

**THE INFLUENCE OF HIV RISK CO-FACTORS AND SEXUAL NETWORKS
FACTORS ON HIV RISK BEHAVIORS AMONG BLACK MSM**

by

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A dissertation submitted to the Graduate Faculty in Social Welfare in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York
2010

This manuscript has been read and accepted for the
Graduate Faculty in Social Work in satisfaction of the
dissertation requirement for the degree of Doctor of Philosophy.

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ACKNOWLEDGEMENTS

You are involved

This I have learnt:
 today a speck
 tomorrow a hero
 you are consumed!
 Like a jig
 shakes the loom;
 like web
 is spun the pattern
 All are involved!
 All are consumed!

(Martin Carter [1927-1997], 'Selected Poems', Peepal Tree, 1999, p.91)

This dissertation is a product of the combined efforts of many individuals to whom I am ever grateful. First, tremendous thanks to the participants in the Brothers y Hermanos Study, who opened their lives— offering information and answering questions. Their time and trust are beyond measures.

Next, I sincerely thank my advisor, Dr. Darrell Wheeler. In this journey, he served as my guide, leading and directing me each step of the way. Thank you for the exceptional effort, time, and energy poured without restraint on my behalf. Thank you for your unwavering confidence and faith in me. To Dr. Bernadette Hadden and Dr. Willie Tolliver to whom I turned to for counsel and advice; thank you for being there with open ears, concern, and safe spaces. Thank you for accepting the responsibility and burden of this task willingly.

Finally, I wish to thank my parents, Eluid and Rosaline Van Sluytman and siblings, Howard Van Sluytman, Deborah Van Sluytman-Smith and Gerard Van Sluytman and their families. It is only by means of their pioneering that the spaces I now occupy, exist. To Abraham Danielyan, Denise Torres, Chinyere Ajanwachuku, Monsanto Als, Ryan Towns, Anthony Morgan and all who trod this road with me—all the way. Thank you for your patience, encouragement, and alliance. You are my constant companions in this race, pushing me onwards towards the goal.

Abstract

The Influence of HIV Risk Co-factors and Sexual Networks Factors on HIV Risk Behaviors among Black MSM

by

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This project uses the theory of eco-social epidemiology to enhance the social work perspectives on social justice and person in environment to correct the tendency to focus on individual level change interventions in public health and social work in the HIV sectors. In doing so, it moves beyond a single lens exploration of risk factors to a deeper examination of the multiple relationships that exist between risk co-factors, sexual networks and high-risk behavior among Black MSM. Using secondary analysis of data collected during the quantitative phase of the CDC-funded Brothers y Hermanos (ByH) research project (2003-2006), the project explored the structural, socio-cultural, psychological, and behavioral dimensions relevant to understanding risk for transmitting or contracting HIV for 614 MSM who identified as Black among the ByH respondents, of whom 36.3% reported being negative, indeterminate or unaware of their HIV status. A quarter (24.9%) of participants were between 41-45 years of age, followed by age group 46-50 years (18.1%). 63% resided in NYC for 21 years or more, with 15.3% having resided in New York for 5 years or less, and 6% residing in the region between 16 – 20 years.

Path analysis was used to provide estimates of the magnitude and significance of causal connections between HIV risk cofactors sexual network factors and HIV risk behavior. The analysis found no direct or indirect interactions among HIV risk co-factors and HIV behavior risk factors (UAIr) with the specified model demonstrating poor fit ($\chi^2=187.54$, $df = 45$, $p = .000$), CFI = .007, RMSEA = .072.). Additionally, the analysis found no direct or indirect interactions among HIV risk co-factors, sexual network factors and HIV behavior risk factors ($\chi^2= 191.14$, $df = 88$, $p = .000$), CFI = .808, RMSEA=.044 although the model accounted for almost 81% of variance in UAIr.

The findings demonstrate the need to move beyond stereotypic perceptions of Black MSM to a more dynamic appreciation of the interactive aspects of their environments. Second, the findings underscore the need for social workers to act as allies and change agents through research and problem definition. And, they reflect the need for social workers to engage in policy analysis that investigates the significance of changed policies or ineffective interventions that differentially impact poor communities in general and specific members of these communities. The interventions designed to address the disproportionate rates of sero-conversion and transmission of HIV among Black MSM must consider the complex real world phenomena that contribute to these disparities. Interventions require attention to methods and policies that are contextually driven.. Grounded in demands for social justice, it is incumbent upon social welfare to act—by organizing community and challenging existing structural and institutionalized policies. This being the case, we must conduct client assessments that surface important information concerning risks, as well as levels of functioning and interactions within the community, using tools that assist workers to identify service delivery needs over the life span, including education, histories of violence, incarceration, exposure to discrimination and

substance use. Lastly, social work must begin to reconceptualize consumer participation and engagement in social work throughout their contact with consumers and engage members of all communities with whom programs are affiliated. Social workers, educators, researchers and organizations must become concerned with the past, present and future biographies of clients and their communities. Best practices must be conceptualized as launch pads to enhancing operations and require the organization to match its technology to the intersection of needs of its stakeholders and their communities.

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Introduction

Research has consistently found that Black men who have sex with men (MSM) are disproportionately represented among those testing HIV positive and represent a significant portion of new cases. The typical public health response to these disproportionalities is to exhort Black MSM to reduce the numbers of sexual partners or to increase condom usage. However, as researchers have looked deeper, they have found that this group is no more likely than other MSM groups to engage in high risk sexual behaviors or to have more partners, although they are more likely to delay testing for fear of learning their status or of being unaware of their status prior to testing. As well, researchers have begun to investigate the significance of social networks and HIV risk co-factors for Black MSM which has demonstrated some promise in explaining their greater risk for HIV infection. Despite these efforts, too little attention has been given to surfacing and identifying how these co-factors interact *within* the lived experienced of Black men. In particular, the tendency to overlook the relationship between where sexual networks form and the likelihood of engaging in high risk behavior has served to decontextualize sexual behavior and undermine the power of targeted public health intervention strategies to effect behavioral change.

This study will employ social work's social justice framework, the technique of ecosocial epidemiology, and path analysis to place the sexual behavior of Black MSM within social and cultural contexts. Specifically, this project combines these frames to examine the role of larger socio-environmental factors, such as discrimination and social networks, and the role of individual level factors, such as perceived discrimination and age of sexual debut, in order to illuminate the multiple factors which influence the individual and his environment. Social work's particular expertise in framing and understanding the multi-layered and interactional nature of

social processes places it in an ideal position to strengthen the capacity of health and social science approaches—in particular, ecosocial epidemiology—to reduce the disproportionalities witnessed in HIV. Moreover, social workers are at the frontline of HIV/AIDS service delivery and have a responsibility to consumers and society to engage in knowledge building to reduce stigma and discrimination and to identify and use more effective interventions which reduce suffering and promote social justice. Thus, the current project combines the inherent strengths within the social work and public health fields and offers a richer understanding of the complexity of the lives and decision making of Black MSM as it moves beyond using a single lens to explore risk factors to a deeper, multifocal examination of the multiple relationships that exist between risk co-factors, sexual networks and high-risk behavior.

Statement of Problem

In early 2005, the Centers for Disease Control & Prevention (CDC) reported that four hundred, fifty (25%) of 1,767 men who have sex with men (MSM) from five cities (Baltimore, Los Angeles, New York, San Francisco, and Miami) tested positive for the human immunodeficiency virus (HIV). The CDC obtained these data from the National HIV Behavioral Surveillance (NHBS), an ongoing behavioral surveillance system that conducts cross sectional data collection among populations at high risk for HIV infection. Black MSM were disproportionately represented among those testing HIV positive (25% of the five-city sample, their seroprevalence was 46%). Sixty-seven percent of these Black MSM also reported that they were unaware of their HIV status prior to testing. Additionally, several indicated that they had not tested previously because they were afraid of learning their status (CDC, Morbidity and Mortality Weekly Report [MMWR]; 2005a). These findings corroborate the CDC's 2001 report that HIV prevalence, incidence and unrecognized infection were especially high among a self-selected, voluntary sample of young Black MSM (CDC, [MMWR]; 2001a). More recently, the New York City Department of Health and Mental Hygiene (NYCDOHMH) reported that new HIV cases among Black MSM represented 33% of all cases (New York City Department of Health and Mental Hygiene [NYCDOHMH]; 2007). In response to these data, the Health Commissioner, Thomas Frieden, M.D., recommended that young Black MSM must reduce their number of sexual partners and use condoms more consistently. Historically the sexual lives of black people have been characterized as different from a white, middle class and heterosexual norm (Hill, 2004; Rodney, 1997). More specifically black men's sexuality is often characterized as aggressive, predatory and immoral (Weeks, 2003; Treichler, 1991). These constructions of black male sexuality remain deeply embedded in American beliefs and subsequent attempts to

address rates of HIV/AIDS transmission among Black men (Ford, Whetten, Hall, Kaufman & Thrasher, 2007). Further recommendation informed by implied and stereotypic promiscuity among black men forces communities to retract their boundaries in an attempt to resist racist narratives concerning sexuality (Williams, 1997). In essence they contribute to further marginalization.

Furthermore, singling out Black MSM in these recommendations is not supported by other data which find that Black MSM are no more likely to engage in high risk sex such as unprotected anal intercourse than their white counterparts (Denning & Campsmith, 2005; Lemp et al., 1994; MacKellar et al., 2005; Mansergh et al., 2002; McKirnan, Stokes, Doll & Burzette, 1995; McKirnan, Vanable, Ostrow & Hope, 2001; Purcell, Moss, Remien, Woods & Parsons, 2005; Ruiz, Facer & Sun, 1998; Solorio, Swendeman & Rotheram-Borus, 2003; Stokes, Vanable & McKirnan, 1996). Black MSM are also not more likely to have a greater number of sexual partners (Bingham et al., 2003; Doll et al., 1990; Gomez & Halkitis, 1998; Harawa et al., 2004; Heckman, Kelly, Bogart, Kalichman & Rompa, 1999, Kramer, Aral & Curran, 1980; Samuel & Winkelstein 1987; Stokes, Vanable & McKirnan, 1996).

However, because no comprehensive body of literature has examined the combined influence of factors that increase the risk of HIV infection and transmission (e.g., early sexual debut, history of sexual abuse, substance abuse, etc) on the likelihood of engaging in HIV risk behavior among Black MSM, such targeted recommendations persist.

There is one published article that examines high-risk behavior and sexual networks among Black MSM (Bingham et al, 2003): These authors described the relative odds of HIV

infection among Black MSM when the authors adjusted for age of sexual partner and race of sexual partners with whom participants engaged in anal sex. Anal sex, more specifically unprotected anal sex, is an HIV risk behavior. These findings led Millett, Peterson, Wolitski and Stall (2007) to argue that the focus of research should be on examining sexual networks of Black MSM in order to better identify those factors that increase the likelihood of HIV transmission.

Nevertheless, we must distinguish between HIV high-risk behavior (unprotected intercourse) and factors that increase the risk of HIV infection and transmission (e.g. histories of sexual abuse, substance abuse, incarceration, etc.). That is, we must distinguish between high risk behaviors and what Vogt (1998) labels *co-factors* or any variable that has an effect in combination with another variable. that increase the risk of HIV infection and transmission .(HIV risk co-factors play a role in HIV transmission when combined with HIV high-risk behavior. Hence, for the purposes of this project and to promote a more precise and explicit understanding of those issues which interact to increase risk of infection and transmission co-factors and high risk behaviors are conceptualized distinctly. Therefore, while Bingham and colleagues (2003) described a relationship between two sexual network factors (i.e., age and race of partner) and one HIV risk behavior (unprotected anal intercourse), we still lack a substantive body of literature that explores the relationship between HIV risk co-factors and sexual networks among Black MSM. In order to undertake such an examination, we must first identify HIV risk co-factors and the component characteristics of Black MSM sexual networks. Sexual networks describe the sexual inter-connectedness within a defined group of people (Scott, 1991). The study of sexual networks is rooted in the sociologic study of sociometry pioneered by Moreno (1934), who sought to depict the relationships within small groups of individuals. This study of

sexual networks assesses infectiousness and susceptibility employing sociometric and egocentric study designs. While sociometric study designs offer opportunities to discover linkages among partners beyond the original subject, it requires accurate partner reporting and the partners' willingness to be interviewed (Doherty, Padian, Marlow & Aral, 2005). In contrast, egocentric network study designs engage the subject in describing the context and nature of the contact, thereby creating opportunities to investigate the impact of the structure of the contact on risk behavior (Frost, 2007).

Modern studies of sexual networks have examined the transmission of sexually transmitted infections (STIs) such as gonorrhea (Aral & Holmes, 1999; De, Singh, Wong, Yacoub & Jolly 2004; Kloval et al., 1994), syphilis (Rothenberg et al., 1998) and chlamydia (Aral & Holmes, 1999). Other studies have dealt more specifically with HIV transmission (Morris and Dean, 1994) or explored characteristics of sexual networks (Havanon, Bennett & Knodel, 1993; Gorbach et al. 2000) among heterosexuals (Padian, Shiboski & Jewell, 1987; Padian, Shiboski, Vittinghoff & Glass, 1987), second and third generation immigrants (Barlow, Daker-White & Band, 1997) and younger gay men (Morris, Zavisca & Dean, 1995).

Several studies have examined Black MSM sexual networks and HIV transmission (Easterbrook et. al. 1993; Ruiz, Facer & Sun, 1998; Harawa et. Al., 2004; Bingham et al. 2003). An extensive literature review conducted by Millett et al. (2006) found that only one study used empirical data to determine the effect of sexual networks on HIV prevalence among Black MSM (Bingham et al., 2003). In their study, these authors reported that while young Black MSM ages 23 to 29 in Los Angeles were no more likely than their White counterparts to engage in high-risk behavior, they tended to have sexual partners who were older. Given that older MSM are more

likely to be HIV positive than younger men (Service & Blower, 1995; Mansergh & Marks, 1998) it is hypothesized that by having older sexual partners, Black MSM are at higher risk of HIV infection. Therefore, the age of one's sexual partner is potentially a feature of sexual networks related to the odds of acquiring HIV.

These authors also found that young Black MSM are more likely to engage in sexual intercourse with older Black MSM partners than are their White and Latino counterparts. Given the prevalence of HIV among Black MSM, should they engage in unprotected sexual intercourse, the odds of HIV infection and transmission are increased. While this study identified two key sexual network factors mediating the relationship between Black MSM and HIV prevalence, it is important to elucidate other such factors, as well as corroborate these findings through rigorous studies in other cities. In examining such studies, it is also critical to gather information concerning those factors that other research (e.g., Kretzschmar & Dietz, 1998; Morris & Kretzschmar, 1995; etc) has shown to be related to sexual networks such as partnership duration and concurrency. These factors, and the research associated with them, are described in detail in the literature review.

Typically, research exploring sexual networks has focused on the influence of social upheavals, such as migration and war, on choosing sexual partners among heterosexuals (Aral & Holmes, 1999). As well, research has found that societal factors such as socio-economic conditions, residential segregation (Zenilman, Elish, Fresia & Glass, 1999), economic and social deprivations and access to adequate health care are factors that have a direct impact on sexual networks (Adimora & Schoenbach, 2005, Krieger, 1994). Sexual networks have also been described in terms of partnership dynamics such as partnership duration (Kretzschmar & Dietz,

1998), selection (Lauman & Youm, 1999) and concurrency (Morris & Kretzschmar, 1995; Kretzschmar & Morris, 1996; Adimora et al, 2002; Adimora et al.; 2003). However, these studies often examine members of sexual networks who identify exclusively as heterosexual. This focus is not adequate in describing Black MSM sexual networks since these men may engage in both heterosexual and homosexual behavior, without identifying as either heterosexual or homosexual. Societal factors also affect these men, including exposure to discrimination based on racism, stigma associated with homosexual behavior and the need to be vigilant against verbal, physical or structural discrimination (Brooks, 1981; Loicano, 1993, Wallace, Carter, Nanin, Keller & Alleyne, 2002).

The lack of focus on the sexual networks of Black MSM has resulted in research that neglects to identify or examine the influence of the relationship of HIV risk co-factors upon participation in sexual networks among Black MSM. For example, age at time of sexual debut (Shafii, Stovel & Holmes, 2007), history of sexual abuse (Carballo-Diequez & Dolezal 1995; Paul, Catania, Pollack & Stall, 2001) and substance abuse (Page-Shafer et al., 1997; Burcham et al., 1989; Doherty, Garfein, Monterroso, Brown & Vlahov, 2000) are all associated with the likelihood of engaging in high-risk behavior. However, these studies do not elucidate which factors may relate to sexual networks factors such as partner concurrency and partnership duration. Further, these studies often restrict their focus to behavioral and psychological processes, overlooking the immediate context of sexual behavior (Firth & Kitzinger, 2001). This, despite findings demonstrating that physical (e.g., bathhouse, sex parties) (Doherty, Padian, Marlow & Aral, 2005; Potterat, Rothernberg, Woodhouse, Pratts & Fogle, 1985; Weir et al., 2003) and virtual places (i.e., chat rooms, websites, etc.) (Kim, Kent, McFarland & Klausner,

2001; Klausner, Wolf, Fischer-Ponce, Zolt & Katz, 2000; McFarlane, Bull & Rietmeijer, 2000) where sexual networks form are related to the likelihood of engaging in high-risk behavior.

In addition to these factors, few authors have sought to contextualize the likelihood of engaging in high-risk behavior within the lived experience of Black MSM (Wheeler, 2004; Fullilove, 2001). For example, affiliation is part of the lived experience of Black MSM. Myers, Javanbakht, Martinez and Obediah (2003) reported that affiliation is related to accessing HIV/AIDS intervention strategies. However, clarity concerning how affiliation may influence sexual networks remains elusive. For instance, Bingham and colleagues' findings concerning the sexual networks of Black MSM inform us about the age and race of their sexual partners but tell us little of those Black MSM whose affiliation patterns precludes older or same race sexual partners. Consequently, interventions that target men with older, same race partners will neglect the needs of those whose affiliation patterns remove them from this group. In discussing early sexual debut, Hallett, Gregson, Lewis, Lopman and Garnett, (2007) stated that linear interventions are not sufficient if peer sexual networks do not adopt behavioral change. Failure to examine the relationship between risk and sexual networks strips the analysis of critical contextual information that could contribute to developing effective interventions for Black MSM.

Significance of the Study

In 2008, the National Association of Social Workers released the second edition of the *Person-in-Environment (PIE) System Manual* (Karls & O’Keefe) which seeks to integrate the social role functioning, environmental problems and resources, mental health, and physical health of the individual into a classification system that allows social workers to categorize and code problems in social functioning from a strengths based perspective. The manual was developed as an alternative to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) classification system. Although the DSM-IV includes statements concerning the need for clinicians to take cultural factors and their contexts into account in making clinical judgments (APA, 1994: xxiv-xxv), it mirrors society’s dominant values (Caplan, 1995; Hare-Mustin & Marecek, 1994) and is deeply influenced by institutional forces concerning gender and race (Carmelee, Daniels & Anderson (2001).

Social work’s progress towards developing models such as PIE offers a valuable classification system that integrates culture and contexts in assessing the needs and functioning of individuals. However, appropriate assessment requires a thorough understanding of context; not as the clinician perceives it, but as the consumer experiences it. Further, context is not static, may shift over time and includes numerous constituent factors. Lengyel (2000) argues that the growth of social work’s capacity to design effective service delivery programs requires vigilance and keeping analyses of the person embedded in the environment, even as social work practices requires a deeper understanding of all that the environment encompasses.

Social work's effectiveness, along with other professions, is limited by the absence of a cohesive framework and substantive knowledge about the interactions among factors that increase the risk of HIV infection and transmission within sexual networks. Social work practice in HIV and AIDS has focused on advocacy and service provision. In addition to the risk of HIV infection, Black MSM, as with other Black men, face discrimination, disparities in education, and disproportionate rates of incarceration and unemployment (Wheeler, 2004). Therefore, it is critical that as advocates and providers, social workers participate in developing knowledge concerning how these factors may contribute to risk of HIV infection or transmission among Black MSM. Indeed, there is an ethical imperative to do so: The National Association of Social Work (NASW) *Code of Ethics* maintains that social workers should understand the importance of culture in human behavior as well as how it contributes to resilience, stating social workers should seek "to understand the nature of social diversity and oppression with respect to race, ethnicity, national origin, color, sex, sexual orientation, age, marital status, political belief, religion, and mental or physical disability" (NASW, 2000, p. 151).

It is here, at the point of service, that social work's core values of social justice and the importance of human relationships come together: For while those infected and affected by HIV and AIDS are increasingly part of social work caseloads, they continue to live with stigma and face discrimination. Social work is concerned with reducing the "strain or tension that interferes with the ability of people to perform daily tasks, or live satisfactorily in community with others" (Carlton, 1984, p. 7). As well, the transmission of HIV is social in nature; it affects the sexual partners of infected men and women as well as their families and communities. It is therefore incumbent upon the field of social work to advocate with and for those who face multiple forms

of oppression (Avery & Bashir, 2003; Dalton, 1989; Wheeler, 2007). Moreover, social workers must also assist in building effective interventions that target the multiple levels of relationships that contribute to risk. Finally, social workers must “strengthen relationships among people in a purposeful effort to promote, restore, maintain, and enhance the well-being of individuals, families, social groups, organizations, and communities” (NASW, 2000, p 145). Such advocacy requires research that seeks to uncover the dimensions of existing patterns of relationships within the networks of vulnerable populations.

In order to accomplish these tasks, social workers must conduct research that contributes to the development of knowledge to inform practice. Rosen, Proctor and Staudt (1999) identified three forms of knowledge essential to social work practice; they are descriptive, explanatory and control: Descriptive knowledge allows us to classify phenomena by collecting information such as its characteristics, indicators and incidences; explanatory knowledge allows us to understand a phenomenon by examining the dynamic relationships of factors that influence its variability and consequences; and, control knowledge enables the practitioner to influence the outcome of the phenomena. Social work is actively engaged in all three forms of knowledge.

Social work is positioned to understand the relationship between health inequities, individual and community behavior and the influence exerted by multiple environmental systems. Ecological and systems approaches are part of the core curriculum of most social work students (Longres, 1989) and these approaches are similar to host - environment models of other social science fields (McLeroy, Bibeau, Steckler & Glanz, 1988; Poole, 1997). Therefore, knowledge of the risk factors and the context within which they interact (i.e., sexual networks) adds to social work research’s humanistic objective - ameliorating suffering (Ruben & Babbie,

2001). However, inferences about the individual based upon aggregated data from the group to which an individual belongs may result in ecological fallacies (Robinson, 1950; Hammond, 1973) so the borrowing of more rigorous techniques, such as those used in ecosocial epidemiology, increases our capacity to illuminate the multiple factors influencing both the individual and his environment. Accordingly, to work with Black MSM and their providers in creating effective interventions and to reduce HIV prevalence among Black MSM, we must move beyond single lens exploration of risk factors to a deeper examination of the multiple relationships that exist between risk co-factors, sexual networks and high-risk behavior. The current project begins this epidemiologically informed exploration by posing the research questions detailed in the section which follows.

Research Questions/Hypotheses

Research Question 1

What is the direct and indirect causal effect among HIV risk co- factors (biomedical - history of sexually transmitted disease, psychosocial - age at time of sexual debut, history of sexual abuse, substance use, and structural - highest level of education, employment history, history of incarceration, exposure to discrimination and stigma due to sexual orientation, exposure to discrimination and stigma due to race, and community affiliations) and HIV risk behavior factors (Unprotected Anal intercourse with committed and concurrent partners)

Null hypothesis 1:

There is no direct or indirect interactions among HIV risk co-factors and HIV behavior risk factors (e.g., unprotect receptive anal intercourse).

Hypothesis 1a

Psychosocial, structural and biomedical HIV risk co-factors, will interact directly with HIV risk behavior factors.

Hypothesis 1b

Psychosocial, structural and biomedical risk co-factors will interact indirectly with HIV risk behavior factors.

Research Question 2

What is the direct and indirect causal effect among HIV risk co- factors (biomedical - history of sexually transmitted disease, psychosocial - age at time of sexual debut, history of sexual abuse, substance use, and structural - highest level of education, employment history, history of incarceration, exposure to discrimination and stigma due to sexual orientation, exposure to discrimination and stigma due to race, and community affiliations), Sexual network factors (partnership duration, partnership concurrency, partner characteristics - age, race, HIV status, and sexual venues) and HIV risk behavior factors (Unprotected Anal intercourse with committed and concurrent partners).

Null hypothesis 2:

There is no direct or indirect interactions among HIV risk co-factors, sexual network factors and HIV behavior risk factors (e.g., unprotect receptive anal intercourse).

Hypothesis 2

Psychosocial, structural and biomedical HIV risk co-factors and Sexual network factors will interact both directly and indirectly with HIV risk behavior factors.

Conceptual Framework and Method Overview

The overarching conceptual framework of this study is the theory of eco-social epidemiology. Eco-social epidemiology moves beyond examining risk factors associated with HIV infection and transmission to an examination that highlights the interaction between the individual and the contextual factors associated with risk behavior. For the purpose of this study the individual factors are referred to as co-factors. They include biomedical, psychosocial and structural factors. In this study, contextual factors refer to the sexual networks of the individual: They include partnership duration, partnership concurrency, partner characteristics and sexual venues. A risk behavior refers to one's likelihood of engaging in high-risk behaviors (i.e., receptive unprotected anal intercourse).

This research project employed secondary data analysis and used data collected from 614 Black MSM in the CDC-funded Brothers y Hermanos (ByH) research project (2003-2006). A series of statistical analyses will be conducted to examine the research questions. The results of these analyses will be incorporated into the current literature on Black MSM and recommendations on methods of reducing risk among Black MSM within the field of social work will be provided.

Review of the Literature

Introduction

Well into the third decade of HIV, researchers and providers face climbing and disproportionate rates of HIV infection among specific populations such as MSM in general and Black MSM specifically. Although MSM constitute as little as 5% of the population, they account for 71% percent of new HIV cases (CDC, 2007; Binson, Michaels, Stall, Coates, Gagnon & Catania, 1995). Further, in 2005, the Centers for Disease Control reported that in a five city research project prevalence rates among Black MSM was more than twice as high (46%) than among white MSM (21%). In order to understand these rates of infection among MSM in general, research often begins by examining those sexual risk behaviors factors associated with the spread of HIV. These are most often identified as unprotected receptive anal intercourse, i.e., anal penetration by the penis without a condom.

Hence, a comprehensive search of several electronic databases, including MEDLINE, PubMed, PsycINFO, AIDSLINE, and SocioFile from January 1987 through January 2007, was conducted to identify published articles and conference abstracts concerning HIV co-factors. The literature review reveals there are three groups of co-factors that may increase the risk of transmission or infection among MSM: 1) bio-medical, such as histories of sexual transmitted disease; 2) psychosocial, including sexual debut and histories of sexual abuse and substance use; and 3) social factors (e.g., histories of education, employment, and incarceration, exposure to discrimination and stigma, and community affiliation). The co-factors related to HIV transmission and infection among Black MSM are reviewed here, individually.

HIV Risk Behavior

Unprotected Anal Intercourse- receptive (UAIr)

Research concerning HIV and MSM has demonstrated that unprotected receptive anal intercourse (UAI) remains the sexual risk behavior most associated with HIV transmission and infection among MSM in general (Mansergh et al., 2002; Vittinghoff et al., 1999). In addition, several recent studies prompt us to examine the importance of unprotected vaginal intercourse (UVA) as a HIV risk behavior among Black MSM: In an exploratory study, Wolitski, Jones, Wasserman & Smith (2006) found that Black MSM may also engage in sexual intercourse with women. In these cases, unprotected vaginal intercourse is considered an HIV risk behavior. Similarly, in an exploratory study comprising black MSM and White MSM, O'Leary, Fisher, Purcell, Spikes and Gomez (2007) found that Black MSM who are HIV-positive were more likely than White MSM to report sex with women. However, these findings are limited: The study recruited only HIV-positive MSM from New York and San Francisco. As such, we are unable to determine differences among HIV positive and negative men. Furthermore, the authors do not inform us of these men's knowledge of their partners' HIV status which may inform men's decision-making.

Despite these findings and the disproportionate seroprevalence among Black MSM, several quasi-experimental studies demonstrated that Black MSM do not engage in unprotected anal intercourse with greater frequency than other MSM. Quasi-experimental studies are distinguished from true experimental studies by the lack of random assignment of participant to experimental versus control conditions. In order to test a hypothesis, experimental studies

rigorously control independent variables among experimental and control groups; experimental groups receive the intervention or stimuli, which is withheld from control groups (Ruben & Babbie, 2001). Using traditional venue based sampling, Peterson, Bakeman, Stokes and the Community Intervention Trial for Youth Study Team (2001) reported that Hispanic participants, followed by Asian/Pacific Islander and White participants, were more likely than African American participants to report unprotected anal intercourse. Among 5095 MSM, Bartholow et al. (2005) found that the probability of unprotected anal intercourse was associated with non-black races. However, the ability to generalize based on these findings are limited given the small number of Black participants ($n=4$).

In contrast, Bingham and colleagues (2003) analyzed cross sectional survey data collected by means of venue-based sampling of Black Latino and White men between the ages of 23-29 years old in Los Angeles, CA. These men were both gay and non-gay identified. Using logistic regression, the researchers found that Black men reported lower rates of unprotected anal intercourse ($p = .03$) when compared to their white counterparts. More recently, Harawa and colleagues (2004) found that among those respondents who had had anal sex, whites were most likely (59%) and Blacks least likely (48%) to report having had unprotected anal sex. These researchers used venue-based sampling to sample 1259 whites, 814 Blacks, 1,042 Latinos, and 201 multi-ethnics. It is important to note that both Bingham et al. (2003) and Harawa and colleagues (2004) used the CDC's Young Men's Survey (YMS). The YMS was a two-phased, cross-sectional anonymous survey of men who attended MSM-identified venues in Baltimore, MD, Dallas, TX, Los Angeles, CA, Miami, FL, New York, NY, and Seattle, WA. Identical methods were used in each phase with the exception that men 15-22 years of age were recruited

in phase 1 (1994-1998), and men 23-29 years of age were recruited in phase 2 (1998-2000).

Given the age of the respondents in the YMS there may be limited generalizability to older Black MSM.

Lacking evidence indicating that Black MSM engage in high risk activity with greater frequency than their non black counterparts, accounting for disparate rates of HIV infection continues to challenge the HIV research community. In order to account for disparate rates of seroconversion among populations, researchers have attempted to identify those co-factors associated with HIV infection and transmission (Ho 1995; Paula, Catania, Pollack, & Stall, 2001; Pettifor, Measham, Rees, & Padian, 2004).

For this project, a comprehensive search of several electronic databases, including MEDLINE, PubMed, PsycINFO, AIDSLINE, and SocioFile from January 1987 through January 2007, identified published articles and conference abstracts concerning HIV co-factors. In relation to HIV there are medical co-factors (e.g., histories of sexual transmitted disease) psychosocial (e.g., sexual debut, sexual abuse and histories of substance use) and social forces (e.g., histories of education, employment, and incarceration, exposure to discrimination and stigma and community affiliation). These factors in combination with unprotected anal intercourse are believed to increase the risk of transmission or infection. The co-factors related to HIV transmission and infection among Black MSM are reviewed here, individually.

HIV risk co-factors among Black MSM

Bio Medical co-factors –

Histories of Sexually Transmitted Infections (STI)

As early as 1995, Ho and colleagues found that polymorphonuclear leukocytes (PMNs) from HIV-seronegative persons trigger HIV replication from HIV-infected persons' mononuclear cells. This experimental study demonstrated that chlamydia increased the replication of HIV. Later in 1997, Cohen and his associates asserted that STI pathogens disrupt mucosal tissues, and increase the number of cells receptive to HIV-1, and the number of receptors expressed per cell. Using an experimental study design, they found that gonorrhea was associated with an increased concentration of HIV-1 in semen. Given these findings demonstrating the relationship between STIs and HIV transmission, and are the inherently sexual nature of STIs, a history of STI has become an indicator of engaging in high-risk behaviors (CDC, 2007).

In fact, Rothenberg, Wasserheit, St. Louis, Douglas and The Ad Hoc STD/HIV Transmission Group (2000) commented that those who contract STI after seroconversion serve as *prima facie* evidence that many continue to engage in high-risk behavior, namely unprotected sexual intercourse. Therefore, a history of STI is one of the risk co-factors associated with HIV transmission and infection. Pursuant to this indicator, the Centers for Disease Control (2007) reported that between 1988 and 2004 rates of gonorrheal infection among MSM have increased fivefold from 4 %to 20 %. Increases in rates of syphilis have also been found in urban areas such as Chicago, New York and San Francisco (CDC 2001b 2002a, 2004) with rates tending to be highest among Black and Latino MSM in nine US cities (Chicago, the District of Columbia,

Denver, Houston, New York City, Philadelphia, and San Francisco). As such, the evidence suggests that Black MSM are more likely to report having a sexually transmitted disease thereby increasing their vulnerability (CDC, 2001c) and the transmissibility (Rothenberg et al., 2000) of HIV infection.

Psychosocial co-factors

Sexual debut

Sexual Debut refers to age of first engaging in sexual activity. Using data collected by the Youth Risk Behavior Surveillance System (YRBSS), the Centers for Disease Control (CDC) (2007) reported that the prevalence of having had sexual intercourse before age 13 was higher among black (16.5%) than White (4.0%) and Hispanic (7.3%) students. YRBSS includes national, state, and local school-based surveys of students in grades 9 -12. The prevalence of having had sexual intercourse with 4 or more persons was higher among black students (28.2%) than their white (11.4%) and Hispanic (15.9%) peers and the prevalence of being currently sexually active was higher among Black (47.4%) than White (32.0%) and Hispanic (35.0%) students. In addition to these racial differences in sexual debuts, early sexual debut has been associated with increased likelihood of engaging in unprotected intercourse.

These findings received both international and national support. For example, Pettifor, Measham, Rees and Padian (2004) in a randomized controlled trial, found that among South African women between the ages of 15 to 24 years old, those who have experienced younger sexual debut engaged in inconsistent condom usage (i.e., never or occasional use). These researchers concluded that younger sexual debut was associated with reduced ability to negotiate

power in transactional sex, or sexual activities involving the exchange of needed resources, and forced sexual encounters. However, the authors did not clearly define sexual power. Instead, they linked it to gendered power inequities, which were also undefined.

In a quasi-experimental study using representative cross sectional household survey data, Harrison, Cleland, Gouws and Frohlich (2005) found that early sexual debut among rural South African men was associated with engaging in high-risk behavior at the time of the first sexual encounter (e.g., no unprotected intercourse and intercourse with a casual partner). Early sexual debut was also predictive of multiple partners. While the authors found a greater number of partners among men whose sexual debut occurred before 15 years of age, they did not examine whether these men continue to engage in high-risk behavior with these partners. The authors also combined multiple forms of sexual debut, (i.e. vaginal, anal and oral intercourse) which adds to the complexity of their findings and possibly confounds their outcomes. For instance, participants may have engaged in protected vaginal intercourse with greater frequency than protected anal and oral intercourse due to pregnancy concerns.

Still another South African study conducted by Hallett, Gregson, Lewis, Lopman and Garnett (2007) used a mathematical model of heterosexual HIV transmission to conclude that the benefits of delaying sexual debut were small unless combined with reduced cross-generational intercourse as well as reduced high-risk behavior within sexual networks. While these findings suggest that early sexual debut and older partners play a significant role in HIV risk, the authors caution that the findings are less significant at the population level because delaying sexual debut and reducing older partners is not sufficient in reducing infection rates if peer sexual networks do not adopt behavioral change.

Despite the limitations of these findings, early sexual debut is a factor associated with HIV risk. For example, Kennedy and colleagues (2007) found that among a sample of African American males between the ages of 18–24 years old, within the neighborhoods of four designated South Side Chicago community centers, 24% had their first sexual intercourse at 13 years old. They also determined that older age at time of sexual debut was predictive of condom use behavior. These findings are limited in several important ways: First, while study participants were randomly assigned to program conditions, the authors reported only baseline data; next, the authors did not indicate that these subjects actively engaged in any health related prevention initiatives, rather, they indicated that their collaborating partners who assisted in recruitment efforts were actively engaged in health related prevention; and, lastly, the researchers did not examine the impact of these collaborating partners' efforts on the communities at large. Because they focused on peer norms, the authors neglected other important relationships. For instance, in a series of $2 \times 2 \chi^2$ analyses, they found 43% of subjects who talked to peers about condoms used condoms during the previous 30 days and 50% intended to use condoms in the next 30 days. However, the lived experience of young black men is not limited to their relationships with peers. Young men between the ages of 18 – 24 live their lives in relation to larger communities and social forces as well as their peers.

Though these findings regarding African American males' sexual debut are alarming, research has examined factors that could ameliorate risks associated with early sexual debut. For example, access to health care, condom education and use of condoms during sexual debuts are also associated with reduced risk of engaging in high-risk behavior (Shafii, Stovel & Holmes, 2007). These authors reported on adolescents who participated in a longitudinal survey designed

to study adolescent health in the United States. Shaffi and colleagues used clustered and multistage stratified respondent samples which increases the representativeness of populations and are consistent with experimental designs. The authors concluded that those who reported condom use during sexual debut were more likely to report condom use during their most recent sexual intercourse. They were also less likely to test positive for Chlamydia and gonorrhea as compared to those who did not use a condom at sexual debut. Therefore, adequate resources such as condoms and preventative health care may mitigate the negative impact of early sexual debut. Unfortunately, similar studies have not been conducted with samples of MSM.

Only one study has explored sexual debut among MSM. Flowers, Smith, Sheeran and Beail (1998) conducted a qualitative exploratory study of sexual debut within the context of homosexual intercourse among working-class gay men from Barnsley, UK and employed an interpretative phenomenological methodology. Among the participants in this study, several reported sexual debuts with partners with greater sexual experience and unprotected sexual intercourse. Additionally, respondents characterized their first sexual relationships with more experienced gay men as disempowering. The research inquiry here offered a rich explanation of the contextual factors affecting the lives of the respondents at the time of sexual debut. Among these were homelessness and limited employment opportunities. These factors played a more important role in their lives and were felt more immediately and “more strongly... than the somewhat distant threat of HIV infection” (Flowers, Smith, Sheeran & Beail, 1998). The authors added that the impact of institutionalized homophobia blocks access to limited sexual health education including condom usage during intercourse. A detailed discussion of exposure to

discrimination based on sexual orientation will be presented later in this chapter on conceptualization.

In summary, the literature consistently examines sexual debut in terms of heterosexual intercourse. Yet, applying heteronormative definitions of sexual debut which operationalizes debut as a singular moment is inconsistent with the lived experience of MSM generally. There may, in fact, be multiple sexual debuts for MSM given compulsory heterosexuality, a sense of obligation to marry, and/or to have children; and, while these perceptions may subordinate, they do not eliminate same sex desire. As such, maintaining sexual relationships with women fulfill this sense of duty (Stokes, Damon, & McKiran, 1997) and MSM may experience both heterosexual and homosexual debuts.

Sexual Abuse

According to the National Crime Victimization Survey one in every ten rape victims is male (Bureau of Justice Statistics, National Crime Victims Survey (NCVS), 2003). Yet, the research findings of Tjaden and Thoennes (2000) provide more telling and alarming statistics. About 3% of American men – 2.78 million – have experienced an attempted or completed rape in their lifetime) with 75% of all rapes occurring before age 18, and 48 % occurring before age 12. Furthermore, they report, of those who report sexual violence, 16% of men were raped, physically assaulted, or stalked by an intimate partner. This includes a current or former spouse, cohabitating partner, boyfriend/girlfriend or date. Among acts of sexual violence committed against men: 70% of rapes, 86% of physical assaults, and 65% of stalking acts were perpetrated by men (Tjaden & Thoennes, 2000). Sexual violence victimization starts very early in life.

Research of men with histories of sexual violence focuses primarily on HIV risk and mental health outcomes. Several researchers (Braitstein et al, 2006; Carballo-Diequez & Dolezal 1995; Paula, Catania, Pollack & Stall, 2001) have found that experiencing sexual violence first in childhood was strongly related to being in the sex trade. Sexual violence was also related to increased HIV seroprevalence among male street-based sex workers, as well as experiencing episodes of poor mental health among MSM. These include attempted suicide and diagnosed mood disorder. Others report that high levels of substance use may serve as a coping tool to manage intrusive negative affect and cognitions associated with a history of sexual violence (Paula, Catania, Pollack & Stall, 2001).

Lenderking and colleagues (1997) reported on a sample of 327 homosexual and bisexual men participating in an ongoing cohort study pertaining to risk co-factors for HIV infection. The sample comprised bisexual and gay men seen at a Boston Metropolis health centers, or were referred by friends, medical provider or through advertisement in two newspapers. Of those who completed a survey regarding history of sexual abuse, 35.5%(116) reported being sexually abused as children and were more likely to have had unprotected receptive anal intercourse in the past 6 months (OR 2.13; 95% CI 1.15-3.95). . They concluded that sexual abuse is a significant predictor of unprotected receptive anal intercourse. However, the generalizability of these finding are limited given the researchers reported limited descriptions of the sample. Similarly, Bensely, Eenwyk and Simmons (1999) using a population based survey, found that men with histories of childhood sexual abuse were eight times more likely than men which no such histories to engage in HIV risk behaviors. Bartholow and colleagues (1994) found a greater

number of men reporting childhood sexual abuse among men who were HIV positive than among HIV negative men.

The research has repeatedly demonstrated that histories of sexual abuse are related to an increased likelihood of engaging in high-risk behaviors. However, a review of the literature failed to identify comparable studies among African American and Black men in general. Also left unexplored is the relationship of histories of sexual abuse and factors associated with sexual networks. Given the presenting data concerning the relationship between histories of sexual abuse and negative mental health outcomes, we must also inquire into the impact these sequelae may have upon factors such as partnership duration and concurrency.

Substance Use

There is significant risk associated with injection drug use (CDC, 2002; Latkin et al, 1996): If not properly cleaned, syringes used to inject drugs may contain particles of blood that may lead to transmission if injection drug users (IDU) share contaminated needles. Additionally, the risk of transmission is not limited to sharing injection drug paraphernalia as the sexual partners of HIV positive injection drug users (IDU) also face HIV transmission risk. Harm reduction methods have made significant strides in reducing the spread of HIV among IDU (Des Jarlais, 1995) including increased access to treatment focused on reducing usage, increasing access to new and sterile needles, and promoting protected intercourse (Des Jarlais & Friedman, 1996).

As our awareness of substance abuse has increased, so too has our knowledge of its relationship to HIV transmission. The impact of substance abuse on HIV risk is not limited to

IDU. Numerous empirical studies employing experimental designs have demonstrated that substance use impairs judgment, which may lead to engaging in high-risk behaviors such as unprotected anal intercourse (Barrett et al., 1995; Crosby, Stall, Paul, Barrett & Midanik, 1996; Dolezal, Meyer-Bahlburg, Remien & Petkova, 1995; Kalichman, Tannenbaum & Nachimson, 1998; Martin, 1990; McCusker et al., 1990; Molitor, Truax, Ruiz & Sun, 1998; Mulry, Kalichman & Kelly, 1994; Ostrow, 1994, 2000; Ostrow, Beltran, Joseph, J.G.MACS/CCD Study Group & DiFrancisco, 1993; Paul, Stall, Crosby, Barrett & Midanik, 1994; Paul, Stall & Davis, 1993; Purcell, Parsons, Halkitis, Mizuno & Woods, 2001). In fact, Mulry, Kalichman, and Kelly (1994) report substance use prior to or during sex predicted high-risk sexual behavior. Others studies have sought to establish a less linear association between substance use and high-risk behavior hypothesizing that sensation seeking and alcohol and drug use during sex are predictors of high-risk behaviors (Dolezal, Meyer-Bahlburg, Remien & Petkova, 1995). Using a sample of 117 predominantly gay-identified men (73 HIV+ and 44 HIV-) who participated in a 5-year natural history study of HIV disease in New York City, these authors found sensation seeking partially accounted for the association between substance use and sexual risk behavior.

However, despite these findings each study has its own set of limitations. For example the recruitment strategies employed by Kalichman et al. (1998) was limited to gay and bisexual men who attended a large gay pride event. Men who do not identify as gay or bisexual or who do not attend such venues were missing from the sample. Purcell et al. (2001) employed survey techniques with a racially diverse sample and found a strong association among MSM substance use and engaging in high-risk behavior. Although racially diverse, only HIV positive MSM comprised the sample, limiting its generalizability. It also raised the question as to how

knowledge of one's HIV status influences substance use and high-risk behavior. More recently, Pilowski and colleagues (2007) examined the relationship of social networks among non-injection drug users (i.e., crack cocaine users) and found that the size of one's social network was related to the number of sexual partners as well as the number of members who used drugs. These findings are rich in that they ground the individual within a particular environment and his social network. However, the authors concede that forces that impact the formation and functioning of these social networks remain complex and dynamic and may not apply to other social contexts.

Structural co-factors

Education

In 2000, African Americans/Blacks represented 12% of the US population (US Census Bureau, 2000). Of the estimated 34,658,190 Black identified individuals, almost 24% resided below the poverty line. Further, the Justice Policy Institute (2003) reported that in 1999, 10% of white male dropouts and 52% of Black male high school dropouts had histories of incarceration by their early thirties. Lower levels of education are associated with engaging in high-risk behavior (Griep et al., 2002; Hays, Kegeles & Coates 1990; Smith et al., 1999). These findings suggest that levels of education are related to rates of incarceration and likelihood of engaging in high risk sexual behaviors. These findings warrant deeper exploration of possible linkages among these factors. In the case of incarceration, the Justice Policy Institute (JPI) (2006) conclude that there is a connection between education attainment and recidivism. JPI predicted that 32% of African American men are likely to end up in prison and that African American men

in their early 30s are nearly twice as likely to have prison records (22 %) as they are to have attained Bachelor's degrees (12 %).

Turning to the relationship between education and high risk, the National HIV Behavioral Surveillance (NHBS) System, the CDC (2006a) reported that among those MSM with some college or technical school education unprotected anal intercourse with casual male partners was less frequent. While the sample was diverse, the findings are limited in their generalizability since the sample was predominantly composed of white MSM. These men may not face the same challenges as Black men and especially those faced by Black MSM. More recently, an empirical study conducted in South Africa reported lower HIV prevalence among young men between the ages of 14 and 25 who attended secondary school. These men also reported engaging in lower-risk sexual behaviors such as reduced numbers of partners (Hargreaves et. al, 2008). The researchers suggested that school attendance might influence the structure of sexual networks and reduce HIV infection risk.

Employment

Empirical data concerning the relationship between employment and engaging in HIV risk behaviors is lacking. Nonetheless, Wheeler (2004) posited that lacking adequate employment, African American men may turn to behaviors that place them at risk for incarceration and substance abuse. More recently, Adimora, Schoenbach and Doherty (2007) posited that employment might have a distal relationship to risk of HIV infection and transmission: Citing previous research (Adimora & Schoenbach 2005; Gorbach, Stoner, Aral, Whittington & Holmes, 2002; Hoffman & Holmes, 1976) the authors stated that employment

status has an effect on history of incarceration, the status of intimate relationship and HIV risk among heterosexually identified men. Further research on the impact employment has on black MSM risk behavior and sexual networks is indicated.

Incarceration

The US Department of Justice (2007) reported that there were 22,480 state and federal inmates who were HIV infected or had confirmed AIDS on Dec. 31, 2005 with men incarcerated in New York accounting for 18% (4,040) of these cases. Previously, as of 2004, African American or Black males accounted for 34% of cases. Further, the Centers for Disease Control and Prevention, in collaboration with the Georgia Department of Correction and the Georgia Division of Public Health, reported that 10% of men in the Georgia criminal justice system who tested HIV positive between 1988 and 2006 seroconverted during the time of their incarceration (CDC, 2006). Even more alarming are findings by Arriola and Jacobs (2006) who asserted that fear of discrimination may prevent some inmates from testing, leading to subsequent underestimates of incidence rates. Thus, these findings indicate that while incarcerated men may be engaging in high risk behaviors although they may not accurately report the nature of risk they experience and there is clearly increased risk that is associated with incarceration.

Incarceration is more than imprisonment. It has an impact on the community from which Black men come and to which they return: Incarceration dislocates many men from their communities given men convicted of a felony are not eligible to vote, to apply for student loans, and certain types of employment (Iguchi, Bell, Ramchand & Fain, 2005). Additionally, research has demonstrated that a history of incarceration affects partner concurrency (Adimora,

Schoenbach & Doherty, 2007; Johnson & Raphael, 2005) and is associated with increased incidents of unprotected intercourse among African American women (Sampson, 1995). However, there have been no studies exploring the impact of incarceration on the likelihood of engaging in unprotected anal intercourse or relationships among Black MSM.

Discrimination and Stigma based on Sexual Orientation and Race

Numerous researchers have explored the impact of various forms of discrimination such as gender inequality (Dunkle et al., 2004; Mukherjee, 2007) and stigma (Melendez, & Pinto, 2007) and with various populations, such as male to female transgenders (MTF) (Crosby & Pitts 2007; Melendez, & Pinto, 2007; Nemoto, Operario, Keatley & Villegas, 2004), injection drug users (Rhodes, Singer, Bourgois, Friedman & Strathdee, 2005), Latino immigrants (Bowden, Rhodes, Wilkin & Jolly, 2006), Asian and Pacific Islander gay men (Wilson & Yoshikawa, 2004), and inmate populations (Arriola & Jacobs, 2006). The literature describes the general presence of threats of physical violence and discrimination among gay men as a group (Cahill, 2000; Russell, Franz & Driscoll, 2001).

Martin and Knox (1997a, 1997b) posited that facing multiple social forces, including economic and political obstacles, gay men are prevented from building enduring relationships. Without such relationships, men face recurring loneliness and difficulty maintaining self-esteem. Further, Martin, Pryce and Leeper (2005) found that men who employed avoidance coping strategies were more likely to engage in UAI. However, these findings are limited in several significant areas. Martin, Pryce and Leeper (2005) operationalized ethnic identity of men into two categories, European and non-European, and recruited men from lesbian and gay public

events, local bathhouses, and from agencies that provided HIV and counseling services for members of the local lesbian and gay community; yet, Black MSM who do not identify as gay men may not frequent these venues. Further, we cannot speak with certainty to the particular experience of Black MSM due to the lack of operationalization as to who qualified as or more descriptive date regarding the category of non-European men.

Black MSM experience discrimination based on race as well as sexual behavior (Brooks, 1981; Crawford, Allison, Zamboni & Soto, 2002; Icard, 1986; Loiacano, 1993). Furthermore, the discrimination based on sexual activity occurs within the larger societal context (Duh, 1991), the African American community (Dalton, 1989; DeMarco, 1983; Harris, 1988, 1993; Icard & Traunstein, 1987; Pettiway, 1996; Poussaint, 1990; Roberts, 1986; Rosin, 1995; Staples, 1990) and within the gay community (Beam, 1983, 1986; Bonilla & Porter, 1990; Boykin, 1996; Harper, 1992; Herek & Capitanio, 1995; Riggs, 1991; Simmons, 1991). These relationships result in behavior such as avoidance of HIV testing (Robinson, 2003) or discussion of risk and condom use (Stokes & Peterson, 1998) for fear of having to admit engaging in stigmatized sexual behavior. In the case of HIV testing, previous research has demonstrated that awareness of one's HIV status was related to reduced engagement in high risk behavior and possible transmission of HIV (Cleary et al., 1991; Coates, Morin & McKusick, 1987; Doll et al., 1990; Fox, Odaka, Brookmeyer & Polk, 1987; Gibson, Lovelle-Drache, Young, Hudes & Higgins 1996; Rietmeijer, Kane, Simons, 1996; van Griensven et al., 1989). Empirical findings suggest that facing multiple forms of discrimination, Black MSM engage in behaviors that places them at risk for HIV infection and transmission (Bolen & Elifson, 1994; Brunswick & Banaszak-Holl, 1996; Cochran & Mays, 1988; Doll et al, 1992; Lemp et al., 1994; McKirnan, Stokes, Doll &

Burzette, 1995; Rosario, Rotheram-Borus & Reid, 1996; Ryan, Longres & Roffman, 1996; Shepard, 1986; Siegal, Raveis & Karus, 1994). For example, in exploring methods used by individuals to organize their sexual behavior, or their sexual scripts, Parsons and colleagues (2004) argued that among gay and bisexual men of color alcohol is associated with the need to reduce stress in order to express personal desire. Further, the authors cited Crawford, Allison, Zamboni and Soto (2002) who stated that substance use may be attributable to stress related to discrimination and stigma associated with sexual orientation and race. However the relationship between stress, personal desire and discrimination and stigma associated with sexual orientation and race has not been explored. Further, to date, no empirical studies based solely on race have examined the impact of discrimination on the well being of Black MSM and their sexual networks.

Community Affiliation

Research has demonstrated that community affiliations, whether by sexual orientation or ethnicity, are important to HIV risk (Chng & Geliga-Vargas. 2000; Kippax, Crawford, Davis, Rodden & Dowsett. 1993; Lemelle & Battle, 2004; O'Donnell, O'Donnell, Agronick, San Doval, Myint & Stueve, 2002). However, affiliation based on sexual orientation may differ from that based on ethnic/racial identity. For example, some researchers have found that among men of color, ethnic affiliation was more predictive of safer sex behavior than affiliation based on sexual orientation (O'Donnell, Agronick, San Doval, Myint & Stueve, 2002; Lemelle & Battle, 2004). While exploration of the impact of affiliation remains fertile ground for exploration, whether sexual orientation or ethnic/racial, these communities are not mutually exclusive. For example, many Black MSM may have exclusively Black MSM affiliations since they face discrimination

from within their ethnic communities and within white gay communities, although some may not.

In summary, despite examinations of divergent community affiliation as well as other co-factors, the literature is limited in its exploration of the relationship among risk co-factors. For example, what is the relationship between the history of sexual abuse and education attainment or history of discrimination and substance use? Additionally, while high-risk behavior and risk co-factors describe individual risk, they do not adequately explain the spread of disease within a population. HIV transmission among Black MSM requires individuals to engage in some partnership regardless of duration, location or other circumstances. An exploration of factors associated with HIV transmission and infection would be incomplete if the interpersonal relationships among MSM were neglected. Such explanations require deeper inquiry into the lives of these men. Data concerning the characteristics of partners (e.g., age, race, etc), as well as the characteristics of relationship (e.g., duration) provides a context for understanding the spread of disease (Klov Dahl, 1985) as well as the nature of relationships. In order to uncover a deeper understanding of these characteristics, research must examine the constituent and interactive characteristics of sexual networks.

Sexual Networks

The study of sexual networks derives from the work of Moreno (1947) and Thomas Parran (1937). Moreno's work on social networks developed tools such as sociograms and sociometry. Sociograms are line drawings used to depict patterns of relationship among people; the drawings are useful in demonstrating if members of a group are tied to others and identifies

those who are isolated (Brikell, 1950). Sociometry is the study of interpersonal relationships within groups and the behaviors and positions associated with each member. Through sociometry we have a greater understanding of dynamic social units (Moreno, 1947).

Contemporaneously, Thomas Parran, the United States Surgeon General, published *Shadow on the Land* (1937), which called attention to the spread of syphilis, and is associated with the formation of the National Communicable Disease Center and the Venereal Disease Control Program. While Parran's plain speaking text included claims that syphilis was the White man's pay back to 'Negros' for introducing malaria and hookworms to America, he did call attention to the presence of social networks within Black communities, especially those evident in churches. Parran's approach to screening for syphilis gradually led to disease reporting and follow-up became a standard of venereal disease control programs (Rothenberg & Narramore, 1996). Lacking from Parran's approach to disease transmission, however, was an awareness of the interconnectedness of people within a network as he adopted a linear approach.

With a greater understanding of sexual networks, interest in sexual networks has turned from the size of networks to their characteristics (Brockhoff & Biddlecom, 1999). For example, a Black MSM may face greater risk of exposure to HIV if he is in a relationship with one partner who is part of an open sexual network that has many members, as opposed to a Black MSM who has two partners within a closed network that engages in protected intercourse. Thus, we now have a more complex understanding of the spread of disease. Identifying information about sexual partnerships within sexual networks is critical in surfacing knowledge of the spread of sexually transmitted infection.

Towards this goal, researchers have investigated partnership duration (Juarez & Castor, 2006; Dietz & Hadeller, 1988; Dietz & Tudor, 1992; Hadeler, 1992; Ketzschmar, Jagar, Reinking, van Zessen & Brouwer, 1994; Kretzschmar & Dietz, 1998; Wladstätter, 1989; Xiridou, Geskus, de Wit, Coutinho & Kretzschmar, 2004; Kretzschmar & Dietz, 1998), partner concurrency (Anderson & May, 1988; Johnson, Wadsworth, Wellings, Bradshaw & Field, 1992; Anderson, 1999; Morris & Kretzschmar, 1995, 1997; Watts & May, 1992; Kretzschmar, 2000; Adimora, Schoenbach, Martinson, Donaldson, Stancil & Fullilove, 2003), partner characteristics (Aral, 1999; Bingham et al., 2003; Blower, Service & Osmond, 1997; Ellen, Aral & Madger, 1998; Laumann & Youm, 1999; Service & Blower, 1995;) and sexual venues (Bayer, 1989; Binson et al., 2001; Frost, 2007; Humphrey, 1970; Klov Dahl, 1985; Martin, 1986; Martin, 1987; McKusick et al., 1985; McKusick, Horstman & Coates, 1985; Turner, Miller & Moses, 1989). The sexual network factors that influence HIV transmission among the African-American community are reviewed here, individually.

Sexual Network Factors

Partnership duration

Partner duration refers to the length of time individuals remain in a particular sexual relationship. Length of time in the relationship may determine whether the relationship is defined by researchers as steady or casual. In one study conducted by Juarez & Castor Martin (2006) steady partners, which were defined as relationships which lasted 4-5 months, were associated with decreased odds of condom use among heterosexual males aged 13-19 in *favelas* (urban shantytowns) in Brazil. These authors defined a casual partner as those relationships that lasted

less than 2 months. Models of disease transmission that take partnership duration into account demonstrate that there are differences in the course of the epidemic in long lasting partnerships (steady) versus those without duration (casual) (Dietz & Hadeller, 1988; Dietz & Tudor, 1992; Hadeler, 1992; Kretzschmar, Jagar, Reinking, van Zessen & Brouwer, 1994; Kretzschmar & Dietz, 1998; Wladstätter, 1989). However, these earlier studies assumed that individuals engage in serial monogamous relationships or relationships that do not occur concurrently and wherein the latter is not begun until the first ends. Guided by this assumption, they concluded that susceptible individuals within these relationships are protected from exposure. Despite these findings it is evident that research cannot make such assumptions.

By contrast, Xiridou, Geskus, de Wit, Coutinho and Kretzschmar (2004) recruited men who were involved in both steady and casual partnerships. Using mathematical modeling, these authors found differences in HIV transmission rates among homosexual men with primary HIV infection (PHI) and their long-lasting steady partners and short casual partners. This is not to suggest that HIV transmission does not occur in steady long-term partnerships. In fact, Kretzschmar and Dietz (1998) previously found that transmission during chronic HIV infection (CHIV) was high when partnership duration is long. These mathematical approaches to simulating disease transmission increase our knowledge of epidemiological patterns among both heterosexual populations and homosexual men. However, they do not explore important contextual factors such as differences among men who use protection during sexual intercourse with casual partners versus intimate partners. Despite this limitation, these findings begin to lift the veil from concurrent partnerships.

Concurrent Partnership

The number of one's sexual partners has been the focus of both empirical and theoretical studies of the transmission of HIV (Anderson & May, 1988; Johnson, Wadsworth, Wellings, Bradshaw & Field, 1992). Concurrent partnerships are sexual relationships that overlap in time and are simultaneous. Authors such as Anderson (1999), Morris and Kretzschmar (1995) and Watts and May (1992) have added to the scope of variables used to explore sexual networks, as well as to the understanding of the dynamic nature of relationships, by demonstrating the importance of concurrent partnerships. These authors established that unlike other partnership configurations, such as serial monogamy in concurrent partnerships, early partners face the same likelihood of exposure as later partners in concurrent relationships. In serial monogamous relationships, early partners do not face the same risk if the individual is infected after the relationship has ended. This effect was demonstrated in a set of simulations designed to identify whether network structures, with concurrent partnerships in particular, were reason enough to collect data and plan interventions. The authors found that concurrent partnerships have an effect on the patterns of epidemic spread. However, the effect demonstrated in these accounts did not examine HIV in particular. Rather, the authors superimposed a general disease transmission process among heterosexual populations. Moreover, the authors assumed that these relations are monogamous and not concurrent. In concurrent partnerships, there is no time lost between relationships; therefore, if one partner becomes infected then all partners are at risk.

In contrast, Kretzschmar (2000) stated that infected individuals in similar relationships with infected individuals do not expose others. She expanded our knowledge of sexual networks through a stochastic individual based model for networks of partnerships. The model explores

the importance of concurrent partnerships for the spread of disease such as HIV. Kretzschmar (2000) concluded that rapid transmission of infection depends upon changes in sexual networks resulting from concurrent partnerships. As with research examining partner duration, the simulations by Watts and May (1992) and the later work by Kretzschmar are formative as they build knowledge concerning the impact of partner concurrency on disease transmission generally and HIV in particular. However, neither examined the impact of differential likelihood of engaging in high-risk behavior within these relationships.

Men may engage in protected sexual intercourse with casual partners as opposed to main sexual partners. While reasons may vary—from seeking trust and intimacy to knowledge of one's own and a partners' status—we must consider differential behavior an important component of any exploration of high-risk behavior. Previous research (Paranjape et al., 2006) concerning consistent condom use within main sexual partnerships was associated with trust. Though Paranjape et al. (2006) examined factors associated with consistent condom use among heterosexual women, they found that trust in one's partners was independently associated with lower odds of safer sex (OR 0.3, 95% CI 0.08-1.06). Along similar lines, among Puerto Rican MSM, Carballo-Dieiguez, Remien, Dolezal and Wagner (1997) found that condom usage with main partners was less consistent than with casual partners. Condom use may also vary with whether one is being penetrated versus penetrating. The authors of this qualitative inquiry conclude that the desire for trust and intimacy overrode risk reduction behavior. Yet, another factor that may influence any findings concerning concurrency and partner duration is serosorting or the seeking of sexual partners with the same HIV status, which are behaviors that frequently occur within sexual networks. Several research projects report that men engage in

high-risk behavior with those they believe are of similar serostatus (Suarez et al., 2001; Suarez & Miller, 2001). Knowledge of one's partners' serostatus is an important partner characteristic influencing high-risk behavior. Findings that are heavily reliant on mathematical and simulated models tend to overlook relationships between these and other network factors.

The importance of examining the interaction between risk co-factors and network characteristics is demonstrated in research conducted by Adimora et al. (2003). These authors found that there was an association between partnership concurrency and substance abuse among research subjects who reported heterosexual HIV transmission. Nevertheless, how does the individual characteristics of one's partners influence the behaviors of MSM? Research cannot assume that Black MSM engage all partners in the same way. Rather research must explore those factors which influence the likelihood of engaging in high-risk behavior with different partners. What is the influence of partner's characteristics such as age, race or knowledge of HIV status on Black MSM behavior?

Partner characteristics

The age and race of one's sexual partners have been earlier identified as factors influencing one's risk of HIV transmission among heterosexual populations at risk for HIV (Aral, 1999; Ellen et al., 1998; Laumann & Youm, 1999). Similarly, Service and Blower (1995) and Blower, Service, and Osmond (1997) found that advanced age in the gay community was associated with an increased probability of being HIV infected. More recently, Bingham et al. (2003) found that Black MSM are more likely than their white counterparts to engage in sexual activity with older sexual partners and with partners who were also Black or African American

identified. While seminal in its approach to the issue of sexual networks among Black MSM, the study did not discuss the influence of other partner characteristics (e.g., knowledge of partners serostatus) and HIV risk co-factors (e.g., substance abuse, economic disadvantage, etc.) on partner selection. In the case of knowledge of one's own and his partners' serostatus, Suarez and Miller (2001) and Suarez et al. (2001) demonstrated that these factors inform serosorting behaviors. Similarly, several researchers found that in the case of MSM who are also IDU, initial drug use was associated with a sexual experience with an older partner (Clatts et al., 1997; Hoffman, Su & Pach, 1997): These researchers posited that younger MSM who also inject drugs occupy a niche within an established pecking order. This order determines access to both resources; in this case drugs as well as paraphernalia. As such, young MSM are at risk for paraphernalia sharing within a network with high seroprevalence.

Reduced access caused by economic disadvantage is also linked to older partner selection. One small, non-representative study focused on women, found those with older partners are more likely than their peers with same age partners to come from homes with limited economic advantage (Lamb, Elster & Travare, 1986). Similar findings among Black MSM are lacking. They would add depth to our understanding of contextual factors influencing partner selection. These factors may determine access to material resources such as food, shelter and drugs. They may also determine relationship dynamics such as Black MSM's ability to negotiate condom use and access to venues where MSM affiliate. Without material resources to access venues where MSM meet and engage each other, social interactions is limited. As a result material resources exert some influence over the venues in which people meet for sexual activity.

Sexual venues

Previous research reveals that venues where people meet play an important role in the spread of disease (Frost, 2007). Further, Humphrey's (1970) seminal work on 'tea rooms' expanded social scientists' knowledge of venues where MSM engage in sexual activities with other MSM. This knowledge, early in the AIDS epidemic, led to research that examined the importance of bathhouses in the spread of HIV and shaped policy debates concerning public and private sex (Bayer, 1989; Klov Dahl, 1985; Martin 1986; Martin, 1987; McKusick et al., 1985; Turner, Miller & Moses, 1989). Another study that distinguished venues and attendees (Binson et al., 2001) concluded that some men attended only sex clubs and bathhouses; others recruited sexual partners at parks, beaches, bookstores, teahouses, and cruisers, while some recruited partners at both sets of locations as they were multi-venue users. Among these three groups, bathers and multi-venue users were more likely to be HIV positive or to have an STI. Multi-venue users were more likely to engage in unprotected anal intercourse. However, most relevant to the current study are the authors' findings that public sex venues attendees tended to be young, less well educated and men of color.

The internet has become an important sexual venue with researchers examining the association between using the Internet to recruit sexual partners and engaging in high risk behavior and STI (Benotsch, Kalichman & Cage, 2002; Bolding, Davis, Hart, Sherr & Elford, 2005; Elford, Bolding & Sherr, 2001; Elford, Bolding, Sherr & Hart, 2005; Kim, Kent, McFarland & Klausner, 2001; Klausner, Wolf, Fischer-Ponce, Zolt & Katz, 2000; Liao, Millet & Marks, 2006; McFarlane, Bull & Rietmeijer, 2000; Mettey, Crosby, DiClemente & Holtgrave, 2003; Rietmeijer, Bull, McFarlane, Patnaik & Douglas, 2003; Taylor et al.,

2004). Kim, Kent, McFarland and Klausner, (2001) reported that men who use the Internet to recruit sexual partners are more likely to engage in unprotected intercourse. Further, Klausner, Wolf, Fischer-Ponce, Zolt and Katz (2000), in a case-control study, found that meeting sexual partners through the Internet was associated with the acquisition of syphilis. However, their sample was small (6 case patients and 32 control patient). In addition, case patients were recognized syphilis cases while control patients were selected from an ongoing survey of sexual behavior and social networks at the San Francisco Department of Public Health City Clinic. Whether the men in the control group had access to the internet or were simply referred by members of their social network is unclear. Despite these limitations 67% of case patients versus 19% of control patients met sexual partners on the Internet.

McFarlane, Bull and Rietmeijer (2000) used cross-sectional survey methods among clients of the Denver Public Health HIV, Counseling and Testing Site in Colorado and reported similar finding concerning other STIs and internet use among gay men. Internet sex seekers were more likely to be homosexual ($p<001$), reported more previous sexually transmitted infections ($p=.02$) and engaging in anal intercourse ($p<001$). Having previous STIs and engaging in anal intercourse (albeit the research did not disaggregate unprotected and protected anal intercourse) represents an intersection of risk co-factor and network factor. However, the authors did not explore this relationship among MSM. Nor was the sample particularly diverse; of the 856 respondents only five were Black. Still exploration of the intersections of the Internet as a sexual venue and risk warrants examination.

One such exploration is work by Bolding, Davis, Hart, Sherr and Elford (2005): These authors used Internet survey technology to interview 2505 MSM on UK Internet sites. They

reported that young gay men in the UK experienced sexual debuts with partners recruited via the Internet. However, with a sample consisting of 95% white MSM, the generalizability of these findings is limited. Further despite increased access to the Internet by the population at large, authors such as Im and Chee (2001) have critiqued internet-based research for its capacity to decontextualize responses. Respondents' responses are often untethered to any particular reality or experience other than their participation in the study. How one finds out about the study provides some information on social networks as much as it raises concerns regarding marginalization.

Despite these critiques, others continue to explore the relationship between Internet connection and HIV risk within their research samples. For instance, Rietmeijer, Bull, McFarlane, Patnaik & Douglas (2003) found that those who use the Internet to seek sexual partners also use the Internet to access information concerning STIs. The high prevalence of Internet use as a method of meeting sexual partners suggests that sexual networks may be forming over the Internet. The Internet, a virtual venue within the sexual networks of MSM, provides opportunities for new HIV primary prevention interventions (Benotsch, Kalichman & Cage, 2002). It also adds new dimension to sexual networks in general and to research concerning Black MSM sexual networks.

In summary, as previously discussed, there is abundant research demonstrating the threat that risk co-factor such as substance use and histories of sexual abuse pose to MSM in general. The same is true for factors commonly used to describe sexual networks (e.g., partner concurrency and duration) albeit predominantly focused on heterosexual networks. Though limited in number, several articles have examined the relationships between risk co-factors and network

factors. For example, Adimora, Schoenbach, Martinson, Donaldson, Stancil & Fullilove (2003) stated that there was an association between substance abuse and partnership concurrency among research subjects who reported heterosexual HIV transmission. Others have discussed the impact of incarceration on partner concurrency (Adimora, Schoenbach, & Doherty, 2007; Johnson & Raphael, 2005).

Less well-documented are the relationships among HIV risk co factors. Next, the relationships among HIV risk co-factors and their relation to sexual network factors (e.g., history of sexual abuse and early sexual debut upon partner characteristics) are even less documented. Finally, also missing from the literature is an examination of the influence these latter relationships exert on risk taking behavior among Black MSM (i.e., unprotected anal intercourse). The absence of this information creates significant gaps in our knowledge concerning differential relationships among men who engage in behaviors that puts them at risk for infection and transmission of HIV and those who do not. In order to explore these relationships, understand and create effective interventions, attention must be given to the theories we engage in attempting to explore differences.

Theory

A comprehensive search of several electronic databases, including Academic Search Premier, Health Source: Nursing/Academic Edition, CINAHL, MEDLINE, PsycINFO, PsycARTICLES, General Science Collection, SocINDEX with Full Text, Social Work Abstracts from January 1997 through January 2007, identified published articles and conference abstracts concerning HIV risk co-factors and Black MSM. This search revealed that studies predominantly focus on interventions and epidemiology. Interventions are not theories, although they reveal

tacit and underlying theories, many of which have been found to be effective in reducing risk and seroprevalence. In contrast, epidemiology employs specific theories to explore the relationships leading to greater or lesser likelihood of engaging in high-risk behaviors which lead to seroconversion among Black MSM.

S.C. Pepper's (1942) proposal that there are four distinct world hypotheses or grand-scale conceptual systems is an important analytical tool and will be used to guide the exploration of relevant theory and elucidate the undergirding assumptions inherent in each. Pepper (1942) posited four conceptual systems; formism, mechanism, contextualism, and organicism. Formism uses the root metaphor of similarity and categorizes phenomena by identifying their shared characteristics, classes, forms or types and includes in the analysis the context in which the phenomenon occurs. Each presents an alternative worldview or frame of reference for examining the nature of phenomena and is girded by a 'root metaphor' that functions as a cognitive map guiding scientific discourse. That is, each hypothesis is associated with a set of assumptions about the social world and how it operates. Mechanism employs the machine as its root metaphor and views phenomena as resulting from single causes or linear progressions. The push and pull of the machine is replicated in the influence exerted by the phenomena's elements upon each other. In contextualism, the historical event is the root metaphor and it is grounded in the principle that the relationships among the phenomena's elements occur within related and temporal processes. The organismic hypothesis conceptualizes phenomena as resulting from holistic and natural processes and assumes a dynamic evolution toward higher wholes. As an analytic tool Pepper's argument heightens our awareness that there are multiple methods of exploring phenomena which can enhance our capacity to explore phenomena. Each method has

its value and this project demands engaging tools that offer rich exploration of the complexities of Black MSM lives and sees individuals as located within dynamic, evolving systems. Failure to explore the exchanges that occur in these systems renders the analysis static and lacking practical application.

Interventions and Intervention Studies

In 1999, the Divisions for HIV/AIDS Prevention at the CDC published the Compendium of HIV Prevention Interventions with Evidence of Effectiveness. These were precursors to what we now term Diffusion of Effective Behavioral Interventions (DEBI) which are designed to bring science-based interventions to varied communities. In an effort to reduce the spread of HIV and STIs and to promote healthy behaviors, DEBI standardize the implementation of interventions at both the group and community levels. Presently, there are sixteen DEBI: They are Focus on Youth + ImPACT; Healthy Relationships; Holistic Health Recovery Program; Many Men, Many Voices; Modelo de Intervención Psicomédica (MIP) (Psycho-Medical Intervention Model [PIM]); MPowerment; Partnership for Health; Popular Opinion Leader; Peers Reaching Out and Modeling Intervention Strategies (PROMISE); Real AIDS Prevention Project (RAPP); RESPECT; Safety Counts; Sisters Informing Sisters on Topics about AIDS (SISTA); Street Smart; Together Learning Choices; and, Video Opportunities for Innovative Condom Education & Safer Sex (VOICES/VOCES). Of these, three specifically target Black MSM: Healthy Relationships (HR), a small-group intervention for people living with HIV and AIDS; Many Men, Many Voices (3MV), a group-level STI/HIV prevention intervention for MSM of color; and, Popular Opinion Leader (POL), an intervention to identify, enlist, and train key opinion leaders to encourage safe behaviors in their social networks. Healthy Relations is

based on social cognitive theory and engages HIV+ individuals in the modeling and practicing of new skills to increase their skill repertoires and self-efficacy when negotiating high-risk sexual behavior. Many Men, Many Voices was adopted from the work of Kelly, St. Lawrence, Hood, and Brasfield (1989). These authors developed an experimental intervention, which provided AIDS risk education, cognitive-behavioral self-management training, sexual assertion training, and attention to the development of steady and self-affirming social supports. It focuses on factors such as community norms, stigma and homophobia and racism among others, which may impact the practice of safer sex methods. In their experimental group, Kelly and his colleagues (1989) found that respondents maintained reduced risk behavior during a follow-up conducted at eight-months. Popular Opinion Leader (POL) is derived from the work of Kelly, St Lawrence; Diaz, Stevenson, Hauth, Brasfield, Kalichman, Smith, and Andrew (1991) and Kelly, (2004). POL enlists, identifies and trains key members of the community to disseminate safe sex messages among their networks. While research on the effectiveness of interventions has not focused specifically on these three interventions, findings from intervention studies bear examination since they identify specific theoretical underpinnings which form the evidence base of many interventions.

Theories of Behavioral Interventions

Interventions designed to change rates of seroconversion among MSM rely heavily on theories of behavior change (Semaan, 2000). Most notably is socio-cognitive theory in the form of the Theory of Planned Behavior (TPB) which was pioneered by Azjen and is an extension of

the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975; Ajzen, 1991). TRA posits that the best prediction of any voluntary behavior is the intention or decision to perform the behavior (e.g., “I intend to use condoms during my next sexual encounter”). Questions concerning the parameters within which intentions to act do in fact predict behavior have been raised (Sheppard, Hartwick & Warshaw, 1988). For instance, there are instances when the behavior is not entirely within the individual’s control whereas at other times the individual may not be able to predict all the elements of the environment within which the behavior will occur. For example, the intention to use a condom may change, should the sexual encounter occur in a venue where multiple sexual partners are involved. In addition, Albert Bandura (1977, 1986) offered that feedback is critical to the individual’s feelings of self-efficacy, which attend to the interactional dynamics of the person, environment and behavior. However, in the case of stigmatized behavior such as homosexual intercourse, feedback concerning protective behavior may be lacking.

The Theory of Planned Behavior modified the Theory of Reasoned Action by including the individual’s perceived control over behavior. Perceived control over behavior involves the individual’s beliefs that he possessed the required resources and opportunity to perform a behavior (Madden, Scholder & Ajzen, 1992). These interventions are grounded in mechanism: They function on the belief that reducing infection and changing individual behavior are a set of mechanical gestures in a linear progression, or what Pepper (1942) would refer to as mechanism. Yet, Boily, Godin, Hognben, Sherr, and Bastos (2005) commented that the socio-structure has the capacity to affect individual beliefs regarding having the resources and opportunity to control behavior. Socio-structural factors refer to the social context within which the individual is located. While achieving some success in White gay social networks, given the multiple

positions occupied by Black MSM (i.e., racial and sexual behavior) explication of the resources relative to these positions is imperative. Because these theories and their assumptions decontextualize individual behaviors from their socio-structural factors they are of limited value within the context of minority communities. And, Wallace, Thompson - Fullilove, & Flisher, (1996) would further assert that the effectiveness of the interventions are of limited value to these communities as their success within White gay communities is contingent upon two central social contexts – affluence and stability. These factors have been historically precarious in Black and other minority communities and institutions.

Increasingly, researchers state that the causes of health disparity (e.g., high HIV prevalence among Black MSM) inequities are deeply embedded in social institutions (Williams, 1997). However, others explicate health disparities among various populations by focusing on biological differences. Hypertension is an example of such an attempt: Black Americans have higher rates of hypertension than White Americans. However, recent evidence comparing Black Americans to Blacks in Africa found lower rates among African Blacks (Cooper et al., 1997). What is more, rates of hypertension among African Blacks are, in fact, lower than Whites in the United States. Similar arguments have surfaced concerning HIV. Several studies point to a biological determinant of HIV, CCR5 (Huang et al., 1996; Marmor et al., 2001; Paxton, Kang, & Koup, 1998; Samson et al., 1996; Stephenson, 2001). CCR5 is a chemokine receptor on cell surfaces involved in signaling activation and movement of immune cells to areas of infection. HIV uses CCR5 to infect cells. Deletion of CCR5 receptors may be related to enhanced protection from HIV infection. However, these studies did not include or did not have large

enough samples of Black MSM to analyze the findings by race (Millett, Peterson, Wolitski & Stall, 2006).

Rather, in place of purely biological explanations for disparate rates of HIV infection among Black MSM, researchers are increasingly turning to examining underlying social factors. (Lemmelle, 2003; Iguchi, Bell, Ramchand & Fain, 2005; Golembeski & Fullilove, 2005). For example, Bruce Link and Jo Phelan (1995) stated that social factors within communities embody access to resources and affects health outcomes. In addition, the term syndemic, coined by Singer (1994), has entered our consideration as we look at health disparities and the social conditions that perpetrate them. Syndemics, as defined by Singer, refers to the connection between health problems such as that between substance abuse and AIDS which reinforce each other and are deeply interwoven (Milstein, 2008). Such movement in the area of public health acknowledges disease and their relationship to institutions and physical locations. Further, and of primary importance to social work, is the need to critically examine the person within an environment. These authors offer deeply contextualized depictions of the larger social and environmental factors that place Black Americans at risk for health disparities and HIV/AIDS. They are also consistent with developments in the discipline of epidemiology that increasingly challenge looking exclusively at factors that place individuals at risk and suggest examining the dynamic interaction of behavior and barriers to health, created by limited social, political and economic opportunities.

Risk Factor Epidemiology

Epidemiology is the science of how disease and associated risk factors are distributed across populations. Risk factor epidemiology explores the relationship between antecedent factors and outcomes at the individual level (Susser, 1998). The literature concerning tobacco smoking and lung cancer is a fundamental example of risk factor epidemiology. As in the case of lung cancer, risk factor epidemiology plays a critical role in gaining knowledge concerning what behaviors and exposures are associated with HIV infection and transmission. However, as with lung cancer, risk factor epidemiology has done little to explicate variation among various communities. For example, research has not found increased high-risk sexual behaviors among Black MSM when compared to their White counterparts (Bingham et al., 2003).

Mervin Susser (1998) stated that risk factor epidemiology has little regard for the social structures and dynamics that connect individuals. Failing to regard these aspects of the individual and their community reduces the individual to a series of linear progressions from risk to infection. That is, it reinforces a worldview consistent with Pepper's (1942) conceptual model of mechanism. In contrast, Nancy Krieger (1994) argues in favor of an epidemiological that embeds the individual in the host culture or society and the person's own individuality. Both Susser (1998) and Kreiger (1994) argue in favor of incorporating ecology into existing epidemiological frameworks. This approach coincides with Pepper's (1942) world hypothesis of contextualism. In fact, Krieger (2001) wrote that ecology consists of the interaction of organisms, matter and energy over time and space. Accordingly, in 1994, she introduced the term ecosocial epidemiology. The ecosocial epidemiological approach has the potential to contribute to research

rigor to social work's efforts to understand the individual while grounding his or her experience in the environment.

Ecosocial Epidemiology

Ecosocial epidemiology views diseases as a product of society which requires biological and ecological analysis, thus adopting a social production of disease perspective. HIV research, interventions and prevention messages that focus on individual risk and responsibility overlook the dynamic interaction of behavior and barriers to health that are created by limited social, political and economic opportunities (Chan & Reidpath, 2003; Sen, 1999). Paul Farmer (1996) commented that social inequalities shape the distribution of disease emergence. He also remarked that as HIV spreads across the globe it nestles into communities of the poor and the otherwise "disempowered." Similarly, Conrad and Kern (1981), Doyal (1979), Krieger (2001), and Navarro (1986) each assert that there are structural barriers to health within and across society that establish, compel and maintain social privilege and inequality. These privileges and inequalities are foundational causes of inequality in health. However, research concerning the influence of social inequalities on health is seriously lacking (Krieger, Rowley, Herman, Avery & Phillips, 1993; Navarro, 1990).

Dating back to a social analysis of the 1930s and 1940s researchers have employed broad theoretical frameworks that utilize social production of disease perspectives. These researchers sought to analyze the interaction of economic and political forces on health and disease. For example, Henry E. Sigerist first outlined social diseases as a category in 1937, in *Socialized Medicine in the Soviet Union*. He posited that poverty, lack of education, lack of educational

opportunities as well as other disadvantages were chiefly responsible for diseases such as venereal diseases and alcoholism. In 1938, in *The History of Medical History*, he asserted that particular diseases depended on social, cultural and economic factors.

Two books, *The Political Economy of Health* (Doyal, 1979) and *Epidemiologica Economica Medicina y Politica* (Breilh, 1988) identified the social production of disease perspective. Much of the previous research employing a social production of disease lens has been interested in answering questions such as, What is the health impact of establishing capital accumulation as a priority over human need? However, more recently, researchers have engaged a social production of disease lens to examine the health impact of racial discrimination (Krieger, 2000; Williams, 1999) as well as discrimination based on gender and sexual orientation (AMA Council on Scientific Affairs, 1996; Becker, 2000; Doyal, 1995; Fee & Kreiger, 1994; Krieger & Sidney, 1997; Meyer, 1995; Ruzek, Olesen & Clarke, 1997; Solarz, 1999).

Social production of disease perspectives offers rich information concerning the social determinants of disease. However, the social production of disease perspective lacks systematic investigative methods. As such, this perspective relies heavily on the researcher's critical evaluation of the risk and resiliency factors within a population and faces significant challenges in accounting for incidents of instances not attributable to these factors. For instance, while early life experiences (e.g., histories of sexual abuse and early sexual debut) may be related to likelihood of engaging in high-risk sexual behaviors, how do we account for those men who engage in high-risk behavior who lack these experiences? Krieger (2001) further adds that social production of disease perspectives overlooks biological determinants. While studies have not specifically determined that Black MSM are biologically more likely to seroconvert, we do know

that those diagnosed with STIs increase their risk of infection or transmission and Black MSM are at higher risk for STI. As such, histories of STI are critical biological factors to consider and must be incorporated when exploring infection and transmission risks among this population .

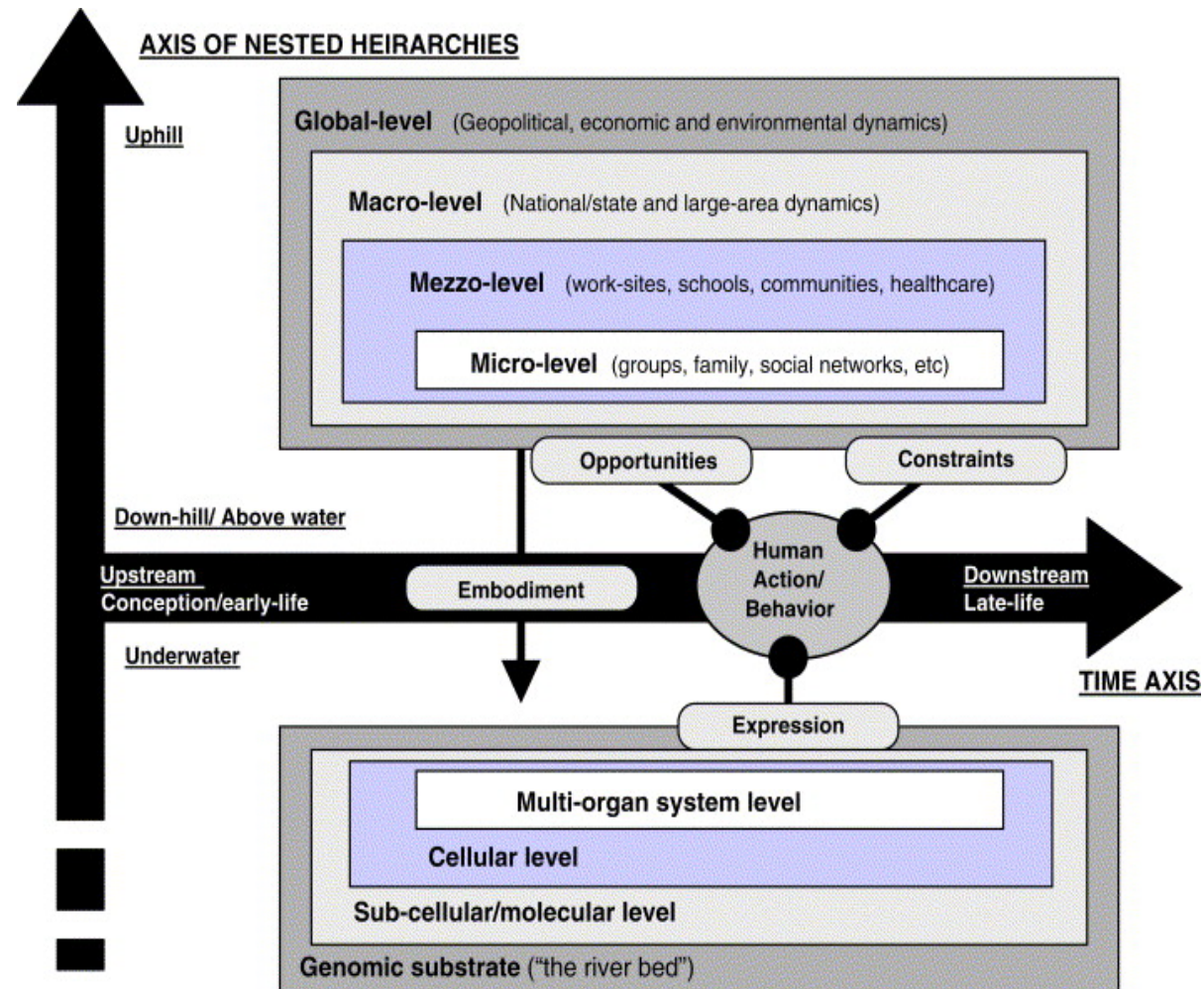
Ecosocial epidemiology requires a lens which incorporates both the social and the biological. It is girded by the assumption that in order to understand patterns of health and disease in society, a singular approach is insufficient. Using population and multilevel approaches to health, ecosocial epidemiology recognizes that factors such as socioeconomics within the individual's environment are closely related to the physical and social infrastructure of communities. They in turn affect health beyond a random combination of individual "risk" factors (Corburn 2004; Susser & Susser 1996). In so doing, we achieve a deeper understanding of individuals and their risk of exposure and susceptibility in relation to social membership, including its particular norms, structures, ecological milieu, and biology. Corburn (2004), citing Krieger, states that ecosocial epidemiology demands an interdisciplinary understanding of how both biology and different forms of social organization influence the well-being of individuals and populations and thus explicitly investigates social determinants of population distributions of health, disease, and well-being.

Relevance of Ecosocial epidemiology to social work

As social workers employing ecosocial epidemiology, we are encouraged to consider the individual within the fullness of their lived experience, encumbered and buoyed by the communities' histories and the context of their personal life. This perspective is fundamental to expanding general social work practice, the current study in particular, and ultimately the task of

developing interventions with and for Black MSM. A fundamental social worker skill is an awareness of the multiple context specific factors which affect our clients and which is necessary to effective intervention and engaging clients in addressing their needs and identifying solutions. Glass and McAtee (2006) suggest that manipulating the structural contingencies that affect the health of a population may have a greater impact than addressing proximate causes (e.g., specific health related behaviors). Glass and McAtee (2006) most directly challenge the mechanistic approach of intervention studies and risk factor epidemiology and encourage contextualism. Their Axis of Nested Hierarchies is a three-dimensional model that views human action and behavior as an expression of individual biological factors within the opportunities and constraints of a multi-layered environment across time (See Figure 1). However, the effects of such manipulation requires time to be seen. Furthermore, as previously noted, intervention studies are limited by their linearity of scope and reliance on mechanistic theoretical perspectives.

Figure 1. Glass and McAtee's Axis of Nested Hierarchies



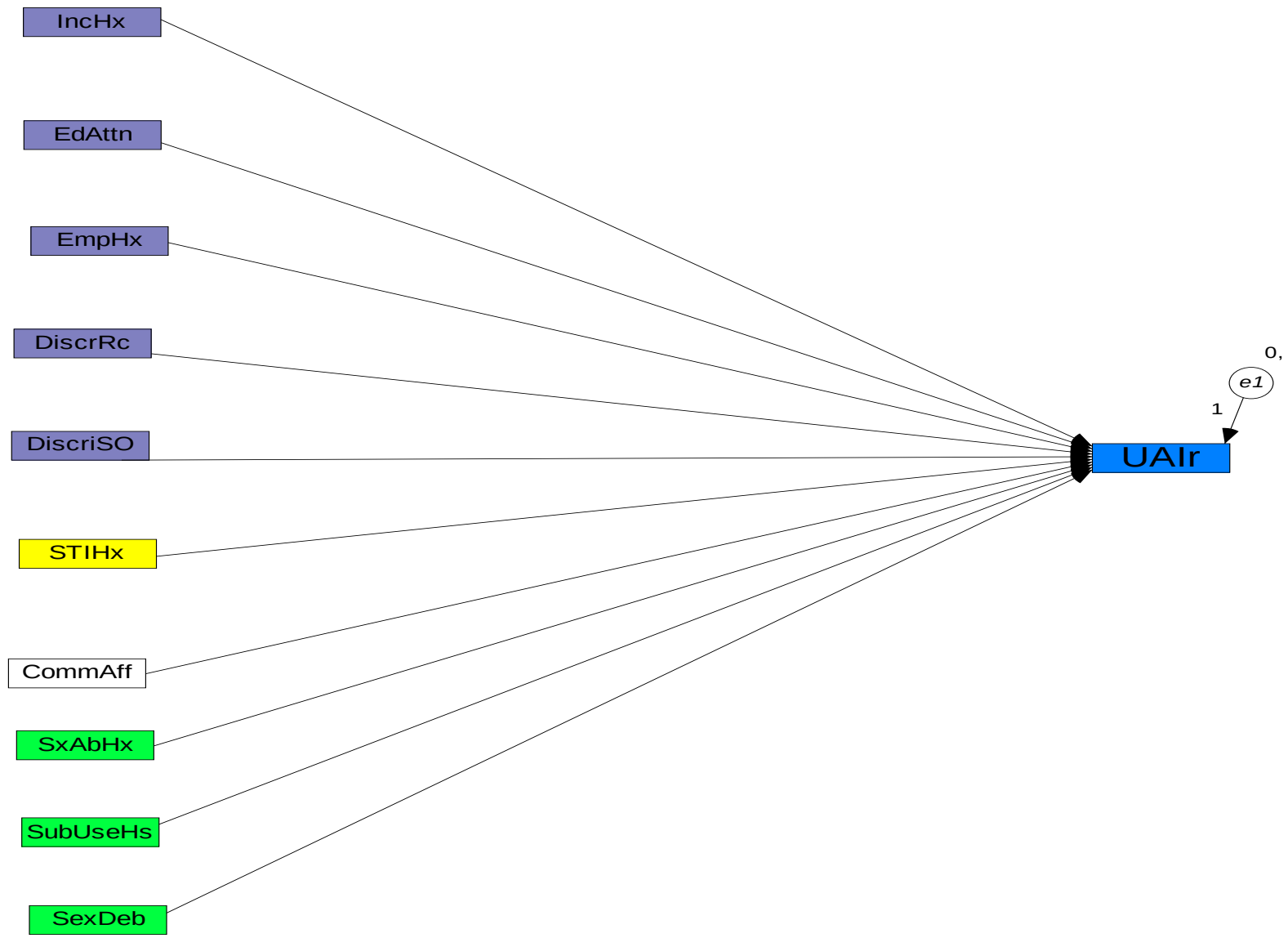
From a Person-In-Environment perspective, the individual level is comprised of nested biological hierarchies consisting of genomic, sub-cellular/molecular, cellular level and multi-organ systems. At the environmental level, there are four social hierarchies—micro, mezzo, macro and global level aspects of the individual’s environment—with the micro level comprised of groups, families and social networks, the mezzo –level including employment, schools, communities and healthcare, while national/state and large area dynamics comprise macro-level variables. Finally, global level variables include geopolitical, economic and environmental dynamics. According to Glass and McAtee (2006) human behavior both creates and is created by opportunities and constraint associated with the social hierarchies, as well as being a biological expression and embodiment. Time refers to an individual’s developmental progression from infancy to old age.

Ecosocial epidemiology and this project

Ecosocial epidemiology is used as the theoretical framework within this project to examine the interaction of HIV risk cofactors, sexual network and HIV risk behavior to explore the nature of these interactions. As such, the framework associated with ecosocial epidemiology is consistent with the current research interest. This research project will investigate two possible models concerning the potential effects of psychosocial, structural and biomedical risk co-factors on high-risk behavior. In the first model the effect of psychosocial, structural and biomedical risk co-factors are hypothesized to have direct effects on high-risk behavior (see Figure 1). This model is designed to explore research question 2: What is the direct and indirect causal effect among HIV risk co- factors (biomedical -history of sexually transmitted disease, psychosocial - age at time of sexual debut, history of sexual abuse, substance use, and structural - highest level

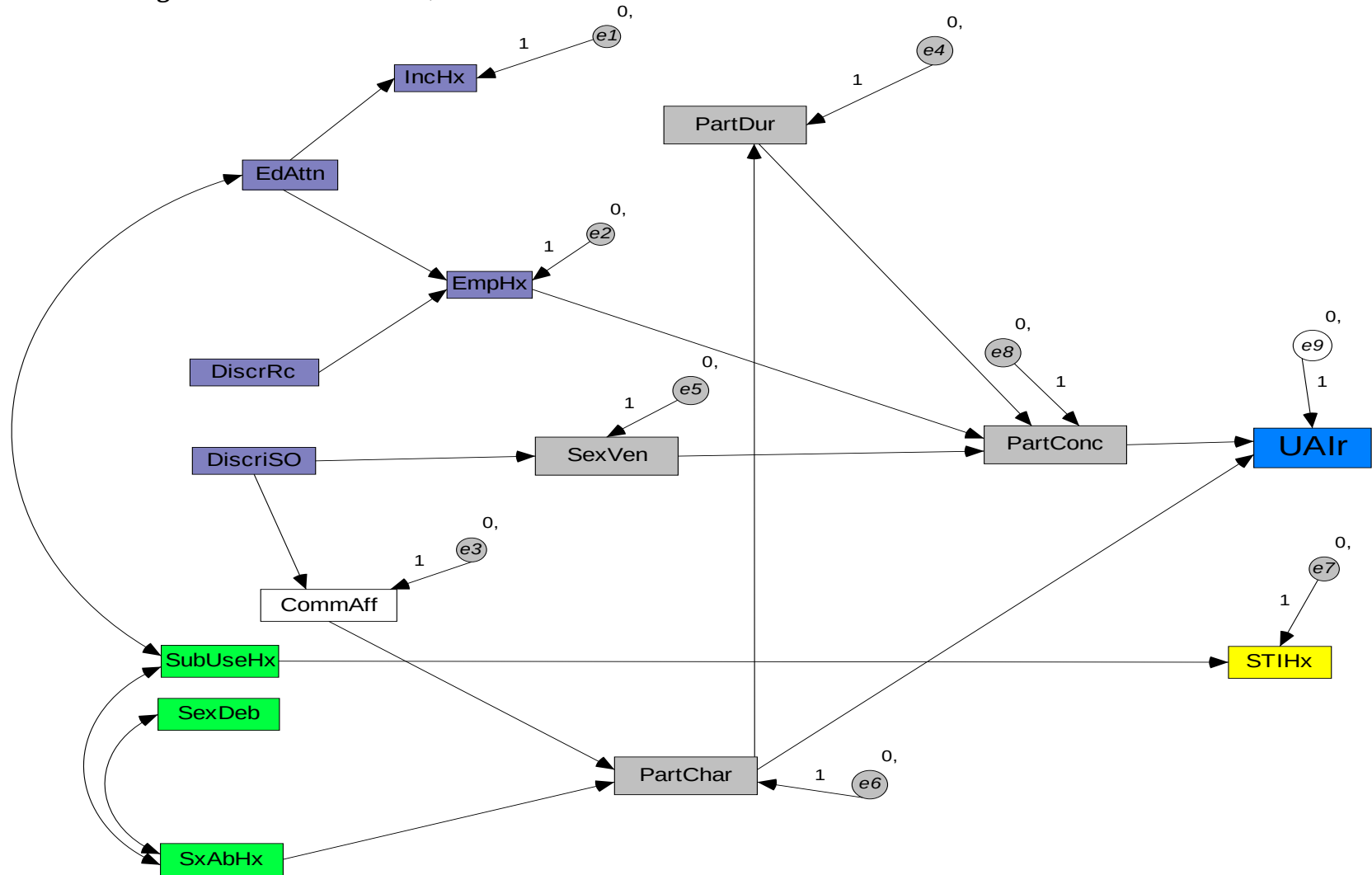
of education, employment history, history of incarceration, exposure to discrimination and stigma due to sexual orientation, exposure to discrimination and stigma due to race, and community affiliations) and HIV risk behavior factors (Unprotected Anal intercourse with committed and concurrent partners)

Figure 2: Path Diagram for HIV Cofactors and HIV Risk Behavior



In the second model psychosocial, structural and biomedical risk co-factors are hypothesized to have both direct and indirect effects through sexual network factors on high-risk behavior (see Figure 3). This model is designed to explore research question 2: What is the direct and indirect causal effect among HIV risk co- factors (biomedical -history of sexually transmitted disease, psychosocial - age at time of sexual debut, history of sexual abuse, substance use, and structural - highest level of education, employment history, history of incarceration, exposure to discrimination and stigma due to sexual orientation, exposure to discrimination and stigma due to race, and community affiliations), Sexual network factors (partnership duration, partnership concurrency, partner characteristics - age, race, HIV status, and sexual venues) and HIV risk behavior factors (Unprotected Anal intercourse with committed and concurrent partners).The study will explore which model provides a better fit for the obtained data.

Figure 3: Path Diagram for HIV Cofactors, Sexual Network Factors and HIV Risk behavior



Methods

Before we can develop and implement effective interventions for Black MSM, we must understand both the independent and interrelated factors that disproportionately place them at risk. This exploratory study seeks to uncover relationships that may exist between HIV risk co-factors and sexual network factors. It also examines the impact these relationships may have on HIV risk behavior. This information could enhance our capacity to contextualize risk co-factors and behaviors within the sexual networks of Black MSM. With greater understanding, we can work with Black MSM to develop interventions that strengthen resiliency factors and diminish those that increase risk. Findings from this study seeks to be useful to organizations working with Black MSM, by demonstrating the need to expand existing scopes of services to include treatment for issues that influence both the individual and the sexual network. It is also useful for those interested in organizing communities to challenge existing barriers to health.

The current inquiry is a secondary data analysis of quantitative data obtained with minority MSM. Kiecolt & Nathan (1985) defined secondary data analysis as a set of research processes that employ existing sets of data to answer research questions. These authors further posited that many researchers collect more data than any one primary investigator could analyze. Secondary data analyses of quantitative data sets are common and cost effective methods of expanding the knowledge gained from existing data (Cherlin, 1991; Gleit & Graham, 1989; Hinds, Vogel & Clarke-Steffen, 1997; Jacobson, Hamilton & Galloway, 1993; Miller, 1982) since they eliminate the need to find resources to hire staff to interview participants or pay participants for their participation (Mainous & Hueston, 1997). While sampling and funding constraints were considerations, the primary rationale for conducting a secondary data analysis

is directly related to the questions of interest: Often the stigma associated with homosexual behavior, as well as HIV and the size and dispersion of the population, makes the task of sampling Black MSM a challenge for researchers (Binson, Michaels, Stall, Coates, Gagnon, & Catania, 1995). Given this inquiry is specifically designed to bridge and align social work and public health approaches, the methodology illustrates the power of recalibrating both professional approaches in ways that meaningfully examine HIV risk co-factors and sexual networks within the context of the lived experience of Black MSM.

Data Source

This research project is a secondary analysis of data collected during the quantitative phase of the CDC-funded Brothers y Hermanos (ByH) research project (2003-2006). As a member of the research team, I participated in all phases of the ByH research inquiry, which I will describe in detail later in this methodology section. Notwithstanding the multiple advantages of conducting secondary data analysis, especially the opportunity to engage in a deeper investigation of an existing set of data, there is a temptation to believe in “the primacy of primary data collection” (Nicoll & Beyea 1999). Thus, several issues must be addressed in this type of analysis, including the intent of the original study (Stewart, 1984) and the credibility and quality of the data (Grinnell & Unrau, 2005). I will address these areas of concern by describing the purpose and methods of data collection employed by ByH.

Data Collection

The quantitative phase of the Brothers y Hermanos Project began data collection in July 2004 and ended March 2006 and comprised four primary goals. The first was to characterize

Black and Latino MSM on structural, socio-cultural, psychological, and behavioral dimensions relevant to understanding risk for transmitting or contracting HIV. Structural factors comprised homophobia, racial discrimination, discrimination based on sexual orientation, access to health and social services and experience with criminal justice and corrective systems. Socio-cultural factors comprised sexual identity, racial identity, acculturation (primarily for Latinos), religiosity and spirituality, socioeconomic status, employment, and age. Psychological factors comprised perceived risk for contracting or transmitting HIV, attitudes about HIV infection and HIV testing, internalized homophobia, and self-esteem. Social networks and sexual relationships comprised living arrangements, community involvement, types and length of sexual relationships, characteristics of sex partners, and prior experience with sexual or physical abuse. HIV risk behaviors comprised protected and unprotected sex acts, number of sex partners, frequency and type of substance use and sharing injection equipment. HIV status dichotomous variables included HIVnegative/HIV-positive, aware/unaware of HIV-positive status, and new/older HIV infection.

The second goal of the quantitative phase was to identify characteristics of Black MSM that are associated with sexual and drug-use behaviors that place men at risk for contracting or transmitting HIV. This goal also sought to identify characteristics that protect against becoming infected or transmitting HIV. The third goal of the quantitative phase sought to examine differences between HIV-negative and HIV-positive men, HIV-positive men who are newly infected versus those who are not, and HIV-positive men who are aware of their infection versus those who are unaware. The final goal of the quantitative phase was to use the findings to begin to design behavioral interventions tailored to Black and Latino MSM.

The study had several eligibility criteria. Given the study's focus on Black MSM in New York City, participants had to be male, 18 years of age or older, residents of NYC, Black or African American identified and had sex (oral, anal, or mutual masturbation with or without condoms) with a man in the past 12 months. Additionally, participants had to be able to give informed consent, have a coupon, and could not participate in the study more than once. The screening required that participants had to have had sex with a man during the previous 12 months. Given the design of the initial inquiry participants may have had sexual intercourse with female partners, though not exclusively.

ByH administered its survey using an audio computer-assisted self-interview (ACASI). Respondents either read or listened to the survey questions presented on the computer screen and respond directly into the computer (a laptop). The benefits of using ACASI include greater privacy and confidentiality than face-to-face interviews and may result in greater honesty in answering questions about sensitive subjects, such as sexual behaviors and substance use (Kurth et al., 2004). It places fewer reading and literacy demands on respondents than pencil-paper surveys and allows for complex skip patterns. Additionally it reduces staffing demands by allowing multiple respondents to complete surveys simultaneously and limits data entry errors.

As part of the research team during both, the qualitative and quantitative phases, I participated in the analysis of the qualitative data, which raised research questions deriving from the quantitative responses and which directly relate to my research interest. For example, we asked participants to report on their age of sexual debut in both homosexual and heterosexual contexts, history of sexual abuse and age at time of abuse. As such, we collected sexual debut, history of sexual abuse, and HIV risk co-factor data. Although not a question in the initial study,

these data can be used to examine what the relationships are among risk co-factors. Additionally, we asked participants to report on their most recent main and casual sexual partners' age and race and whether they engaged in protected intercourse during the previous six months. Consequentially, we can examine the relationships between HIV risk co-factors (e.g., histories of sexual abuse) and sexual networks factors (partner characteristics - age and race and partner currency) among Black MSM. Finally, in our analysis we can explore how these relationships affect HIV risk behavior, in particular unprotected anal intercourse receptive (UAIR) among Black MSM. In this manner, we can use these data to answer the following research questions: Is there a relationship among risk co-factors? What are the relationships between risk co-factors and sexual networks factors? How do these relationships affect HIV risk behavior –unprotected anal intercourse among Black MSM?

Conceptual and Operational Definitions

The current study uses secondary data collected using a self-administered survey. The unit of analysis is the individual. The following section describes the conceptual and operational definitions of HIV risk behavior, HIV Co Factors and Sexual Network factors. Appendices A-H, provides an overview of the measures used in the current study. Several steps were employed to develop its measures. While some questions in the Brothers y Hermanos study became individual variables, other items contributed to the development of a variable resulting from an algorithm. This section also discusses the technical adequacy (i.e., feasibility, reliability and validity) of the operational definition

HIV Risk Co-Factors

Behavioral Factors

HIV Risk Behaviors consist of Unprotected Anal Intercourse - receptive (UAIr) which is conceptually defined as experiences of being penetrated (passive) with a penis (see Appendix B). The Unprotected Anal Intercourse (UAI) scale comprised two items: The first measured unprotected anal intercourse with a committed partner and the second measured unprotected anal intercourse with casual partners. The level of measurement for the first variable was quasi-interval and the latter employed a nominal level of measurement. For unprotected sex with a committed partner, the respondent was asked to indicate the frequency of occurrence of incidences during the past three months (In the past 3 months, how often was a condom used when he put his penis in your butt). For these items, the respondent selected from 1 (always), 2 (more than half the time), 3 (about half the time), 4 (less than half the time), and 5 (never). For unprotected sex with casual partners, the respondent was asked: In the past 3 months, did you have anal sex without a condom with any casual male sex partners? The respondent then indicated the frequency of occurrence of incidences using the following values: 1 (Yes, only with one man), 2 (Yes, with more than one man), and 3 (No). Participants were categorized as 1 (UAIr with neither committed and casual partners) if they had a value of 5 for the first item and 3 for the second item, 2 (UAIr only with committed sexual partner) if they had a value of 1-4 for the first item and a value of 3 for the second item. They were labeled 3 (UAIr only with casual sexual partner) if they had a value of 5 for the first item and a value of 1 – 2 for the second item.

They were categorized as 4 (UAIr with both committed and casual partners) if they had a value of 1-4 for the first item and a value of 1 – 2 for the second item.

Bio Medical Factors

Bio Medical, psychosocial, structural forces and community factors comprise HIV Co factors. A history of Sexually Transmitted Infections (STI) comprised Bio Medical Risk (see Appendix C). History of Sexually Transmitted Infections (STI) is conceptually defined as having had at least one lifetime incident of an STI. Examples of STI are Gonorrhea, Chlamydia, Syphilis, Human Papilloma Virus, and Genital Herpes. The STI scale comprised seven items. The level of measurement was dichotomous. The respondent was asked: Have you ever had a sexually transmitted disease (STD)?and respondents selected from 1 (no) or 2 (yes).

Psychosocial Factors

The study uses sexual debut, sexual abuse and substance use to conceptualize psychosocial factors (see Appendix D). Sexual debut refers to age at time of first incident of sexual intercourse, either penetrating (active) an anus or vagina with a penis or being penetrated (passive) anally by a penis. Sexual debut was measured using ordinal variables that measured age at time of first anal sex with a male and vaginal or anal sex with a female. The respondents selected from the following choices: 1 (Never), 2 (less than 13 years old), 3 (13 to 15 years old), 4 (16 to 18 years old), 5 (19 to 21 years old), 6 (22 to 25 years old), and 7 (older than 25 years old). The two items were compared and the earliest age was used to create the ordinal sexual debut variable.

Sexual abuse refers to instances of sexual assault or being stalked by a current or former spouse, cohabitating partner, boyfriend/girlfriend, date, family member or stranger. The sexual

abuse scale asked if the respondent had ever been raped or forced to have sex and responses were conceptualized as a dichotomous variable with the values of 1 (no) and 2 (yes).

Substance use refers to the use of licit and/or illicit substances via oral ingestion, intravenous injection, or inhalation to induce intoxication. Examples include Alcohol, Crystal Methamphetamines, Crack, Marijuana, Heroin, Poppers, Ecstasy, and Special K. Substance use is measured using a scale comprising nine items. The level of measurement for each was nominal. The respondent was asked if he used “Alcohol,” “Crystal Meth (Ice or Tina),” “cocaine (powder, blow, coke),” “crack (freebase/hubby),” “marijuana (pot, weed, trees, buddah, grass, ganja),” “heroin (smack, H, horse),” “poppers (rush, amyl nitrite),” “ecstasy (E),” “GHB (G),” or “special K (ketamine or K)” in the past 3 months. The respondents selected from 2 (no), 1 (yes). The following steps describe the algorithm that created Substance use which was dichotomous. All “no” responses were recoded so that a “no” response had a value of 0 and a “yes” response had a value of 1, items were then summed with participants categorized as 1 (no substance use) if they had a value of 0 and labeled 2 (some substance use) if they had a value of 1 or greater for the second item.

Structural Factors

Structural Force is conceptualized through histories of education, incarceration and exposure to discrimination based on race, sexual orientation and community affiliations (see Appendix D). Education is conceptually defined as the level at which one’s formal education ended. Examples include 12th grade, some college, technical school graduate, college graduate, and graduate work. The level of measurement for the history of education, an ordinal variable scale comprised one quasi-interval item. Respondents were asked, “What is the highest level of

education you completed.” The respondent selected from 1 (Did not graduate from high school), 2 (Graduated from high school or GED), 3 (Graduated from a technical school), 4 (2-year college degree (AA degree)), 5 (4-year college, degree (BA)), 6 (Masters degree (MA, MS, MPH)), and 7 (Doctoral degree (PhD, JD)).

Employment history refers to current employment status (e.g., Full-time, Part-time, Unemployed, Retired or Unable to work). The employment scale comprised one quasi-interval item. For this item the respondent indicated current work status. Using an categorical level of measurement, respondents selected from 1 (Full time), 2 (Part time/Occasional), 3 (Unemployed), 4 (Retired), and 5 (Unable to work/disabled). This variable was recoded so that those who selected 1 were labeled 5, 2 were labeled 4, 3 were labeled 3, 4 were labeled 4 and 5 were labeled 1.

Incarceration is conceptually defined as having been detained in a correctional facility during one’s life. The incarceration variable scale comprised one quasi-interval item. Using an ordinal level of measurement, participants responded, 1 (Never), 2 (Once), 3 (Twice), and 4 (Three times or more) in answer to the question “Have you ever been arrested and taken to jail or prison?”

The current study conceptualizes exposure to discrimination and stigma in two ways – based on sexual orientation and race (see Appendix E). The first, exposure to discrimination and stigma based on sexual orientation refers to instances of being hit or beaten up, treated rudely or unfairly, made fun of or called names because others thought one was homosexual or not manly enough. Exposure to discrimination and stigma due to sexual orientation was measured using three quasi-interval items. Respondents were asked, “In the past 12 months, how often have you been hit or beaten up because people thought you were homosexual or not manly enough?”; “In

the past 12 months, how often have you been treated rudely or unfairly because people thought you were homosexual or not manly enough?"; and, "In the past 12 months, how often have you been made fun of or called names because people thought you were homosexual or not manly enough?" The respondents selected from 1(Never), 2 (Once), 3 (2 - 3 times), 4 (4 - 7 times), and 5 (8 or more times). The following steps describe the algorithm that created Exposure to discrimination based on sexual orientation, a dichotomous variable. The three items above were recoded so that 0 was assigned to (Never), 1 (Once), 2 (2 - 3 times), 3 (4 - 7 times), and 4 (8 or more times). The items were then summed. Participants were categorized as 1 (No, exposure to discrimination based on sexual orientation) if they had a value of 0. They were labeled 2 (Yes, exposure to discrimination based on sexual orientation) if they had a value of 1 or greater.

Exposure to discrimination and stigma based on race refers to experiences of being hit or beaten up, or treated rudely because of your race or ethnicity. Exposure to discrimination and stigma due to race was measured using two quasi-interval items. Respondents were asked, "In the past 12 months, how often have you thought that you have been hit or beaten up because of your race or ethnicity?" and "In the past 12 months, how often have you thought that you have been treated rudely or unfairly because of your race or ethnicity?" The respondents selected from 1 (Never), 2 (Once), 3 (2 - 3 times), 4 (4 - 7 times), and 5 (8 or more times). As with exposure to discrimination based on sexual orientation, the following steps describe the algorithm that created Exposure to discrimination based on race, a dichotomous variable. Responses to the two items above were recoded so that 0 was assigned to (Never), 1 to (Once), 2 to (2 - 3 times), 3 to (4 - 7 times), and 4 to (8 or more times). The items were then summed and participants were categorized as 1 (No, exposure to discrimination based on race) if they had a value of 0; they were labeled 2 (Yes, exposure to discrimination based on race) if they had a value of 1 or greater.

Community Factors

The current study conceptualizes Community Factors through community affiliation (see Appendix G). Community affiliation refers to reported feelings of being a part of a community. Examples of communities include the overall Black community (i.e., black gay and black heterosexual members), and the exclusively Black gay and exclusively white gay communities in New York City. Community affiliation was measured using three quasi- interval items. The items were “How much do you feel part of the overall Black community in New York City?”; “How much do you feel part of a Black gay community in New York City?”; and, “How much do you feel part of the larger white gay community in New York City?” The respondents selected from 1 (Very Much), 2 (Somewhat), 3 (A little), and 4 (Not at all).

Sexual Network Factors

Partnership duration

Partnership duration, partnership concurrency, partner characteristics and sexual venue comprise Network Factors (see Appendix H). Partnership duration was defined as the length of time i.e., number of months or years in current committed relationship. The level of measurement was ordinal after recoding two items. The first item asked the participant “Are you currently in a committed relationship with a man?” Participants selected 1 (Yes, with 1 man), 2 (Yes, with more than 1 man), and 3 (No). The second, asked “How long were you in or have been in this relationship?” Respondents selected from the following options: 1 (Less than 6 months), 2 (6-11 months), 3 (1-2 years), 4 (3-4 years), and 5 (5 or more years). Participants were categorized as 0 (no committed partner) if they had a value of 3 for the first item. Using the

second item for those who had a value of 1 or 2 for the first item, participants were labeled 1 (Less than 6 months), 2 (6-11 months), 3 (1-2 years), 4 (3-4 years), and 5 (5 or more years).

Partnership concurrency

Partnership concurrency is conceptually defined as engaging in sexual intercourse with a partner who is not one's primary sexual partner. The following steps describe the algorithm that created partnership concurrency, a dichotomous variable. Partnership concurrency measurement comprised two items. The first item asked the participant "Are you currently in a committed relationship with a man?" For this item, the respondents selected from 1 (Yes, with 1 man), 2 (Yes, with more than 1 man), and 3 (No). The second item asked participants the following question: In the past 3 months, did you have anal sex without a condom with any casual male sex partners? 1 (Yes, only with one man), 2 (Yes, with more than one man), or 3 (No). Participants were categorized as 0 (no partner concurrency) if they had a value of 3 for the first item and 1 for the second item or 3 on for both items. Participants were labeled 1 (Yes, partner concurrency) if they had a values of 1 or 2 for the first item and 1 or 2 for the second item.

Partner characteristics

Partner characteristics refer to attributes of both committed and casual sexual partners. Examples of partner characteristics include age, and race/ethnicity. The partner characteristics scale comprised sixteen items: Eight items corresponded to committed partner characteristics and eight items were related to concurrent partner characteristics. For both committed and concurrent partners, the analysis used a quasi-interval level of measurement and in all cases respondents were asked their age (i.e., How old are you?) and the age of their partner (i.e., How old is he?). Respondent answered 1 (Less than 16), 2 (16-20), 3 (21-25), 4 (26-30), 5 (31-35), 6 (36-40), 7

(41-50) and 8 (Over 50). Next, for both committed and concurrent partners, respondents were asked the racial/ethnic group or groups best describes their partner (i.e., Which racial/ethnic group or groups best describes him? “Asian,” “American Indian or Alaskan Native,” “Black or African American,” “Latino or Hispanic,” “Native Hawaiian or Pacific Islander,” and “White”). Respondents answered 0 (No) and 1 (Yes). The following steps describe the algorithm that created committed and casual partner characteristics, a categorical variable. First the respondent’s age was transformed into a categorical variable where the respondent was categorized as 1(Less than 16) if they had a 16 years old or less, 2 (16-20) if they were between 16 and 20, 3 (21-25) if they were between 21 and 25, 4 (26-30) if they were between 26-30, 5 (31-35) if they were between 31-35, 6 (36-40) if they were between 36-40, 7 (41-50) if they were between 41-50 and 8 (Over 50) if they were 50 years old or older.

Next, these newly created categories were compared to responses to “How old is he?” If the values for the latter were less than those for the former the respondent was categorized as 1(younger partner), 2 (same age partner) and 3 (older partner). This newly created category was compared to responses to “Which racial/ethnic group or groups best describes him?” Participants were labeled as 0 (no main partner) if they had no main partner, 1 (younger black partner) if they had a value of 1 for the newly created variable and 1 (Yes) for the question Race of Lover: Black. They were labeled 2 (younger other partner) if they had a value of 1 for the newly created variable and 1 for Race of Lover: Asian, American Indian or Alaskan Native, Latino or Hispanic, Native Hawaiian or Pacific Islander, or White. Participants were labeled as 3 (same age black partner) if they had a value of 2 for the newly created variable and 1 (Yes) for the question Race of Lover: Black. They were labeled 4 (same age other partner) if they had a value of 1 for the newly created variable and 1 for Race of Lover: Asian, American Indian or Alaskan Native,

Latino or Hispanic, Native Hawaiian or Pacific Islander or White. Participants were labeled as 5 (older black partner) if they had a value of 3 for the newly created variable and 1 (Yes) for the question Race of Lover: Black. They were labeled 5 (older other partner) if they had a value of 3 for the newly created variable and 1 for Race of Lover: Asian, American Indian or Alaskan Native Latino or Hispanic, Native Hawaiian or Pacific Islander or White. These procedures were repeated for the casual partner.

Finally, Characteristics of Committed partners was compared with characteristics of casual partners to create the categorical variable Partner Characteristics. Participants were labeled 0 (no partner characteristics) if they had neither committed nor casual sexual partners. They were labeled 1 (younger other sexual partners) if they had a value of 2 for both committed and casual partners, 2 (same age other partner only) if they had a value of 4 for both committed and casual partners, 3 (older other partner only) if they had a value of 6 for both committed and casual partners, 4 (Mixed partner characteristic) if they had different values ranging from 1 to 6 for committed partner and 1 to 6 for casual partner, 5 (younger black sexual partners) if they had a value of 1 for both committed and casual partners, 6 (same age black partner only) if they had a values of 3, for both committed and casual partners, and 7 (older black partner only) if they had a value of 5 for both committed and casual partners.

Sexual venue

This project conceptualizes sexual venue as locations where sexual intercourse occur. Examples of sexual venue include parks, subway stations, private house sex parties, train/subway cars, college/university campuses, bath houses, sex clubs (e.g., leather, s & m), dance club/bars, video/book store, peep shows, movie theaters, home/residences, public restrooms, public

libraries, partner's home/residences, museums, someone else's home\residences, strip clubs, hotel or motels, in a car, and on the street (alleyway, parking lot). Sexual venue scale comprised 22 items. The level of measurement for each was dichotomous and asked the participant, "During the past 3 months in which of the following places have you had sex (oral, anal or mutual masturbation) with a man in New York City?" The places were "Park," "Subway Station," "Private House Sex Party," "Train/Subway Car," "College/University Campus," "Bath House," "Sex Club (e.g., Leather, S & M)," "Dance Club/Bar," "Video/Book Store," "Peep Show," "Movie Theatre," "Your home/residence," "Public Restroom," "Public Library," "His home\ residence," "Museum," "Someone else's home\residence," "Strip Club," "Hotel or motel," "In a car", and "On the street (alleyway, parking lot)." Respondents answered 0 (No) or 1 (Yes). The following steps describe the algorithm that created sexual venue, a categorical variable. First, respondents were categorized as 0 (neither private nor public) if they had a value of 0 for any of the following questions: "Your home/residence," "His home\ residence," "Someone else's home\residence" or "Hotel or motel" and 0 for all of the following questions: "Park", "Subway Station," "Private House Sex Party," "Train/Subway Car," "College/University Campus," "Bath House," "Sex Club (e.g., Leather, S & M)," "Dance Club/Bar," "Video/Book Store," "Peep Show," "Movie Theatre", , "Public Restroom," "Public Library," "Museum," "Strip Club," "In a car," "On the street (alleyway, parking lot)." Participants were labeled 1 (private only) if they had a value of 1 for any of the following questions: "Your home/residence," "His home\ residence," "Someone else's home\residence" or "Hotel or motel" and 0 for all of the following questions: "Park", "Subway Station," "Private House Sex Party," "Train/Subway Car," "College/University Campus," "Bath House," "Sex Club (e.g., Leather, S & M)," "Dance

Club/Bar,” “Video/Book Store,” “Peep Show,” “Movie Theatre,” “Public Restroom,” “Public Library,” “Museum,” “Strip Club,” “In a car,” “On the street (alleyway, parking lot).”

Next, respondents were labeled 2 (both private and public) if they had a value of 1 for any of the following questions “Park,” “Subway Station,” “Private House Sex Party,” “Train/Subway Car,” “College/University Campus,” “Bath House,” “Sex Club (e.g., Leather, S & M),” “Dance Club/Bar,” “Video/Book Store,” “Peep Show,” “Movie Theatre,” “Public Restroom,” “Public Library,” “Museum,” “Strip Club,” “In a car,” “On the street (alleyway, parking lot)” and 1 for any of the following questions: “Your home/residence,” “His home\ residence,” “Someone else's home\residence” or “Hotel or motel.” Finally, respondents were categorized as 3 (public only) if they had a value of 1 for any of the following questions; “Park,” “Subway Station,” “Private House Sex Party,” “Train/Subway Car,” “College/University Campus,” “Bath House,” “Sex Club (e.g., Leather, S & M),” “Dance Club/Bar,” “Video/Book Store,” “Peep Show,” “Movie Theatre”, , “Public Restroom,” “Public Library,” “Museum,” “Strip Club,” “In a car,” “On the street (alleyway, parking lot)” and 0 for all of the following questions: “Your home/residence,” “His home\ residence,” “Someone else's home\residence” or “Hotel or motel.”

Technical adequacy

There are three aspects of technical adequacy: feasibility, reliability and validity (Macmann, Barnett, Allen, Bramlett, Hall, & Ehrhardt, 1996). Feasibility addresses whether or not the operational definition is actually “do-able.” For example, using data previously collected as part of a larger study makes this research project inexpensive and easier to conduct than other forms of data collection (e.g., telephone interviews).

Reliability of the instrument addresses the degree to which the instrument demonstrates consistent results. Research must also address both external and internal validity. External validity determines the extent to which findings can be generalized to the population at large. Since sampling a population is unlikely and not necessary, we must choose between representative sampling and non-representative sampling.

Representative sampling includes random, simple stratified, matching and quota sampling. Random sampling offers every individual an equal opportunity of selection to participate. Matching or quota sampling is possible when we are aware of the characteristics of the population. In contrast, data non-representative sampling, e.g., convenience sampling, makes best use of limited resources.

This study employs data collected using Respondent Driven Sampling (RDS). RDS begins with a selection of seeds - the first group of individuals selected by research staff in consultation with core consulting group (CCG) members. The CCG comprised members of the community who worked with and participated in activities involving Black MSM. ByH and its CCG members used sexual identity, age, and HIV status as required demographic factors for seed selection. We also select seeds based on additional characteristics (e.g., economic status, place of birth) to increase the diversity of the sample population. All seeds are required to complete the research instrument prior to recruiting additional participants. Seeds could recruit men from their networks by distributing coupons given upon completion of the survey. RDS increases the potential of reaching a diverse group of Black MSM from multiple demographics who may be inaccessible through traditional venue based outreach (Heckathorn, Semaan, Broadhead & Hugh, 2002).

Traditionally internal validity requires eliminating potentially contaminating variables and examining the relationship among the variables in the hypothesis for temporal priority and covariation. Random assignment reduces potentially contaminating variables (PCV). However, in a convenience sample participants are not randomly assigned to experimental conditions. Therefore, we must consider statistically controlling for PCV. For example, conceptually, older men may have greater numbers of experiences of discrimination due to race. As such, age differences in reporting discrimination or stigma due to race may influence our outcomes. Should incidents of discriminatory experiences be related to risk, then the researcher may be tasked with disentangling numbers of incidents from cumulative experiences. Finally, temporal priority requires that the antecedent variable precede the consequent variable. Temporal priority will be addressed specifically in the following section concerning path analysis.

Data Analysis

Data Preparation

The following section address the methods employed to answer the research questions. Research question 1, asked what is the direct and indirect causal effect among HIV risk co-factors (biomedical -history of sexually transmitted infection, psychosocial - age at time of sexual debut, history of sexual abuse, substance use, and structural - highest level of education, employment history, history of incarceration, exposure to discrimination and stigma due to sexual orientation, exposure to discrimination and stigma due to race, and community affiliations) and HIV risk behavior factors (Unprotected Anal intercourse receptive with committed and concurrent partners). For this question, the analysis rejected the null hypothesis which argued that there is no direct or indirect interactions among HIV risk co-factors and HIV behavior risk factors (UAIr). This question was followed by an intermediary step that examined the indirect causal effect among HIV risk co- factors and HIV risk behavior factors (Unprotected Anal intercourse receptive with committed and concurrent partners).

The final question, research question 2, asked what is the direct and indirect causal effect among HIV risk co- factors (biomedical -history of sexually transmitted disease, psychosocial - age at time of sexual debut, history of sexual abuse, substance use, and structural - highest level of education, employment history, history of incarceration, exposure to discrimination and stigma due to sexual orientation, exposure to discrimination and stigma due to race, and community affiliations), sexual network factors (partnership duration, partnership concurrency, partner characteristics - age, race, HIV status, and sexual venues) and HIV risk behavior factors (Unprotected Anal intercourse with committed and concurrent partners).

Data analysis was conducted in several stages. First there was data preparation. Data preparation involved selecting those participants from the ByH Survey who identified as Black or African American ($n=614$) and their responses to specific study variables drawn from the ByH data set. These specific variables are itemized in Appendix A-H.

Using Statistical Package for Social Sciences (SPSS) version 17.0 the characteristics of respondents, their frequency of engaging in HIV risk behavior, HIV risk co-factors and sexual network factors were evaluated for univariate normality using histograms, probability plots and tests for skewness and kurtosis and to specify univariate outliers. Skewness is a measure of the asymmetry of a distribution. A normal distribution is symmetric and has a skewness value of 0. A distribution with a significant positive skewness has a longer right tail. This is taken to mean that the distribution has a few relatively high scores. A distribution with a significant negative skewness has a longer left tail, and has a few relatively low scores. The analysis makes use of the standard error of the mean (SEM). The SEM is a measure which informs the analysis of the sample mean's distance from the true population mean. With a large sample, by convention the 67% confidence interval extends approximately one SEM in each direction from the mean. The 95% confidence interval extends approximately two SEMs from the mean in each direction. Therefore, a conventional guideline for assessing the skewness of a sample recommends that a skewness value more than twice its standard error is taken to indicate a departure from symmetry and may bias tests of means (DeCarlo, 1997).

Kurtosis also refers to the shape of the distribution. Kurtosis values typically fall between -2 and $+2$. However, values between -1 and $+1$ are considered excellent (Joanes, & Gill, 1998). A kurtosis value near zero indicates a normal distribution. A positive kurtosis, leptokurtosis, may indicate a peaked distribution, where values cluster around the mean. In contrast, a negative

kurtosis, platykurtosis, indicates a distribution where more values accumulate around the tails than around the mean. Negative and positive kurtoses contribute to understanding our findings, especially with regards to procedures examining variance and covariance (DeCarlo, 1997). Specific steps, namely log transformation were employed in cases where skewness threatened the data's robustness.

Next, univariate analysis was conducted using SPSS to describe the characteristics of respondents in the study (i.e., age, sexual orientation, length of residency in the United States and New York City, neighborhood and borough of residence, and self reported HIV status at last time tested) and their frequency of engaging in HIV risk behavior (unprotected receptive anal intercourse with committed and concurrent partners). Univariate analysis was also conducted to examine frequencies of HIV risk co-factors – biomedical (history of sexually transmitted diseases), psychosocial (age at time of sexual debut, history of sexual abuse, substance use), and structural (highest level of education, employment history, history of incarceration, exposure to discrimination and stigma due to sexual orientation, exposure to discrimination and stigma due to race, and community affiliations). Sexual network factors (partnership duration, partnership concurrency, characteristics of committed and concurrent partners – age, and race, and sexual venue) were also examined using univariate analysis.

Path Analysis

Path analysis is a form of causal modeling which examines a set of variables in order to explore both direct and indirect relations among the variables. Thus, to examine whether HIV risk co-factors have both direct and indirect effects on HIV risk behavior factors and sexual network factors, and ultimately to answer the research questions, path analyses were conducted.

Causal modeling uses multiple regression to establish the possibility of a cause and effect relationship among a set of variables (Sprinthall, 2000; Mertler & Vannatta, 2001). Multiple regression analysis analyzes the relationship between a single dependent variable and several independent variables which enables the researcher to examine the strengths of the effects of one variable on another while controlling for other variables (Borg, Gall, & Gall, 1993). Path analysis builds upon these methods by modeling both direct and indirect causal effects among variables (Mertler & Vannatta, 2001).

In this set of variables, variation among certain variables may be predetermined by conditions outside of the consideration of the current analysis. Exogenous variables which are outside of the analysis have no causal links to or from other variables in the model, nor do they have explicit causes within the model. For example, while we may build the argument that having experienced discrimination due to one's sexual orientation may be related to one's community affiliation, a variable under consideration in the present study, these experiences may also be related to the subject's physical presentation which is not a variable measured in this study. In contrast, other variables are taken to have some linear relationship to other variables within the set of variables under consideration. These variables are referred to as endogenous variables; they have explicit causes within the model. Finally, residual variables, also known as the error term, are used to account for any variance in the endogenous variables that has not been explained by those variables measured (Mertler & Vannatta, 2001). A direct effect occurs as one exogenous variable changes the endogenous variable. Indirect effects signify changes in the dependent variable due to the effect of one exogenous variable upon another exogenous variable. In the latter case, these effects are often due to elements not considered by the research plan and researcher during the development of the model and the model specification process.

Model specification is the preliminary step in path analysis and is guided by the research literature. However, it may also be guided by formal and informal theories and observations. Model specification is represented in diagrammatic form (Mertler & Vennatta, 2001). Land (1969), citing work by Sewall Wright, states that path diagrams represent casual relationships with a unidirectional arrow between exogenous variables and their determining variables representing the direction of the relationship. Arrows are also used to represent residual variables which, attached to residual symbols, indicate that these variables are not measured. A second set of arrows, bidirectional, designate noncausal relationship between exogenous variables. In other words, they indicate that a directional relationship was not determined in the model specification phase, but there may nevertheless be a relationship between these variables.

Next, path analysis affixes numerical values above or close to the arrow to indicate the path coefficients. These path coefficients are used to examine direct and indirect effects, variance or measurement error, and critical ratios which test for statistical significance. A path coefficient denotes the size of expected change in the endogenous variable for each unit of change in the associated exogenous variable. Direct effects in a path model flows from the variable on the left to the variable on the right of the arrow head. Indirect effects refer to one or more intervening or mediating variable which passes on some of the causal effects from one variable to a subsequent variable. For example, if x has a direct effect on y , and y has a direct effect on z , then x has an indirect effect on z . Cohen offered guidelines for determining the effect size of the path coefficient by interpreting effect size estimates relative to other effect sizes.

These guidelines are generally accepted in the social sciences but have not been adopted into the current social work research. As such, path coefficients that are close to zero may designate a spurious association or the inference of an existing significant or causal relationship

when there is none. In these cases, two variables may be statistically related but not causally related; in fact, their relationship may be caused by a third, unmeasured variable. For example, early sexual debut may be statistically related to history of sexual abuse, although we cannot say that there is a causal relationship between early sexual debut and history of sexual abuse. In as much as this may be the case, traditionally, analysis labels magnitudes of effect size; a small effect size is indicated if $r = .10$, whereas $r = .30$ indicates medium-sized effects, and $r = .50$ indicates large sized effects were observed. If the path coefficient is large, i.e., $\geq .5$, then we may reject the hypothesis that the relationship is spurious. However, Cohen (1988) cautioned that the size of the effect may be determined by the validity of the measures employed, experimental, control or both.

Variance is related to the size of effects and are typically related to unmeasured variables as well as error associated with the research instrument and changes in participants. Variance refers to the statistical dispersion of the variable of interest from the expected value, the mean. Anticipating the effect of measurement error is critical for appropriately interpreting the results of research studies. In order to account for these potential sources of errors, path analysis includes residual terms. Residual terms represent the combined effect of any determinant of the variable which has not been included in the model during its specification, previously described.

In addition to these variables which have not been included, the model, as determined by the researcher may not adequately describe the interaction of its constituent variables. For this reason, model fit must be assessed. That is, the model must describe the true interactions among the variables: As such, this analysis utilized structural equation modeling software, Analysis of Moment Structures (AMOS) version 16 Software to perform the path analysis. More specifically, to assess the model's absolute fit, the analysis employed analyses of the critical

ratios, chi-square statistic, Comparative Fit Index (CFI) and Root Square Error of Approximation (RMSEA) to test the discrepancy between the hypothesized model for the sample and the true population model.

First, the critical ratio (c.r.) tests the statistical significance of the variance among the model's variables. This method assesses model fit and uses model trimming to remove paths which are not statistically significant (Byrne, 2001) to ensure inclusion of those variables that contribute to variance. Critical ratio operates as a z-statistic and tests whether the estimate is statistically different from zero by dividing the variance by its standard error. AMOS prints the estimated standard error of the parameter next to the parameter value. The analysis uses the standard error of the mean, $\sigma/\sqrt{N}$ to form the Z for hypotheses about the difference between a sample mean and some hypothesized value.

$$Z = \frac{\bar{X} - \mu_H}{\sigma/\sqrt{N}}$$

Amos prints the critical ratio as well as the estimated *p*-values next to the critical ratio. The *p* gives the approximate two-tailed probability for the critical ratios. If the critical ratio exceeds ± 1.96 the researcher rejects the null hypothesis (i.e., the variance equals 0.0). Byrne (2001) recommended model trimming to enhance the model fit or removing non-significant parameters from the model, to improve the accuracy of its specification.

Next, the chi-square statistic is used to determine how well the model matches the observed covariance in the analysis. A non-significant chi square represents a good fit of the model since a high probability associated with the chi-square statistic represents closer fit between the hypothesized model and the observed data. The Comparative Fit Index (CFI)

compares the specified model with a created, comparative model that assumes that there are no correlations between the variables in the model. It is generally accepted that models with a CFI equal to or greater than .90, account for 90% of the covariance in the data. Root Square Error of Approximation (RMSEA) of .05 or less indicates good fit while a RMSEA value of .10 or more represents a poor fit. Next a cutoff criterion is established in order to avoid the likelihood of Type I error (i.e., rejecting the null hypothesis when it is true) and Type II error (accepting the null hypothesis when it is false). AMOS 16 provides the researcher with a Comparative Fit Index (CFI). CFI compares the fit of the hypothesized model to the null or independence model, in which case all variables in the model were uncorrelated. Hu and Bentler (1999) recommend a value of .96 for CFI and .06 for RMSEA. These values result in the least sum of Type 1 and Type II errors.

Results

Social Work requires the professional to take an empathic stance—to perceive the world from the position of the client—in order to engage service recipients, whether individual, family, or group, while recognizing the role of the environment. The embeddedness of social processes is fundamental to the person in environment perspective, ecosystems theory and other forms of thought that contribute to social work practice and interventions. This chapter presents the results of the secondary analysis of data collected by the Brothers y Hermanos research project between 2004 and 2006 and reveals the dynamic interactions among several factors within the environment of a sample of Black MSM. To provide an understanding of who these Black MSM are and foster insight into their experience, the study examined their demographic and descriptive attributes.

Demographic and Descriptive Statistics

HIV status, orientation, racial/ethnic identification

Table 1 presents the unweighted demographic characteristic of the Brothers y Hermanos New York sample overall. Among respondents, 55.7% indicated that they were HIV positive whereas 36.3% reported being negative, indeterminate or unaware of their HIV status. A majority (55.4%) of participants identified as homosexual, 32.1% reported an identified bisexual sexual orientation, and 5.9% reported being heterosexual. The median age was 42 and the mean age was 40.82. A quarter (24.9%) of participants were between 41-45 years of age, followed by age group 46-50 years (18.1%). In terms of age, participants above 30 years old were more likely to be HIV positive than younger men; for example, 5.9% of participants 29 years old or younger reported being HIV positive, in contrast to 92.6% of participants 40 years old and above who

reported positive serostatus. The majority (95.3%) of participants indentified as Black/African American; 4.4 identified as Bi-racial or Multiracial.

Citizenship, Immigration, area of residency and income levels

Of all respondents 90.6% reported US citizenship; 92% had resided in the US for 21 or more years. Only 2.8% reported residing in the US for less than 5years. In terms of New York City (NYC) residency, 63% resided in NYC for 21 years or more, with 15.3% having resided in New York for 5 years or less, and 6% residing in the region between 16 – 20 years. At the time of the survey, roughly equal portions of respondents resided in three of New York City's counties (called boroughs), the Bronx (21%), Brooklyn (32.2%) and Manhattan (30.6%). Within these popular areas, participants reported residing in 35 neighborhoods in NYC. Respondents from the following 13 neighborhoods represented more that 75% percent of the sample: Bedford Stuyvesant - Crown Heights (12.1%), Central Harlem - Morningside Heights (7.3%), Williamsburg - Bushwick (6.2%), East Flatbush - Flatbush (5.7%), Fordham - Bronx Park (5.4%), Crotona - Tremont (5%), Chelsea - Clinton (4.7%), Union Square - Lower East Side (4.4%), Upper West Side (4.4%), and Washington Heights - Inwood (4.2%).

Almost 32% of respondents reported incomes of \$5,000 or less. Roughly equal portions reported incomes of \$5,000-\$9,999 (23.5%) and \$10,000-\$19,000 9 (23.1%). Only 6% reported incomes at or above \$30,000. These findings stand in stark contrast to the \$46,523 which the US Census Bureau reported as the median family income for a single earner family (US census Bureau, 2009).

Table 1: Demographic and Background Characteristics (n=614)

<u>Age</u>		<u>Income</u>	
	<u>N</u> <u>%</u>		<u>N</u> <u>%</u>
<21 years old	14 (2.3)	Less than \$5,000	196 (31.9)
21 - 25 years old	54 (8.8)	\$5,000 - \$9,999	144 (23.5)
26 - 30 years old	32 (5.2)	\$10,000 - \$19,999	142 (23.1)
31 - 35 years old	55 (9.0)	\$20,000 - \$29,999	45 (7.3)
36 - 40 years old	104 (16.9)	\$30,000 - \$39,999	38 (6.2)
41 - 45 years old	153 (24.9)	\$40,000 - \$49,999	17 (2.8)
46 - 50 years old	111 (18.1)	\$50,000 - \$59,999	11 (1.8)
51 - 55 years old	59 (9.6)	\$60,000 - \$69,999	6 (1.0)
56+ years old	30 (4.9)	\$70,000 - \$79,999	2 (0.3)
		\$80,000 or more	1 (0.2)
<u>Sexual Orientation</u>		<u>Result of most recent HIV test</u>	
	<u>N</u> <u>%</u>		<u>N</u> <u>%</u>
Heterosexual or "Straight"	36 (5.9)	Negative	212 (34.5)
Homosexual or Gay	340 (55.4)	Positive	342 (55.7)
Bisexual	197 (32.1)	Did not get the result of the last test	9 (1.5)
Other	39 (6.4)	Indeterminate	2 (0.3)
<u>Borough</u>			
	<u>N</u> <u>%</u>		<u>N</u> <u>%</u>
Bronx	129 (21.0)	Queens	38 (6.2)
Brooklyn	198 (32.2)	Staten Island	4 (0.7)
Manhattan	188 (30.6)		
<u>Neighborhood</u>			
	<u>N</u> <u>%</u>		<u>N</u> <u>%</u>
Crotona – Tremont	31 (5.0)	Chelsea - Clinton	29 (4.7)
Fordham - Bronx Park	33 (5.4)	East Harlem	20 (3.3)
High Bridge - Morrisania	22 (3.6)	Gramercy Park - Murray Hill	13 (2.1)
Hunts Point - Mott Haven	20 (3.3)	Lower Manhattan	1 (0.2)
Kingsbridge - Riverdale	2 (0.3)	Union Square - Lower East Side	27 (4.4)
Northeast Bronx	8 (1.3)	Upper West Side	27 (4.4)
Pelham - Throgs Neck	13 (2.1)	Washington Heights - Inwood	26 (4.2)
Bedford Stuyvesant - Crown Heights	74 (12.1)	Jamaica	18 (2.9)
Bensonhurst - Bay Ridge	1 (0.2)	Long Island City - Astoria	5 (0.8)
Borough Park	2 (0.3)	Ridgewood - Forest Hills	1 (0.2)
Canarsie - Flatlands	5 (0.8)	Rockaway	2 (0.3)
Coney Island - Sheepshead Bay	3 (0.5)	Southeast Queens	10 (1.6)
Downtown - Heights - Slope	11 (1.8)	West Queens	2 (0.3)
East Flatbush - Flatbush	35 (5.7)	Port Richmond	1 (0.2)
East New York	25 (4.1)	Stapleton - St. George	3 (0.5)
Greenpoint	3 (0.5)	Sunset Park	1 (0.2)
Central Harlem - Morningside Heights	45 (7.3)	Williamsburg - Bushwick	38 (6.2)

Testing revealed no significant relationship between any cofactors (i.e., Structural, Biological, and Psychosocial Factors) and HIV status, Sexual orientation or Age. The study removed these variables as covariates and examined the descriptive data concerning each factor. Table 2 presents the unweighted characteristics of those factors (i.e., HIV Risk behavior, HIV Cofactors, and Sexual network factors) which the current study is designed to explore.

Table 2: Descriptive data – Unprotected Anal Intercourse – receptive, HIV Cofactors, Sexual Network Factors

<u>Unprotected Anal Intercourse Receptive (UAIR)</u>			
	N	%	
With Neither Committed nor Casual Partner	89	(14.5)	
Only with committed partner	148	(24.1)	
Only with Casual Partner	52	(8.5)	
With Both Committed and Casual Partner	323	(52.6)	

<u>History of STI (STIHx)</u>		<u>Employment History (last 6mons) (EmpHx)</u>		
	N	%	N	%
No	182	(29.6)	Unable to work (disabled)	133 (21.7)
Yes	432	(70.4)	Retired	8 (1.3)
			Unemployed	268 (43.6)
			Part time/ Occasional	118 (19.2)
			Full time	84 (13.7)

<u>Sexual Debut (SexDeb)</u>		<u>History of Incarceration (IncHx)</u>		
	N	%	N	%
Less than 13 years old	204	(33.2)	Never	225 (36.6)
13 to 15 years old	174	(28.3)	Once	126 (20.5)
16 to 18 years old	136	(22.1)	Twice	110 (17.9)
19 to 21 years old	60	(9.8)	Three times or more	151 (24.6)
22 to 25 years old	21	(3.4)		
Older than 25 years old	10	(1.6)		

<u>History of Sexual Abuse (SxAbHx)</u>		<u>Exposure to discrimination based on Sexual Orientation (DiscriSO)</u>		
	N	%	N	%
No	430	(70.0)	No, Exposure	342 (55.7)
Yes	184	(30.0)	Yes, Exposure	271 (44.1)

<u>History of Substance Use (last 6mons) (SubUseHx)</u>		<u>Exposure to discrimination based on Race (DiscrRc)</u>		
	N	%	N	%
No Substance Use	143	(23.3)	No, Exposure	295 (48.0)
Some Substance Use	469	(76.4)	Yes, Exposure	319 (52.0)

	N	%		N	%
Did not graduate from high school	132	(21.5)	No Community Affiliation	69	(11.2)
Graduated from high school or GED	295	(48.0)	Only, Black Gen Community	1	(0.2)
Graduated from a technical school	26	(4.2)	Only, Black Gay Community	4	(0.7)
2-year college degree (AA degree)	84	(13.7)	Only, White Gay Community	201	(32.7)
4-year college degree (BA)	59	(9.6)	Mix, Black Gen/Gay Community	1	(0.2)
Masters degree (MA, MS, MPH)	14	(2.3)	Mix, Black Gay/White Gay Community	314	(51.1)
Doctoral degree (PhD, JD)	3	(0.5)	Mix, All Communities	19	(3.1)

Table 2: Descriptive data – Unprotected Anal Intercourse – receptive, HIV Cofactors, Sexual Network Factors

<u>Partner Duration (PartDur)</u>		<u>Partner Characteristics (PartChar)</u>	
	<u>N</u> <u>%</u>		<u>N</u> <u>%</u>
No partner Duration	326 (53.1)	No Partner	226 (36.8)
Less than 6 months	87 (14.2)	Younger Other only	108 (17.6)
6-11 months	51 (8.3)	Same age Other only	73 (11.9)
1-2 years	54 (8.8)	Older Other only	50 (8.1)
3-4 years	42 (6.8)	Mixed partner characteristics	49 (8.0)
5 or more years	53 (8.6)	Younger Black only	64 (10.4)
		Same age Black only	25 (4.1)
		Older Black only	15 (2.4)
<u>Partner Concurrency (PartConc)</u>		<u>Sexual Venue (SexVen)</u>	
	<u>N</u> <u>%</u>		<u>N</u> <u>%</u>
No Concurrency	458 (74.6)	Neither Public nor Private	190 (30.9)
Yes Concurrency	154 (25.1)	Private Only	156 (25.4)
		Both Public and Private	173 (28.2)
		Public Only	86 (14.0)

In examining HIV cofactors, descriptive analysis revealed that more than half the sample (52.6%) indicated that they had engaged in unprotected Anal Intercourse with both Committed and Casual partners. Almost three quarters (70.4%) of the sample indicated that they had a history of Sexually Transmitted infections. More than half (61.5%) reported sexual debuts before 16 years of age; another 22% reported sexual debuts before 19 years of age. Findings revealed that 30% of the sample reported having histories of sexual abuse, and 76.4% used some substance during the previous 6 months.

With regards to Educational Attainment, over three quarters of the sample (78.3%) reported attaining at least a high school diploma or GED; with 26% having received at least a 2-year college degree. Despite these levels of educational attainment only 13% of the sample reported full-time employment during the previous 6 months. Although 23% reported being unable to work due to disability or retired, 62.8% reported being unemployed or under-employed. Further, while 36.6% of participants indicated that they had no history of

incarceration, 63% reported having been arrested at least once, and almost a quarter indicated that they had been arrested three times or more.

Participants reported exposure to discrimination based on sexual orientation (44.1%) as well as race (52%). In describing their community affiliations, participants by and large indicated that they affiliated predominantly with either a mixed, black and white gay community (32.7%) or with an exclusively white gay community (32.7%). However 11.2% of the sample indicated that they had no community affiliations.

Analysis of Sexual Network Factors revealed that over half the sample (53.1%) reported no partner duration. It is important to note that partner duration was based on having a committed partner. Participants were allowed to select “Yes, with 1 man,” “Yes, with more than 1 man” or “No.” Almost thirty three percent (32.5%) reported partnerships lasting 6 months or more. Almost 75% reported engaging in concurrent relationships. Though sexual partners characteristics were diverse, 17.6% and 10.4% reported younger other partners or younger black partners, respectively. Few reported older black sexual partners (2.4%). Twenty-five percent of the sample reported engaging in sexual activities only in private settings. However 42% reported engaging in some sexual activity in public settings.

Skewness and kurtosis were evaluated to assess each variable's distribution (see Table 3). Skewness and kurtosis values near zero are generally assumed to indicate the sample was drawn from a normally distributed population.

Table 3: Means, Standard Deviations, Normality Statistics

	Mean	Standard Deviation	Skewness	Kurtosis
UAIr	3	1.163	-0.547	-1.314
Sexually Transmitted History	1.7	0.457	-0.894	-1.205
Sexual Debut	3.26	1.213	0.86	0.271
Sexual Abuse History	1.3	0.458	0.877	-1.235
Substance Use History	1.77	0.424	-1.262	-0.409
Educational Attainment	2.51	1.381	0.983	0.03
Employment History	3.02	1.276	-0.269	-0.755
History of Incarceration	2.31	1.201	0.253	-1.487
Exposure to discrimination based on Sexual Orientation	1.44	0.497	0.234	-1.952
Exposure to discrimination based on Race	1.52	0.5	-0.078	-2
Community Affiliation	4.78	1.667	-1.094	0.293
Partner Duration	1.28	1.701	1.061	-0.292
Partner Concurrency	1.25	0.434	1.147	-0.686
Partner Characteristics	1.93	2.068	0.802	-0.596
Sexual Venue	1.26	1.051	0.212	-1.204

In reviewing these statistics, several variables were highly skewed: Education Attainment (.983) Community Affiliation (1.094), Substance Use History and (-1.262), Partner Duration (1.061), and Partner Concurrency (1.147). Skewness in the dependent measure often requires log transformation to obtain more robust results and to meet the assumption of normality. Accordingly, log transformations were performed as a means to correct the deficiency. These transformations did not affect the results of the analysis. All other variables were sufficiently

normal. So that future research may replicate the analysis, Hoyle and Panter (1995) recommended that a correlation matrix should be included and accompanied by means and standard deviations (see Table 4). Intercorrelations greater than .85 indicate that multicollinearity may be an issue in the model (Kline, 1998). Multicollinearity occurs when two or more predictors in the model are correlated and provide redundant information about the response. A review of the correlations in Table 4 indicate that there is no evidence of multicollinearity.

Table 4: Correlations

	UAIr	STI History	Sexual Debut	Sexual Abuse History	Substance Use History	Educational Attainment	Employment History	Incarceration History
Unprotected Anal Intercourse (receptive)	1							
Sexually Transmitted History	-0.037	1						
Sexual Debut	-0.022	-.095*	1					
Sexual Abuse History	-0.071	0.074	-.178**	1				
Substance Use History	-.089*	.088*	-0.018	-.086*	1			
Educational Attainment	0.044	.080*	-0.009	-0.025	0.06	1		
Employment History	0.01	-0.046	0.002	-0.046	0.022	.177**	1	
History of Incarceration	-0.008	.090*	-0.065	0.044	0.064	-.187**	-.083*	1
Exposure to discrimination based on Sexual Orientation	-.104*	-0.036	0.028	.127**	.128**	-0.044	0.035	-0.016
Exposure to discrimination based on Race	0.021	-.089*	-0.007	-0.075	0.043	0.016	.089*	.125**
Community Affiliation	-.125**	0.004	.099*	0.001	0.006	-0.033	-0.041	-.116**
Partner Duration	-.252**	-0.009	0.037	0.029	0.038	-0.007	-0.013	-0.048
Partner Concurrency	-.309**	-0.004	-0.022	0.057	0.059	-.101*	-0.039	0.064
Partner Characteristics	-.472**	-0.009	.097*	.110**	0.035	0.009	-0.014	-0.058
Sexual Venue	-0.071	0.055	-0.023	0.008	.092*	-0.02	0.072	0.029

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Table 4(cont): Correlations

	Discrimination and stigma due to Sexual Orientation	Discrimination and stigma due to Race	Community Affiliation	Partnership Duration	Partnership Concurrency	Partner Characteristics	Sexual Venue
Unprotected Anal Intercourse (receptive)							
Sexually Transmitted History							
Sexual Debut							
Sexual Abuse History							
Substance Use History							
Educational Attainment							
Employment History							
History of Incarceration							
Exposure to discrimination based on Sexual Orientation	1						
Exposure to discrimination based on Race	-0.03	1					
Community Affiliation	.129**	-.115**	1				
Partner Duration	0.004	-.092*	.094*	1			
Partner Concurrency	0.054	-.092*	.085*	.267**	1		
Partner Characteristics	.100*	-0.071	.153**	.423**	.311**	1	
Sexual Venue	.089*	-0.023	0.014	0.038	.153**	0.08	1

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Path Analysis

As specified earlier, the initial steps in this analysis examined the specified model in which each HIV risk co-factor, exogenous variables, has a direct causal effect on UAIR, and endogenous variable (see Figure 2). These effects are presented in Table 5.

Table 5: Direct effects of paths outlined in the research question 1

		Effects
UAIR <---	Incarceration History	0.00
UAIR <---	Educational Attainment	0.04
UAIR <---	Employment History	0.00
UAIR <---	Discrimination and stigma due to Race	0.00
UAIR <---	Discrimination and stigma due to Sexual Orientation	-0.17
UAIR <---	STI History	-0.08
UAIR <---	Community Affiliation	0.28
UAIR <---	Sexual Abuse History	-0.18
UAIR <---	Substance Use History	0.58
UAIR <---	Sexual Debut	-0.02

Direct effects and variances are presented graphically in Figure 4.

Figure 4: Recursive path model of HIV cofactors and HIV Risk Behavior with direct effects.

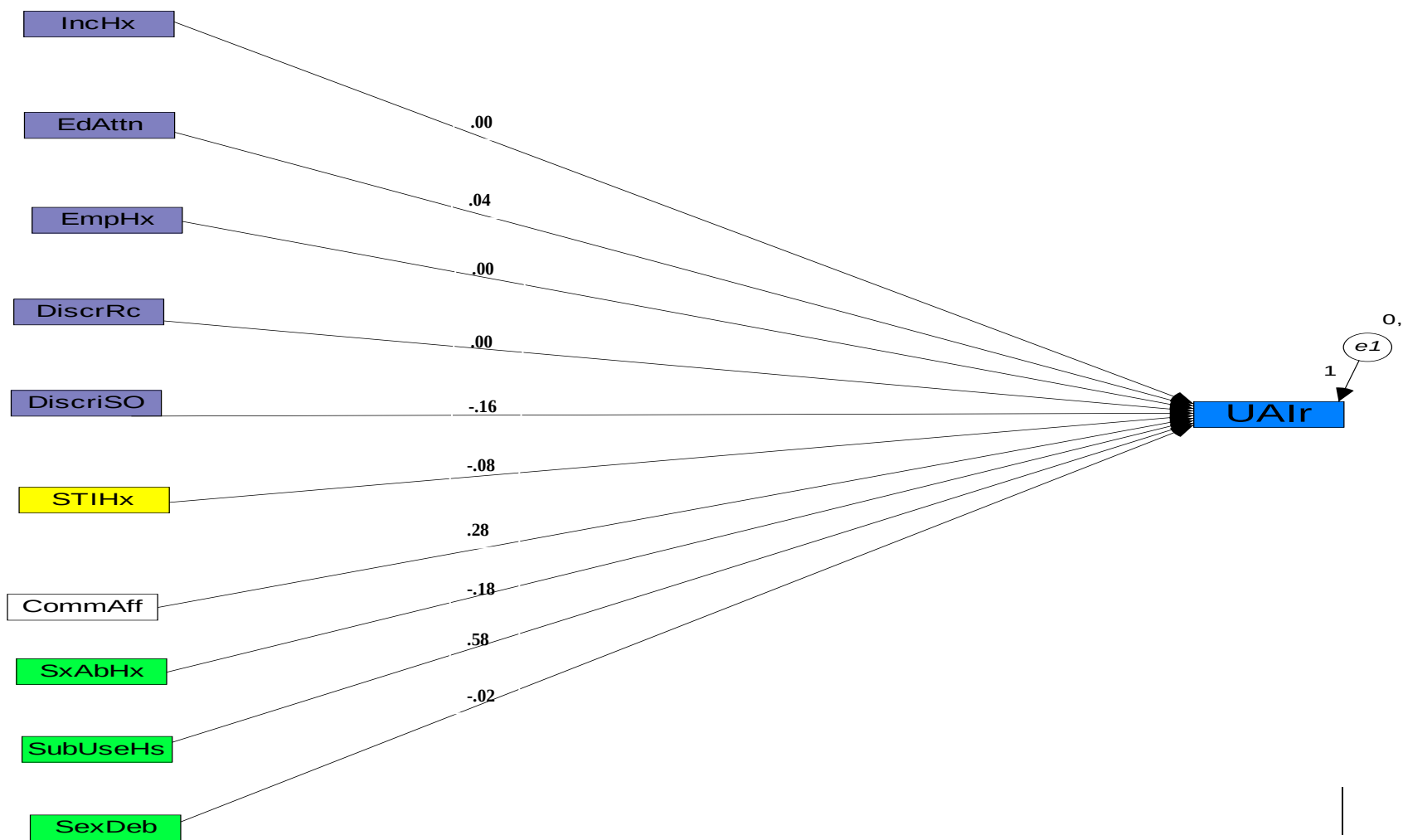


Figure 4 presents a model of the direct effects of each co-factor on HIV risk behavior. The variance, along with their standard errors and critical ratios are presented in Table 6. Eight paths in the current model were non-significant (see Table 6).

Table 6: Parameter estimates of Recursive path model of HIV cofactors and HIV Risk Behavior with direct effects; includes Regression Coefficients, Standardized Regression Coefficients, Standard Errors, Critical Ratio, and Probabilities

			Unstandardized Regression Coefficient	Standardized Regression Coefficient	Standard Error	Critical Ratio	<i>p</i>
UAIr	<---	Incarceration History	-0.002	-0.003	0.039	-0.063	0.95
UAIr	<---	Educational Attainment	0.036	0.043	0.033	1.083	0.279
UAIr	<---	Employment History	-0.002	-0.002	0.036	-0.047	0.963
UAIr	<---	Discrimination and stigma due to Race	0.004	0.002	0.092	0.047	0.963
UAIr	<---	Discrimination and stigma due to Sexual Orientation	-0.165	-0.07	0.093	-1.768	0.077
UAIr	<---	STI History	-0.084	-0.033	0.101	-0.827	0.408
UAIr	<---	Community Affiliation	0.276	0.103	0.106	2.589	0.01
UAIr	<---	Sexual Abuse History	-0.181	-0.071	0.101	-1.793	0.073
UAIr	<---	Substance Use History	0.577	0.087	0.264	2.188	0.029
UAIr	<---	Sexual Debut	-0.025	-0.026	0.038	-0.64	0.522

The direct effect of history of incarceration on UAIR was -0.002 ($c.r. = -0.063$; $p = .95$); educational attainment on UAIR was 0.036 ($c.r. = 1.083$; $p = 0.279$); employment history on UAIR was -0.002 ($c.r. = -0.047$; $p = 0.963$); exposure to discrimination and stigma due to sexual orientation on UAIR was 0.004 ($c.r. = 0.047$; $p = 0.963$); exposure to discrimination and stigma due to race on UAIR was -0.165 ($c.r. = -1.768$; $p = 0.077$); history of sexually transmitted infection on UAIR was -0.084 ($c.r. = -0.827$; $p = 0.408$); history of sexual abuse on UAIR was -0.181 ($c.r. = -1.793$; $p = 0.073$); and sexual debut on UAIR was -0.025 ($c.r. = -0.64$; $p = 0.522$).

Only two paths were found to be significant. The direct effect of community affiliations on UAIR was 0.276 ($c.r. = 2.589$; $p = 0.01$). In other words, when community affiliation increases by one, UAIR was increased by 27%. The direct effect of history of substance use on UAIR was 0.577 ($c.r. = 2.188$; $p = 0.029$). In this case when history of substance use increases by one, UAIR increases by almost 58%. As Black MSM in this study moved from no community involvement to involvement in communities that are racially mixed and includes individuals who identify as heterosexual and homosexual, their likelihood of engaging in unprotected receptive anal intercourse with both committed and casual partners increased. Similarly, as substance use increases from none to some use, likelihood of engaging in unprotected receptive anal intercourse with both committed and casual partners increased. The relationship between substance use and HIV risk behavior support previous findings (Barrett et al., 1995; Crosby, Stall, Paul, Barrett & Midanik, 1996; Dolezal, Meyer-Bahlburg, Remien & Petkova, 1995; Kalichman, Tannenbaum & Nachimson, 1998; Martin, 1990; McCusker et al., 1990; Molitor, Truax, Ruiz & Sun, 1998; Mulry, Kalichman & Kelly, 1994; Ostrow, 1994,

2000; Ostrow, Beltran, Joseph, J.G.MACS/CCD Study Group & DiFrancisco, 1993; Paul, Stall, Crosby, Barrett & Midanik, 1994; Paul, Stall & Davis, 1993; Purcell, Parsons, Halkitis, Mizuno & Woods, 2001).

However, findings concerning the relationship between community affiliation and HIV risk behaviors raises many questions from a social justice and practice standpoint. First, one may assume that feelings of isolation would contribute to high risk behavior. These findings demonstrate that this is not the case. Rather, using an eco-social epidemiological theoretical frame (Glass & McAtee, 2006) suggests the possibility of mutually reinforcing connections among HIV co-factors and HIV risk behavior among Black MSM. It would appear that the preliminary findings concerning community affiliation would argue in favor of reducing community involvement. Yet, a deep exploration such as that conducted by Mustanski, Garofalo, Herrick and Donenberg (2007), which found that the number of psychosocial health problems (e.g., binge drinking and domestic violence) significantly increased the odds of unprotected anal intercourse, urges us to reconsider the nature and complexity of individual behavior. As such, explorations of experiences of discrimination based on sexual orientation and race within integrated communities, may provide richer information on how Black MSM interpret and cope with these experience. The interventions that emerge from these exploration would move beyond reducing the number of incidents of unprotected anal intercourse to addressing the events leading up to the occurrences, placing the individual in their environment and assisting them in building effective tools.

Although almost every explanatory pathway was estimated, the specified model demonstrated poor fit ($\chi^2=187.54$, $df = 45$, $p=.000$) and these fit indexes are presented in

Table 7. As discussed previously, The Comparative Fit Index (CFI) compares the specified model with a created, comparative model that assumes that there are no correlations between the variables in the model. It is generally accepted that models with a CFI equal to or greater than .90, account for 90% of the covariance in the data. Root Square Error of Approximation (RMSEA) of .05 or less indicates good fit while a RMSEA value of .10 or more represents a poor fit., CFI equal to or greater than .90, and RMSEA of .05 or less indicate good fit. As this is not the case, the analysis concludes that the model does not fit the data.

Table 7: Fit Indexes for Experimental, Saturated, and Independence Models

Model	CFI	RMSEA
Experimental Model	.007	.072
Saturated Model	1.000	-
Independence Model	.000	.060

In keeping with the literature, to build a parsimonious model, the next step involved building paths among the exogenous variables in the model (see Figure 5).

Figure 5: Recursive path model of interactions among HIV Cofactors and HIV Risk Behavior with direct and indirect effects means and variance

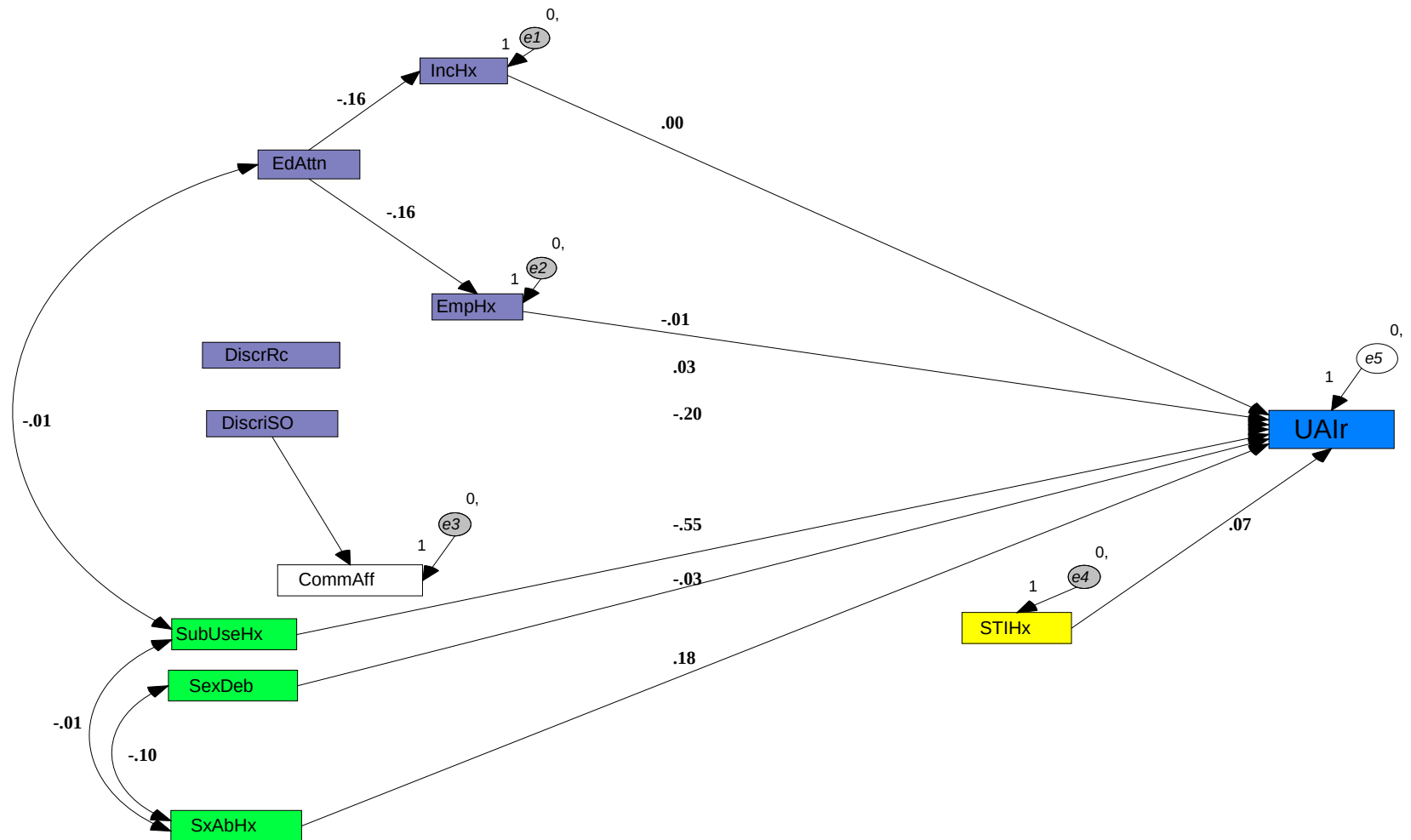


Figure 5 presents a model of the indirect effects of each co factor on HIV risk behavior. These effects are presented in Table 8.

Table 8: Direct effects of paths among HIV Cofactors

			Effects
Incarceration History	<---	Educational Attainment	-0.16
Employment History	<---	Educational Attainment	-0.16
Community Affiliation	<---	Discrimination and stigma due to Sexual Orientation	-0.11
UAIr	<---	STI History	0.07
UAIr	<---	Incarceration History	0.00
UAIr	<---	Employment History	-0.01
UAIr	<---	Discrimination and stigma due to Race	0.03
UAIr	<---	Discrimination and stigma due to Sexual Orientation	-0.20
UAIr	<---	Substance Use History	0.55
UAIr	<---	Sexual Debut	-0.03
UAIr	<---	Sexual Abuse History	0.18

Parameter estimates of the specified model are presented in Table 9 and include Regression Coefficients, Standardized Regression Coefficients, Standard Errors, Critical Ratio, and Probabilities. Analysis indicated that five paths were significant: The direct effect of history of substance use on UAIr was 0.553 (*c.r.* = 2.076; *p* = 0.038); exposure to

discrimination and stigma due to sexual orientation to UAIR was -0.198 ($c.r. = -2.111$; $\underline{p} = 0.035$); educational attainment to history of incarceration was -0.163 ($c.r. = -4.709$; $\underline{p} = <.001$); employment history was -0.163 ($c.r. = -4.418$; $\underline{p} = <.001$); and, the direct effect of exposure to discrimination and stigma due to sexual orientation to community affiliation was -0.107 ($c.r. = -3.026$; $\underline{p} = 0.002$). In addition this model resulted in a significant increase in fit compared to the base model, i.e., CFI .459 versus CFI .007. However; six paths in the current model were non-significant. The direct effect of history of sexually transmitted infection to UAIR was 0.074 ($c.r. = 0.73$; $\underline{p} = 0.466$); history of incarceration to Unprotected Anal Intercourse receptive was -0.002 ($c.r. = -0.05$; $\underline{p} = 0.96$); employment history to UAIR was -0.009 ($c.r. = -0.235$; $\underline{p} = 0.814$); exposure to discrimination and stigma due to race to UAIR was 0.030 ($c.r. = 0.327$; $\underline{p} = 0.743$); sexual debut to UAIR was -0.033 ($c.r. = -0.848$; $\underline{p} = 0.396$); and, history of sexual abuse to UAIR was 0.178 ($c.r. = 1.717$; $\underline{p} = 0.086$). The variance, along with their standard errors and critical ratios are presented in Table 8

Table 9: Parameter estimates among HIV Cofactors; includes Regression Coefficients, Standardized Regression Coefficients, Standard Errors, Critical Ratio, and Probabilities

			Unstandardized Regression Coefficient	Standardized Regression Coefficient	Standard Error	Critical Ratio	<i>p</i>
Incarceration History	<---	Educational Attainment	-0.163	-0.187	0.035	-4.709	***
Employment History	<---	Educational Attainment	-0.163	-0.176	0.037	-4.418	***
Community Affiliation	<---	Discrimination and stigma due to Sexual Orientation	-0.107	-0.122	0.035	-3.026	0.002
UAIr	<---	STI History	0.074	0.029	0.102	0.73	0.466
UAIr	<---	Incarceration History	-0.002	-0.002	0.039	-0.05	0.96
UAIr	<---	Employment History	-0.009	-0.009	0.037	-0.235	0.814
UAIr	<---	Discrimination and stigma due to Race	0.030	0.013	0.093	0.327	0.743
UAIr	<---	Discrimination and stigma due to Sexual Orientation	-0.198	-0.085	0.094	-2.111	0.035
UAIr	<---	Substance Use History	0.553	0.084	0.267	2.076	0.038
UAIr	<---	Sexual Debut	-0.033	-0.035	0.039	-0.848	0.396
UAIr	<---	Sexual Abuse History	0.178	0.07	0.104	1.717	0.086

Again, although almost every explanatory pathway was estimated, the specified model demonstrated poor fit, ($\chi^2=118.633$, $df = 41$, $p=.000$), CFI =.459, RMSEA=.056. Fit indexes are presented in Table 10. Although this model demonstrated poor fit, there was a substantial improvement from the previous model where CFI = .007

Table 10: Fit Indexes for Experimental, Saturated, and Independence Models

Model	CFI	RMSEA
Experimental Model	.459	.056
Saturated Model	1.000	-
Independence Model	.000	.060

Having addressed the first research question, the analysis sought to examine the influence of sexual network on the relationship of between HIV risk co-factors and UAIR (see Figure 6).

Figure 6: HIV Cofactors, Sexual Network Factors and HIV Risk Behavior with direct effects

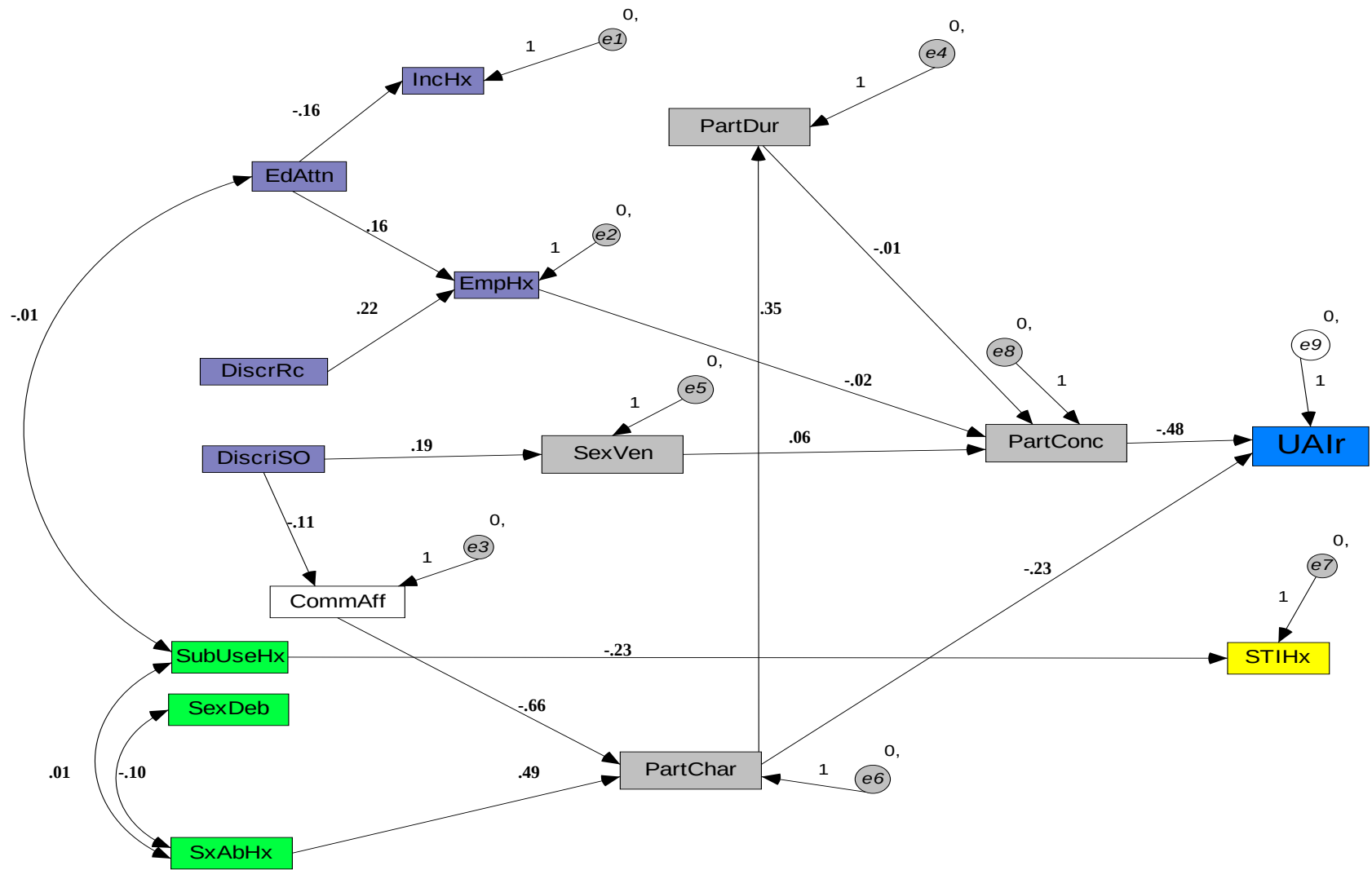


Figure 6 presents a model specified to examine research question 2, which asked, What is the direct and indirect causal effect among HIV risk co- factors (biomedical - history of sexually transmitted disease, psychosocial - age at time of sexual debut, history of sexual abuse, substance use, and structural - highest level of education, employment history, history of incarceration, exposure to discrimination and stigma due to sexual orientation, exposure to discrimination and stigma due to race, and community affiliations), Sexual network factors (partnership duration, partnership concurrency, partner characteristics - age, race, HIV status, and sexual venues) and HIV risk behavior factors (Unprotected Anal intercourse with committed and concurrent partners)? The hypothesized model, which included not only HIV risk co-factors, but also Sexual network factors, offers support for the hypothesis that biological, structural, community and psychosocial forces interact in a manner that influences BMSM's likelihood of engaging in HIV risk behavior. The findings allowed the researcher to reject the null hypothesis which argued that there is no direct or indirect interactions among HIV risk co-factors, sexual network factors and HIV behavior risk factors (e.g., unprotected receptive anal intercourse).

Additionally, the model offers support for hypothesis 2 which states that psychosocial, structural and biomedical HIV risk co-factors and Sexual network factors will interact both directly and indirectly with HIV risk behavior factors. For example, having a history of sexual abuse influences the characteristics of one's sexual partners, which in turn influences partner duration and the likelihood of engaging in high risk behavior. Similarly, a history of discrimination based on sexual orientation influences

one's community affiliation, the characteristics of one's sexual partners as well as the duration of sexual partnerships. Thus, a key finding is that as the length of one's partnerships diminishes, the likelihood of engaging in high risk sexual behavior increases.

Although this model showed poor fit ($\chi^2 = 191.14$, $df = 88$, $p = .000$), CFI = .808, RMSEA = .044 it represents a significant increase. This model accounted for almost 81% of variance in UAIR. These effects are presented in Table 11. The variances, standard errors and critical ratios are presented in Table 12.

Table 11: Direct effects of paths from co factors to sexual network factors

			Effects
Community Affiliation	<---	Discrimination and stigma due to Sexual Orientation	-0.108
Partner Characteristics	<---	Community Affiliation	-0.66
Partner Characteristics	<---	Sexual Abuse History	0.494
Sexual Venue	<---	Discrimination and stigma due to Sexual Orientation	0.186
Employment History	<---	Discrimination and stigma due to Race	0.221
Employment History	<---	Educational Attainment	0.162
Partnership Duration	<---	Partner Characteristics	0.347
Partnership Concurrency	<---	Sexual Venue	0.060
Partnership Concurrency	<---	Partnership Duration	0.067
Partnership Concurrency	<---	Employment History	-0.016
Incarceration History	<---	Educational Attainment	-0.163
UAIr	<---	Partnership Concurrency	-.481
STI History	<---	Substance Use History	-0.23
UAIr	<---	Partner Characteristics	-0.234

Table 12: Parameter estimates of the HIV Cofactors, Sexual Network Factors and HIV Risk Behavior; includes Regression Coefficients, Standardized Regression Coefficients, Standard Errors, Critical Ratios, and Probabilities

			Unstandardized Regression Coefficient	Standardized Regression Coefficient	Standard Error	Critical Ratio	<i>p</i>
Community Affiliation	<---	Discrimination and stigma due to Sexual Orientation	-0.108	-0.123	0.035	-3.046	0.002
Partner Characteristics	<---	Community Affiliation	-0.66	-0.139	0.19	-3.476	***
Partner Characteristics	<---	Sexual Abuse History	0.494	0.11	0.18	2.751	0.006
Sexual Venue	<---	Discrimination and stigma due to Sexual Orientation	0.186	0.088	0.086	2.172	0.03
Employment History	<---	Discrimination and stigma due to Race	0.221	0.087	0.101	2.182	0.029
Employment History	<---	Educational Attainment	0.162	0.175	0.037	4.401	***
Partnership Duration	<---	Partner Characteristics	0.347	0.422	0.03	11.504	***
Partnership Concurrency	<---	Sexual Venue	0.060	0.147	0.007	3.778	***
Partnership Concurrency	<---	Partnership Duration	0.067	0.262	0.004	6.789	***
Partnership Concurrency	<---	Employment History	-0.016	-0.047	0.005	-1.216	0.224
Incarceration History	<---	Educational Attainment	-0.163	-0.187	0.035	-4.71	***
UAIr	<---	Partnership Concurrency	-.481	-0.094	0.228	-5.095	***
STI History	<---	Substance Use History	-0.23	-0.088	0.105	-2.192	0.028
UAIr	<---	Partner Characteristics	-0.234	-0.422	0.02	-11.797	***
Community Affiliation	<---	Discrimination and stigma due to Sexual Orientation	-0.108	-0.123	0.035	-3.046	0.002

This model revealed 13 significant paths (see Table 12): educational attainment to history of incarceration was -0.163 ($c.r. = -4.71$; $p = < .001$); exposure to discrimination and stigma due to race to employment history was 0.221 ($c.r. = 2.182$; $p = 0.029$); educational attainment to employment history was 0.162 ($c.r. = 4.401$; $p = < .001$); substance use history to history of sexually transmitted infection was -0.23 ($c.r. = -2.192$; $p = 0.028$); exposure to discrimination and stigma due to sexual orientation to community affiliation was -0.108 ($c.r. = -3.046$; $p = 0.002$); exposure to discrimination and stigma due to sexual orientation to sexual venue was 0.186 ($c.r. = 2.172$; $p = 0.03$); sexual venue to partner concurrency was 0.060 ($c.r. = 3.778$; $p = < .001$); community affiliation to partner characteristics was -0.66 ($c.r. = -3.476$; $p = < .001$); history of sexual abuse to partner characteristics was 0.494 ($c.r. = 2.751$; $p = 0.006$); partner characteristics to partner duration was 0.347 ($c.r. = 11.504$; $p = < .001$); partner characteristics to UAIR was -0.234 ($c.r. = -11.797$; $p = < .001$); partner duration to partner concurrency was 0.067 ($c.r. = 6.789$; $p = < .001$); and, partner concurrency to UAIR was -1.162 ($c.r. = -5.095$; $p = < .001$).

One path in the current model was found to be non-significant: The direct effect of employment history to partner concurrency was -0.016 ($c.r. = -1.216$; $p = 0.224$). In this case, when employment history increased by one, partner concurrency decreased by less than 2%. Though not significant, this finding informs us that there is an association between employment and partner characteristics. In fact, interventions must consider disproportionate rates of unemployment among Black men in general and how this may impact their capacity to sustain intimate relationships. Such inquiry may challenge

stereotypes concerning black male sexuality by examining structural factors that undermine partnership stability.

The final model suggests that six of the nine HIV risk cofactor variables (i.e., educational attainment, employment history, exposure to discrimination and stigma due to sexual orientation and race, community affiliation, and history of sexual abuse) became more predictive when mediated through other HIV risk cofactor variables and/or through sexual network factors. The direct effects are as follows: educational attainment on employment history was .16; exposure to discrimination and stigma due to race on employment history was .22; employment history on partner concurrency was -.02; exposure to discrimination and stigma due to sexual orientation on sexual venue was .19; and, sexual venue on partner currency was .06. Exposure to discrimination and stigma due to sexual orientation's direct effect on community affiliation was -.11, community affiliation on partner characteristics was -.66, partner characteristics on partner duration was .35 and partner duration on partner concurrency was .07.

Finally, as with community affiliation, history of sexual abuse has a direct effect on partner characteristics (.49). This would suggest that as participants experience discrimination based on sexual orientation they were more likely to reduce their contact with communities that were mixed either racially or based on sexual orientation. In turn, as ones community affiliations comprise a diverse groups one's partner characteristics (e.g., age and race) became younger and more diverse. As the diversity of partners characteristics increased so too did the length of partnerships. Further, as history of sexual abuse increases by one the likelihood of having sexual contact with an older partner increases by almost fifty percent. In each of the previous cases, paths led to

partner concurrency. This being the case, it is important to note that the path from partner concurrency on unprotected anal intercourse receptive was $-.48$. Thus, as partner concurrency increased by one, the likelihood of engaging in unprotected anal intercourse reduced by almost fifty percent. However, one should also note that partner characteristics also have a direct effect on unprotected anal intercourse receptive ($-.23$). Therefore, as one's partner characteristics became more diverse, the likelihood of engaging in unprotected anal intercourse decreased by 25 percent. These findings demonstrate the confluence of factors faced by Black MSM which may contribute to exposure to HIV risk, even as men may engage different segments of their sexual networks in ways that reduce and offset their increased risk.

These findings contextualize previous research concerning exposure to discrimination due to sexual orientation (Cahill, 2000; Russell, Franz, & Driscoll, 2001; Martin & Knox, 1997a, 1997b) and which have pointed to social isolation as the mechanism that places men at risk for HIV infection and transmission. However, this project found that the path from exposure to discrimination or stigma associated with sexual orientation through community affiliations ($.11$), that includes partner characteristics ($-.66$), partner duration ($.35$), and partner concurrency ($.07$) to unprotected anal intercourse ($-.48$) to be the strongest path in the model. The path from exposure to discrimination or stigma associated with sexual orientation to unprotected anal intercourse argues in favor of a more indirect path. In fact, facing discrimination based on sexual orientation may lead men to limit community affiliations to communities with higher rates of infections or communities where partnership may not endure. In the latter case, failing to create enduring relationships increases the likelihood of partner

concurrency and subsequent risk. Therefore, when predicting the likelihood of engaging in unprotected intercourse, it is essential to obtain information on experiences of discrimination based on sexual orientation and how Black MSM use their community to cope with these exposures. Furthermore, understanding of how communities shape choices of sexual partners and exploring the qualities of these relationships offers insight into possible methods of mediating HIV risk behavior.

Returning to our initial model (See Figure 4) further illustrates the need to move beyond mechanistic approaches to investigating the processes through which HIV cofactors interact with each other and sexual network. In this model the direct effect of sexual debut on unprotected anal intercourse was non-significant. The direct effect was $-.02$ ($c.r. = -0.64$; $p = .522$). When age of sexual debut increased by one, likelihood of engaging in high risk behavior decreased by only 2%. Similarly, the effect size of sexual abuse history was small $-.18$ (see Figure 4). That is when sexual abuse history increased by one, likelihood of engaging in high risk behavior decreased by almost 2%. To conclude that either of these factors have little or no effect on UAIr would be erroneous, given that the influence of partner characteristics was noted earlier by Flowers, Smith, Sheeran and Beail (1998) in their qualitative investigation which found that sexual debuts among MSM by and large consisted of instances involving more experienced sexual partners and frequent unprotected intercourse. As such, when we examine the final model (see Figure 6) the analysis uncovered that sexual debut became more predictive of engaging in HIV risk behaviors when it was mediated through histories of sexual abuse ($-.10$) and partner characteristics ($.49$) to unprotected anal intercourse or through partner duration ($.35$) to partner concurrency ($.07$) to unprotected anal

intercourse receptive (-.48). From a practice standpoint, many current intervention employ abstinence as a prevention method. However, for some participants abstinence may not be a option in the case of forced sexual contact. In building interventions it is imperative that we explore the histories and impact of sexual abuse among Black MSM. Further, Flowers, Smith, Sheeran, and Beail (1998) also indicated that the impact of institutionalized homophobia blocks access to limited sexual health education, including condom usage during intercourse. This path was not explored in the final model; however, as previously discussed, the path from exposure to discrimination based on sexual orientation to unprotected anal intercourse receptive was strong.

Figure 6 offers critical information on conceptualizing the interrelated nature of psychosocial, structural and community factors on the features of sexual networks among Black MSM. This model resulted in a significant increase in fit compared to the two models which excluded sexual network factors, i.e., CFI .808 versus CFI .459 versus the base model CFI .007. However, they require closer examination of the social determinants of disease transmission. They also call for a deeper contextualization of Black MSM's responses to conflicting messages concerning their sexual desire and need for affiliation and intimacy, which may sit at odds with each other.

Byrne (2001) instructed researchers that thorough knowledge of the area of investigation, careful assessment of the various indexes of fit as well as the parsimony of the model should determine the investigator's decision to stop fitting the model. Hoyle and Panter (1995) added that post hoc modification should be attempted only in cases where there is substantive rationale for further modification. Having answered the two research questions, no post hoc model specifications were conducted.

Discussion

The preliminary research question 1, asked what is the direct and indirect causal effect amongst HIV risk co- factors (biomedical -history of sexually transmitted infection, psychosocial - age at time of sexual debut, history of sexual abuse, substance use, and structural - highest level of education, employment history, history of incarceration, exposure to discrimination and stigma due to sexual orientation, exposure to discrimination and stigma due to race, and community affiliations) and HIV risk behavior factors (Unprotected Anal intercourse receptive with committed and concurrent partners). For this question, the analysis rejected the null hypothesis which argued that there is no direct or indirect interactions among HIV risk co-factors and HIV behavior risk factors (UAIr). An intermediary step looked at the indirect causal effects among HIV risk co- factors and HIV risk behavior factors (Unprotected Anal intercourse receptive with committed and concurrent partners). The findings of this intermediary step rejected the null hypothesis which argued that there is no indirect interactions among HIV risk co-factors and HIV risk behavior factors.

Finally, the analysis examined research question 2: what is the direct and indirect causal effects among HIV risk co- factors (biomedical -history of sexually transmitted disease, psychosocial - age at time of sexual debut, history of sexual abuse, substance use, and structural - highest level of education, employment history, history of incarceration, exposure to discrimination and stigma due to sexual orientation, exposure to discrimination and stigma due to race, and community affiliations), Sexual network factors (partnership duration, partnership concurrency, partner characteristics - age, race,

HIV status, and sexual venues) and HIV risk behavior factors (Unprotected Anal intercourse with committed and concurrent partners). Based on these findings, the analysis rejected the null hypothesis which argued that there is no direct or indirect interactions among HIV risk co-factors, Sexual network factors and HIV behavior risk factors (UAIr).

Limitations

A significant limitation of the data set is that the majority of respondents were older. As stated earlier, increasing rates of seroconversion among young Black MSM is associated with older sexual partners. Theoretically, as one ages the likelihood of having a same aged or younger partner increases. Given the reduced number of young men who completed the interview, exploration of their relationship to older Black MSM could not be explored. In addition, it may be argued that the sexual networks and sexual decision making may differ among HIV negative and HIV positive men or younger MSM versus older MSM and that any analysis should examine these groups separately to determine if such differences do in fact exist. While such analyses are warranted, they are beyond the scope of the present study. What is more, when we examine the characteristics of sexual partners, for at least the interaction among older and younger MSM, we find that these groups do overlap. Therefore, we must examine these intersections; they may offer key insights into the exchange of social capital that contribute to risk and resilience.

Next, the present research relied on secondary data collected using Respondent Driven Sampling (RDS) methodology which only approximates random sampling. While it shows broader population coverage than other sampling methods, such as simulated

time-location sampling, use of this method to recruit men requires extensive fieldwork in order to acquire knowledge of the targeted communities. Second, participants require significant coaching on their participation and the process. This may help ensure that participants not only distribute all their coupons, but that they do so among their friends and not to strangers or individuals who do not qualify for the study. However, when given the opportunity to recruit other men based on coupon distribution, men were more likely to distribute coupon to those who serostatus was already known, i.e., HIV positive men. Further, despite using RDS, mainly older (>40 years old) and lower income Black MSM enrolled in the original study. Our data may therefore not be generalizable to younger and/or more affluent Black MSM.

Next, this project relied upon cross-sectional data. Cross-sectional data does not permit causal inferences. For example, our data only capture sexual activity and substance use risk behaviors that took place relatively recently (i.e., in the past 3 months) and may not reflect long-term behavioral risk patterns. Instead, future research should employ longitudinal quantitative and qualitative methodologies. Quantitative methods, most notably, randomized control experiments are highly regarded as the hallmark of experimental design, specifically because they rule out threats to internal validity, such as selection, history, maturation, instrumentation, testing, regression to the mean, differential attrition and causal order (Shadish, Cook Campbell 2002). However, despite their rigor - insistence on validity, generalizability, and reliability—quantitative methods often separates experiences from “knowing” or encourages context stripping (Guba & Lincoln, 1994; Jansick, 1994). Control and randomization often truncates the lived experience of the research participant. Further, these methods counter the notion of

discovery (Guba & Lincoln, 1994) by testing a priori hypotheses which take precedence over meanings of activity that stand outside the researcher's purview.

Future Directions

Implications for research

As social work strives to move beyond the shadow of the 1915 National Conference of Charities and Correction in Baltimore, where Abraham Flexner questioned social work as a profession, many have turned to scientific research. These methods are often characterized by hypothesis testing and the collection and analysis of data gathered systematically, including the gold standard of the randomized control trial. Adherents to the idea of "scientific research" assert that its methods are measurable, quantifiable, and operationalized (Pieper, 1985; Shadish, Cook Campbell 2002). They argue that the results of these methods are grounded in inferential statistics, are universal and free of bias. Errors are resolvable; they are incurred during examination of complex problems, researcher biases, ignorance or some deficit of the methodology. In terms of ontology, epistemology, methodology and axiology, these methods state that the nature of reality is capable of being known, objectivism or naïve realism. Adherents state that the relationship between the researcher and the world is contingent upon scientific discovery, debate and continued testing of reality.

However, critics of scientific research such as Watkins (1994), assert that there is no objective, value-free knowledge. He indicates that knowledge is often used in the service of those with power. Watkins cautions that knowledge which has become dislocated from a culture and its rituals are disembodied, digestible segments of

information. Huberman (1989) suggests that scientific knowledge must borrow or incorporate processes that contribute to the method's ability to question underlying issues of power, while enhancing its ability to uncover ideologies which constrain learning and change. Still others, such as Pawson and Tilley (1994), argue in favor of methodologies which enhance our capacity to unearth the contextual conditions which lead to outcomes. These authors have argued that social programs are most effective when individual volition, skilled action and negotiations by human agents are recognized. And, most importantly, in *Social Case Work: Generic and Specific*, the American Association of Social Workers (1935), indicated social work depends upon using the community and its resources to make better casework decisions and influence social work practice, policies and interventions. These principles are consistent with person in environment models.

Future research with Black MSM could benefit from more robust measurement of discrimination based on race and sexual orientation as well as measures of community affiliation. These studies would examine cognitive appraisals of discrimination as well as community affiliation. Further, qualitative inquiry undertaken to elaborate the Black MSM's experiences must identify ways of perceiving, conceiving and acting. Finally, researching the lives of Black MSM must recognize the influence of history, culture and social positioning on beliefs and action.

Implications for practice

Though the findings from this research are speculative, given the limits on causal inference, some tentative interpretation is warranted. Such interpretation is critical to our capacity to work with Black MSM as they experience risk in their environments. First,

they demonstrate the need to move beyond stereotypic perceptions of Black MSM to a more dynamic appreciation of the interactive aspects of their environments. Second, the findings underscore the need for social workers to act as allies and change agents through research and problem definition. And, they reflect the need for social workers to engage in policy analysis that investigates the significance of changed policies or ineffective interventions that differentially impact poor communities in general and specific members of these communities.

The findings indicate that Black MSM are impacted by their environments. For example, exposure to discrimination or stigma associated with sexual orientation through community affiliations (.11), that includes partner characteristics (-.66) partner duration (.35) and partner concurrency (.07) to unprotected anal intercourse (-.48) to be the strongest path in the model. As such, it can be argued that men organize their social world to avoid experiencing discrimination and seek affiliations that are perceived as more similar. Thus, in attempting to reduce their exposure to discriminatory events they also withdraw from environments and settings that are more diverse, which may reduce opportunities for hearing prevention messages and limit their options for partnerships, thereby reinforcing participation in communities or networks that have high rates of sero prevalence. However, these men did not experience these factors equally; for each of these factors respondents differed. Fifty-six percent of men indicated that they had not experienced discrimination based on sexual orientation, only 11% reported no community affiliation, and 3% indicated that their sexual partners were older black MSM. Further, while 76% reported partner durations of less than 1 year, 75% reported no partner concurrency. These findings are critical since previous research has associated

each factor with increased risk of seroconversion (Anderson & May, 1988; Chng, & Geliga-Vargas. 2000; Dietz & Hadeller, 1988; Dietz & Tudor, 1992; Hadeler, 1992; Johnson, et al, 1992; Kippax, Crawford, Davis, Rodden, & Dowsett. 1993; Kretzschmar & Dietz, 1998; Kretzschmar, Jagar, Reinking, van Zessen, & Brouwer, 1994; Lemelle & Battle, 2004; Martin and Knox, 1997a, 1997b; O'Donnell, et al, 2002; Wladstätter, 1989). These finding discourage straight line assumptions as well as risk factor epidemiology. What is more, they add dimension to the dense mosaic which is the lives of Black MSM. As such, creating effective interventions and working with Black MSM requires greater investigation of their social environments.

The interventions designed to address the disproportionate rates of seroconversion and transmission of HIV among Black MSM must consider the complex real world phenomena that contribute to these disparities. Interventions require attention to methods and policies that are contextually driven. Black MSM's lives and the history of the United States are intertwined. While many social workers assist their clients in reflecting on their lives and making changes, we must first analyze our own entrenchment in the prevailing ideologies enabling the prevailing social order (Dean & Fenby, 1989). That is, we must question how we as social workers reinforce and perpetuate stereotypic perceptions of Black MSM in designing, funding, researching and delivering HIV prevention interventions. In fact, these perceptions remove the individual from the environment.

These processes limit the impact of frontline practice to corrective measures focused on specific behavior. They do not raise the level of inquiry to include, nor recognize the interconnectedness of HIV seroconversion to other health disparities These

processes limit the impact of frontline practice to corrective measures focused on specific behavior. They do not raise the level of inquiry to include, nor recognize the interconnectedness of HIV seroconversion to other health disparities (e.g., asthma, hypertension) that plague marginalized communities. By shifting the lens of inquiry to include the environment and its constituent elements this projects demonstrates that interventions designed with and for Black MSM must include advocacy for stronger educational policies and greater assistance with employment. They must also challenge the barriers to accessing these institutions. These barriers include systemic racism and compulsory heterosexuality. Grounded in demands for social justice, it is incumbent upon social welfare to act—by organizing communities and challenging existing structural and institutionalized policies.

While this project examined risk of seroconversion of Black MSM, it is imperative that we note the respondents reside in communities that are susceptible to other health concerns. For example, in addition to having higher rates of HIV and STIs as compared with other parts of Brooklyn and NYC, adults residing in East New York have an increased risk of heart disease, obesity, and diabetes (NYCDOH, 2006). Similarly, in East Harlem, obesity affects almost two third of adults, and in Central Harlem, residents are less likely to be insured than in New York City overall (12% vs. 18%) and 12% of adults in Central Harlem, have diabetes, compared to 7% in Manhattan and 9% in New York City overall. In 2009, Children’s Services (ACS) reported that of the 998 children in foster care placement in Manhattan, 247 or 25% were from East Harlem, followed by 203 children or twenty percent from Central Harlem. In Brooklyn, similar trends in placement were found in East New York and Bedford Stuyvesant. Of the 1,983

placement cases 314 or 15% and 357 or 18%, respectively, were from these communities. And while high school dropout rates appear to be declining according to Board of Education (2010), they remain higher among black students (12%) than their Caucasian counterparts (8.4%). Yet another rate concerns the aging of community members living with HIV/AIDS. According to the Centers for Disease Control reported in 2005 that 15% of new HIV/AIDS diagnoses and 24% of persons living with HIV/AIDS were among persons aged 50 and older (CDC, 2005b).

These rates demonstrate disparities in critical areas within the model presented for analysis (e.g., health, education, experiences of abuse or neglect), as well as the need to expand areas of concentration such as geriatric social work. Further it calls for an integrated approach to social work practice. As in the Glass and McAttee formulation of the Axis of Nested Hierarchies (see Figure 1), the individual's experience from genomic to global level involvement occurs across time, from conception to late life. The outcome of these interactions or their embodiment is mediated by opportunities and constraints as well as individual's behavioral responses. The person in this environment and their communities faces internal and external challenges. Social workers, as constituent members of these communities, often target specific areas of concern, such as education and child welfare, and overlook the intersections and overlap between and amongst these issues. While social work research is critical to building theory and understanding the challenges faced by communities, it also necessary to develop practice methods that span multiple areas of concentration. The areas of concentration in social work education cover Administration, Clinical, Community organizing, Group work, and Policy and focus on practice specialties such as psychotherapy, case management, program design

and implementation. All too often generalist practice is eschewed and these activities are viewed as disparate objectives to be conducted within segregated communities. For example, child welfare is often viewed as distinct from health education and geriatric social work. This being the case, with our clients we must conduct assessments that surface important information concerning risks, as well as levels of functioning and interactions within the community. If, for instance, MSM use the internet to recruit sexual partners (Benotsch, Kalichman & Cage, 2002; Bolding, Davis, Hart, Sherr & Elford, 2005; Elford, Bolding & Sherr, 2001; Elford, Bolding, Sherr & Hart, 2005; Kim, Kent, McFarland & Klausner, 2001; Klausner, Wolf, Fischer-Ponce, Zolt & Katz, 2000; Liao, Millet & Marks, 2006; McFarlane, Bull & Rietmeijer, 2000; Mettey, Crosby, DiClemente & Holtgrave, 2003; Rietmeijer, Bull, McFarlane, Patnaik & Douglas, 2003; Taylor et al., 2004) and younger MSM experience their sexual debut with partners recruited via the internet (Bolding, Davis, Hart, Sherr & Elford, 2005), then social workers must develop, implement and create sustainable plans for programs that engage members using internet resources.

The focus on specialties also covers developmental periods with social workers working solely with children, teens, young adults, adults or the aged. However, given the intersections among various members of the community, service delivery must strive to address needs over the life span, including education, substance abuse. For example, the data make clear that older and younger Black MSM face disproportionate rates of unemployment and incarceration. Thus, awareness of these intersecting areas requires rigorous assessments. Psychosocial assessments are a fundamental social work tool to understand the person within micro-, meso-, macro- and global level environments.

Additionally, social work has historically used diagrammatic tools such as eco-maps and genograms to facilitate the identification of environmental constraints and resources. The current research suggests practice and education would benefit from more consistent use of these tools to begin to surface from Black MSM a clearer understanding of their environment and the individual's embeddedness or disaffiliation.

Implications for policy analysis

Social welfare policy analysis requires a framework for identifying and defining social problems as well as specific methods of policy goal selection and implementation. Ideologies offer methods of examining and understanding the world, determined by beliefs held by individuals or groups of individuals regarding political, social and economic affairs (Vic & Wilding, 1993; Mullaly 2003). Ideologies also prescribe critiques of existing socio-economic systems, views of human nature and economic life, visions of the future, and guide the extent and nature of government involvement in the economic and social life of its citizens. Ideologies question the nature and impact of government intervention and the organizational forms, processes and methods of achieving an ideal state through government intervention. As such, the role of an ideology offers us a way of interpreting social conditions while it prescribes methods of addressing these conditions. Both are key elements in social welfare policy analysis, which legislate group and government action. They inform the way issues are conceptualized and debated as well as how they are incorporated into political agendas. Ideologies shape our definition of social problems, the construction of social policy

solutions over time and focus attention on particular issues in defining social problems. However, ideologies may restrict effort to positively affect change.

Skolnick & Currie (1970) describe the use of ideologies in the history of American problem definition. Early definition of social problems emphasized hard work and purity as well as personal discipline. Consequently, those who experienced social problems were deviant, criminal or insane and available solutions included prisons, mental institutions and reformatories. This form of moralism gave way to popular societal definitions of social problems during the 1930s to problem definition and policy solution in the 1970s which reflected Americans' reaction to the spending of the 1960s. Many social policy solutions carry on into the present, for example expanded prisons. Among black men, one in nine between the ages of 20 and 34 are incarcerated (Warren, 2008). Lefkowitz (2007) and Smith (2005) hypothesized that post-1980 changes in the welfare state has had an impact on mortality rates. These policies are guided by conservative ideologies which mandated reduced federal responsibility, funds for public health and antipoverty programs and restricted affirmative action. The policies guided by these, as well as more liberal ideologies, and their impact on public health are historically contingent (Kunitz , 2006; Kunitz, Pesis-Katz, 2005; Shaw, Dorling, Gordon, & Davey Smith, 1999; Krieger,2000; Krieger, 2004; Conley & Springer, 2001). Or, as Nancy Krieger and colleagues (2008) state, context matters.

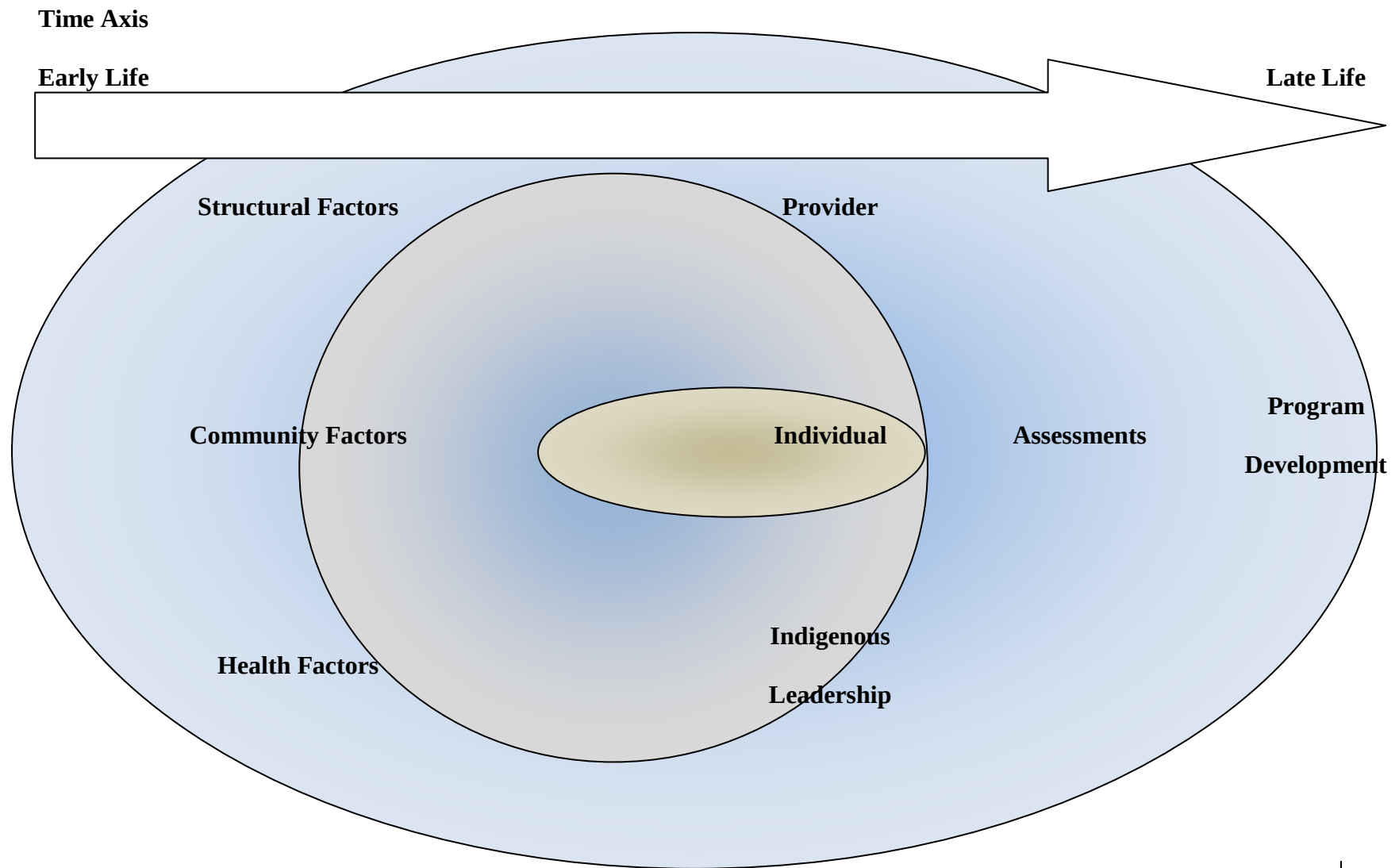
Consumer participation and engagement in social work

Social work emphasizes social change and individual understanding. This intersection positions social work to deploy empirical methodology and hermeneutic

processes to investigate the relationships between social change, individual insight and histories, and structural barriers. Interventions and policy analysis informed by research conducted from this position accepts that knowledge is embedded in culture and is influenced by ideologies, values, rituals and experience. It offers the opportunity to reflect on questions of the role of the rituals, values, power and ideologies in a culture within a historical context and engages these processes in creating effective social welfare policies.

Central to change at the individual, community, organizational and social levels is the need to assess—such as individual bio-psychosocial and community needs assessments. Social work must begin to reconceptualize consumer participation and engagement in social work throughout their contact with consumers and engage members of all communities with whom programs are affiliated. That is, consumer engagement requires diversity and must include the various members of the community, rather than targeting engagement by programming or initiatives. Indeed, as noted regarding the choices Black MSM may make to avoid discriminatory messages and which may simultaneously preclude their engagement in prevention messages, the benefits of targeted services are offset by a reduction of community resources available to the worker and the consumer to problem solve and mobilize for change. As schematically represented in Figure 7, consumer participation and engagement must be conducted with all community members at the various programmatic interfaces wherein social work intervenes. And, the information collected must be documented and stored in a form which is accessible to the member of the organizations and all concerned stakeholders.

Figure 7: Interactional model for consumer engagement



Reinvigorating generalist practice across the life span means social workers, educators, researchers and organizations become concerned not just with the presenting problem or precipitating issue but with the past, present and future biographies of clients and their communities. They cannot engage in coercive technologies, rather best practices are enhancements of existing processes and subject to improvement themselves. Rigid and routinized practice standards in organizations where social contexts are continually shifting may decrease the perceived uncertainty of tasks may decrease the need for high degrees of supervision and subsequent costs, and may be favored by many funding and regulatory agencies (Lefton & Rosengren, 1966; Savage, 1987), however, they also constrict innovation, and hamper creativity in identifying and addressing issues. It is this latter issue that is critical: If by failing to take into account all relevant aspects of an individual's lived experience we act more expeditiously but reinforce and contribute to stereotypic methods which decrease resource utilization, we may ultimately be acting less effectively and increase the costs to individuals and their communities. Thus, best practices must be conceptualized as launch pads to enhancing operations and require the organization to match its technology to the intersection of needs of its stakeholders and their communities.

Appendices

Appendix A– Demographic variables

Variable Category	Survey Question #	Survey Question	Response Options
Demographics			
Age	DEM1.	How old are you? Enter the number of years.	Enter the number of years.
US residency	DEM3.	What is the total number of years you have been living in the continental U.S.?	0 – 90 = (Years) 98 = Refuse to Answer
NYC residency	DEM4NYC.	How long have you been living in New York City? Please enter the number of years. If you have lived in New York City less than a year, please place a '01' in the 'YEARS' category below.	0 – 90 = (Years) 98 = Refuse to Answer
Annual Income	DEM18	Thinking about the past 12 months, how much was your total yearly income before taxes were taken out?	1 = Less than \$5,000 2 = \$5,000 - \$9,999 3 = \$10,000 - \$19,999 4 = \$20,000 - \$29,999 5 = \$30,000 - \$39,999 6 = \$40,000 - \$49,999 7 = \$50,000 - \$59,999 8 = \$60,000 - \$69,999 9 = \$70,000 - \$79,999 10 = \$80,000 or more 98 = Refuse to Answer

Variable Category	Survey Question #	Survey Question	Response Options
Neighborhood	<i>DEM14.</i>	What zip code do you live in?	Enter the number Enter 99999 if unknown
Borough	<i>DEM14.</i>	What zip code do you live in?	Enter the number Enter 99999 if unknown
	HT5	HIV status Result of most recent HIV test	1= Negative, 2 = Positive, 3 = Did not get the result of the last test, 4 = Indeterminate, (neither positive or negative), 8 = Refuse to Answer

Appendix B - HIV Risk Behavior Variables

Variable Category	Survey Question #	Survey Question	Response Options
Unprotected Anal Intercourse (UAI)			
Committed relationship	SA13b CRECUSE	In the past 3 months, how often was a condom used when he put his penis in your butt?	1 = Always, 2 = More than half the time, 3 = About half the time, 4 = Less than half the time, 5 = Never, 8 = Refuse to Answer
Casual relationship	SA39. AUSEX_WC	In the past 3 months, did you have anal sex without a condom with any casual male sex partners?	1 = Yes, only with one man, 2 = Yes, with more than one man, 3 = No, 8 = Refuse to Answer

Appendix C - Co-Factor (Bio – Medical) Variables

Variable Category	Survey Question #	Survey Question	Response Options
Histories of Sexually Transmitted Infections (STIHx)			
	STD1.	Have you ever had a sexually transmitted disease (STD)?	1 = No, 2 = Yes, 8= Refuse to Answer

Appendix D - Co-Factor (Psychosocial)Variables

Variable Category	Survey Question #	Survey Question	Response Options
Sexual debut (SEXDeb)	SA1.	How old were you when you first had anal sex with a male?	1 = Never had anal sex with a man, 2 = Less than 13 years old, 3 = 13 to 15 years old, 4 = 16 to 18 years old, 5 = 19 to 21 years old, 6 = 22 to 25 years old, 7 = Older than 25 years old, 8 = Refuse to Answer
	SA2.	How old were you when you first had vaginal or anal sex with a female?	1 = Never had vaginal or anal sex with a female, 2 = Less than 13 years old, 3 = 13 to 15 years old, 4 = 16 to 18 years old, 5 = 19 to 21 years old, 6 = 22 to 25 years old, 7 = Older than 25 years old, 8 = Refuse to Answer
Sexual Abuse (SexAbHx)	NE14.	Have you ever been raped or forced to have sex?	1 = No, 2 = Yes, 8 = Refuse to Answer
Substance Use (DrugHx)	SUB1.	Did you use alcohol in the past 3 months?	2 = No, 1 = Yes, 8 = Refuse to Answer
	SUB3.	Did you use Crystal Meth (Ice or Tina) in the past 3 months?	2 = No, 1 = Yes, 8 = Refuse to Answer
	SUB4.	Did you use cocaine (powder, blow, coke) in the past 3 months?	2 = No, 1 = Yes, 8 = Refuse to Answer
	SUB5.	Did you use crack (freebase/hubby) in the past 3 months?	2 = No, 1 = Yes, 8 = Refuse to Answer
	SUB6.	Did you use marijuana (pot, weed, trees, buddah, grass,	2 = No, 1 = Yes, 8 = Refuse to Answer

Variable Category	Survey Question #	Survey Question	Response Options
		ganja) in the past 3 months?	
	SUB7.	Did you use heroin (smack, H, horse) in the past 3 months?	2 = No, 1 = Yes, 8 = Refuse to Answer
	SUB8.	Did you use poppers (rush, amyl nitrite) in the past 3 months?	2 = No, 1 = Yes, 8 = Refuse to Answer
	SUB9.	Did you use ecstasy (E), GHB (G), or special K (ketamine or K) in the past 3 months?	2 = No, 1 = Yes, 8 = Refuse to Answer

Appendix E - Co-Factor (Structural Forces)Variables

Variable Category	Survey Question #	Survey Question	Response Options
Education (EdAttn)	DEM15.	What is the highest level of education you completed?	1 = Did not graduate from high school, 2 = Graduated from high school or GED, 3 = Graduated from a technical school, 4 = 2-year college degree (AA degree), 5 = 4-year college degree (BA), 6 = Masters degree (MA, MS, MPH), 7 = Doctoral degree (PhD, JD), 8 = Refuse to Answer
Employment (EmpHx)	DEM16.	Are you currently working?	1 = Full time, 2 = Part time/ Occasional, 3 = Unemployed, 4 = Retired, 5 = Unable to work (disabled), 8 = Refuse to Answer
Incarceration (IncHx)	DEM21.	Have you ever been arrested and taken to jail or prison?	1 = Never, 2 = Once, 3 = Twice, 4 = Three times or more, 8 = Refuse to Answer
Exposure to Discrimination and Stigma -			
Sexual orientation (SODisExp)	NE1.	In the past 12 months, how often have you been hit or beaten up because people thought you were homosexual or not manly enough?	1 = Never, 2 = Once, 3 = 2 - 3 times, 4 = 4 - 7 times, 5 = 8 or more times, 8 = Refuse to Answer,
	NE2.	In the past 12 months, how often have you been treated rudely or unfairly because people thought	1 = Never, 2 = Once, 3 = 2 - 3 times, 4 = 4 - 7 times, 5 = 8 or more times, 8 = Refuse to Answer,

Variable Category	Survey Question #	Survey Question	Response Options
		you were homosexual or not manly enough?	
	NE3.	In the past 12 months, how often have you been made fun of or called names because people thought you were homosexual or not manly enough?	1 = Never, 2 = Once, 3 = 2 - 3 times, 4 = 4 - 7 times, 5 = 8 or more times, 8 = Refuse to Answer,
Race (RcDisExp	NE7.	In the past 12 months, how often have you thought that you have been hit or beaten up because of your race or ethnicity?	1 = Never, 2 = Once, 3 = 2 - 3 times, 4 = 4 - 7 times, 5 = 8 or more times, 8 = Refuse to Answer,
	NE8.	In the past 12 months, how often have you thought that you have been treated rudely or unfairly because of your race or ethnicity?	1 = Never, 2 = Once, 3 = 2 - 3 times, 4 = 4 - 7 times, 5 = 8 or more times, 8 = Refuse to Answer

Appendix F - Co-Factor (Community)Variables

Variable Category	Survey Question #	Survey Question	Response Options
Community Factors - Affiliation (CommAff)			
	CAA1BNYC.	How much do you feel part of the overall Black community in New York City?	1 = Very Much, 2 = Somewhat, 3 = A little, 4 = Not at all, 8 = Refuse to Answer
	CAA2BNYC.	How much do you feel part of a Black gay community in New York City?	1 = Very Much, 2 = Somewhat, 3 = A little, 4 = Not at all, 8 = Refuse to Answer
	CAA4NYC.	How much do you feel part of the larger white gay community in New York City?	1 = Very Much, 2 = Somewhat, 3 = A little, 4 = Not at all, 8 = Refuse to Answer

Appendix G - Sexual Network Variables

Variable Category	Survey Question #	Survey Question	Response Options
Sexual Network factors			
Partnership duration (PartDur)	SA6.	Are you <u>currently</u> in a committed relationship with a man?	1 = Yes, with 1 man, 2 =Yes, with more than 1 man, 3 = No
	SA7.	How long were you in or have been in this relationship?	1 = Less than 6 months, 2 = 6-11 months, 3 = 1-2 years, 4 = 3-4 years, 5 = 5 or more years, 8 = Refuse to Answer
Partnership concurrency (PartConcurr)	SA6.	Are you <u>currently</u> in a committed relationship with a man?	1 = Yes, with 1 man, 2 =Yes, with more than 1 man, 3 = No
	SA39. AUSEX_WC	In the past 3 months, did you have anal sex without a condom with any casual male sex partners?	1 = Yes, only with one man, 2 = Yes, with more than one man, 3 = No, 8 = Refuse to Answer
Partner characteristics			
Committed partner	DEM1.	How old are you? Enter the number of years.	Enter the number of years.

Variable Category	Survey Question #	Survey Question	Response Options
	SA8.	How old is he?	1 = Less than 16, 2 = 16-20, 3 = 21-25, 4 = 26-30, 5 = 31-35, 6 = 36-40, 7 = 41-50, 8 = Over 50, 98 = Refuse to Answer
	SA9.	Which racial/ethnic group or groups best describes him? “Asian”, “American Indian or Alaskan Native”, “Black or African American”, “Latino or Hispanic”, “Native Hawaiian or Pacific Islander”, “White”	0 = No, 1 = Yes, 8 = Refuse to Answer
Casual partner – (CasPartChar)	DEM1.	How old are you? Enter the number of years.	Enter the number of years.
	SA43.	Approximately how old was he at the time of the encounter?	1 = Less than 16, 2 = 16-20, 3 = 21-25, 4 = 26-30, 5 = 31-35, 6 = 36-40, 7 = 41-50, 8 = Over 50, 98 = Refuse to Answer

Variable Category	Survey Question #	Survey Question	Response Options
	SA44.	Which racial/ethnic group or groups best describes him? “Asian”, “American Indian or Alaskan Native”, “Black or African American”, “Latino or Hispanic”, “Native Hawaiian or Pacific Islander”, “White”	0 = No, 1 = Yes, 8 = Refuse to Answer
Sexual Venue (Sex Venue)	SP23. SP23A- SP23U	During the past 3 months in which of the following places have you had sex (oral, anal or mutual masturbation) with a man in New York City? •Park •Subway Station •Private House Sex Party •Train/Subway Car •College/University Campus •Bath House •Sex Club (e.g., Leather, S & M) •Dance Club/Bar •Video/Book Store •Peep Show •Movie Theatre •Your home/residence •Public Restroom	0 = No, 1 = Yes, 8 = Refuse to Answer

Variable Category	Survey Question #	Survey Question	Response Options
		•Public Library •His home\ residence •Museum •Someone else's home\residence •Strip Club •Hotel or motel •In a car •On the street (alleyway, parking lot) •Other None (no sex in past 3 months)	

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