3. Work
        - 4. School
        - 5. Intimate relationships, etc.
    - iv. Who introduced you to it?
        - 1. What was your relationship with this person(s)?
            - a. What is your current relationship with this person(s)?
- b. What led you to initially try meth?
- c. Can you recall your initial reaction(s) to meth?
    - i. How did it feel, physically?
    - ii. What types of emotions did you go through?

iii. What types of thoughts did you have?
d. What about it made you seek it out after that?

IV. Meth Context

a. Where does meth fit into your life, now? Explore how it affects his:
1. Social relationships.
2. Sexual relationships.
3. Relationship with family.
4. Work/Education.
5. Finances.
6. Your physical health.
7. Mental health.

ii. How do you physically feel when you use meth, now?
iii. What types of feelings do you go through when you use meth, now?
iv. What ideas or thoughts go through your head when you use meth, now?

b. Who in your life is/was aware of your meth use?
i. What was their reaction/involvement?

V. Attempts at Recovery

a. Have you ever tried to reduce or stop your meth use? Why?
i. If yes:
1. When?
2. Where?
3. How?

b. Did someone in your life ever suggest you reduce or stop your meth use?
i. What sources of support have you had in this process?
1. In what ways could people in your life be more supportive of this process?

c. What strategies have worked for you in the past to reduce or stop your meth use?
i. Explore experiences/attitudes around:
ii. 1-on-1,
iii. Peer-based
iv. CMH
v. 12-step
vi. Residential
vii. Detox
viii. Penal
ix. Bio-medical
x. Self-help
xi. Research
xii. Others?

d. What strategies have/would you consider(ed)?
e. How has health insurance coverage or lack thereof, helped/hindered these attempts?
f. How have you felt when these attempts have not worked for you?
i. How did you react to these feelings?

VI. Role of ARTEMIS/PROP

a. How did you hear about PROP?

b. What expectations did you have about PROP?
    i. What were some of the lessons you learned from PROP?
    ii. What were some of the skills you learned from PROP?
    iii. What about PROP did not work for you?
        1. Explore: Cash incentives, staff, peers, location, testing, etc.
    iv. Describe the relationships you developed while at PROP.
    v. Are you still involved with PROP?
    vi. What sort of changes did you notice in your life during/after your involvement in PROP?
    vii. Would you recommend PROP to a friend?
c. What made you decide to enroll in ARTEMIS?
d. What expectations did you have about ARTEMIS?
    i. What were some of the lessons you learned from ARTEMIS?
    ii. What were some of the skills you learned from ARTEMIS?
    iii. What about ARTEMIS did not work for you?
        1. Explore: Cash incentives, staff, peers, location, testing, etc.
    iv. What sort of changes did you notice in your life during/after your involvement in ARTEMIS?
    v. Would you recommend ARTEMIS to a friend?
e. How did PROP and ARTEMIS complement each other?
f. Is there anything else you would like to add or revisit, before we wrap up?