Examining Correlates of Serostatus Disclosure and Sexual Transmission Risk Behaviors among People Living with HIV in North Carolina

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ABSTRACT

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(Under the direction of Carol Golin)

Prevention programs targeting people living with HIV/AIDS (PLWHA) are critical in
reducing the spread of the virus. Prevention efforts include promotion of risk reduction
behaviors as well as disclosure of one's serostatus to sex partners. A substantial body of
literature on HIV serostatus disclosure exists. However, most studies have focused solely on
gay or bisexual men or among urban populations. A better understanding of the mechanisms
through which PLWHA disclose their serostatus and practice safer sex behaviors is necessary
to inform the development of interventions to facilitate disclosure and to meet the needs of a
diverse population of PLWHA to help reduce HIV transmission.

The data for these secondary analyses come from SAFETALK, a motivational
interviewing-based, safer sex intervention for HIV-positive patients in North Carolina
(n=490). Predictors of interest were informed by behavioral theory and previous research on
serostatus disclosure and sexual transmission risk behaviors. Descriptive statistics and
logistic regression were used to assess study aims. Serostatus disclosure and transmission
risk behaviors were assessed at baseline. Overall, 78.9% of respondents disclosed to sexual
partners. Multinomial logistic regression found that participants who had casual partners,
unknown serostatus partners, and experienced stigma related to their HIV were more likely to
withhold disclosure to partners. Only 16% of the sample reported engaging in unprotected

vaginal or anal sex with an at-risk partner. Overall, serostatus disclosure was associated with transmission risk behavior as those who disclosed their status were less likely to engage in unprotected sex with an at-risk partner than those who withheld disclosure.

Clarifying the relationship between serostatus disclosure and transmission risk behavior remains a critical public health priority as researchers need to better understand the strategies people employ to decide whether or not to disclose and how the dyad ultimately decides to engage in protected or unprotected sexual activity. While the majority of the sample did not engage in transmission risk behaviors, the fact that unprotected sex with at-risk partners was found provides a rationale for continuing Prevention with Positives programs in HIV clinical care settings where PLWHA can discuss their experiences with disclosure and risk behavior with their health care providers.

To my son, Isaac Przybyla Kathman

my ability than I did at times. She provided insightful comments on numerous drafts and offers words of encouragement when I needed them most.

My husband once told me that if you don't question your ability to finish graduate school multiple times during your program, there are only three possible explanations: 1) you're not working hard enough; 2) your program isn't pushing you as hard as it should; or 3) you're not working on a topic of worthy substance. I know that options 2 and 3 are fallacious. But there were most definitely times when option 1 was not outside the realm of possibility. Ironically, my husband is the person, in fact, who persuaded me to work hard enough. He told me I couldn't and wouldn't quit, when all I wanted to do was throw in the towel. Perhaps he was reciprocating the support I provided to him during his dissertation. Jacob, I am forever grateful for your unconditional love and support.

I had the opportunity to work with an incredible group of individuals on the SAFETALK research study. In particular, project manager Catherine Grodensky provided me with incredible assistance in data management and was always willing to help me in any way she could given the 700 miles that separated us. Niasha Brown, Kemi Amola Hill, and Katherine Tiller were my personal cheerleaders, helping me keep my head up high when I felt like it was dragging on the ground. I am truly blessed to have worked with such talented and dedicated individuals. I will miss our regular meetings in the ID clinic conference room and can only hope that the study team members miss me and my goofy jokes.

It is difficult to express in words the gratitude I have for my family, particularly my parents, (Dennis and Marcia Przybyla), my siblings (Rachael, Rebecca, Luke, Miriam, and Job), my in-laws (Deborah and Deke Kathman), as well as my siblings-in-law (Rich, Peter, Kristen, Scott, Stephenie, Jason, Kristy, Joey, and Jonathan), my grandmother (Florence

I cannot help but quote Charles Kuralt in his famous address in 1993 at the UNC Bicentennial where he said: "What is it that binds us to this place like no other? It is not the well or the bell or the stone walls. Or the crisp October nights or the memory of dogwoods blooming. Our loyalty is not only to William Richardson Davie, though we are proud of what he did 200 years ago today. Nor even to Dean Smith, though we are proud of what he did last March. No, our love for this place is based on the fact that it is, as it was meant to

be, the University of the people." I am so thankful to have been a student at UNC and the world of opportunity it offered me to grow as a researcher, scholar, and individual. Chapel Hill will always be my home away from home.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

Abbreviation	Definition
ACASI	Audio computer-assisted self-interview
CDC	Centers for Disease Control and Prevention
HAART	Highly active antiretroviral therapy
MSM	Men who have sex with men
MSW	Men who have sex with women
PLWHA	Person/people living with HIV/AIDS
PwP	Prevention with Positives
TRB	Transmission risk behavior
WSM	Women who have sex with men

CHAPTER ONE: INTRODUCTION

1.1 PROBLEM STATEMENT

Prevention programs targeting people living with HIV/AIDS (PLWHA) are critical in reducing the spread of the virus. Prevention efforts include promotion of risk reduction behaviors, such as correct and consistent condom use as well as disclosure of one's serostatus to sex partners (CDC, 2003a). Because the majority of PLWHA are sexually active (Marks, Burris, & Peterman, 1999; Stein et al., 1998) and approximately one-third engage in high-risk sexual behaviors including unprotected sex or multiple sexual partners (Ciccarone et al., 2003; S.C Kalichman, 2000; S. C. Kalichman & Nachimson, 1999; Marks & Crepaz, 2001; McGowan et al., 2004; Stein et al., 1998) prevention efforts among PLWHA are needed. Furthermore, studies have shown that between 30-46% of sexually transmitted HIV infections are transmitted by people who know they are infected with the virus (Janssen & Valdiserri, 2004; Marks, Crepaz, & Janssen, 2006). Thus effective prevention interventions for PLWHA are needed. A recent meta-analytic review of a dozen prevention studies with HIV-positive individuals published between 1988 and 2004 determined that behavioral interventions led to decreased acquisition of sexually transmitted infections and a 43% reduction in unprotected sex among PLWHA (N Crepaz et al., 2006).

One important aspect of reducing HIV transmission is seropositive individuals' informing their sexual partners of their HIV status, as recommended by 1988 U.S. Public Health Service guidelines. Serostatus disclosure allows the partner of an index case to make an informed choice

about initiating, or in some cases re-initiating, sexual contact and practicing safer sex. It also creates an opportunity for both people to negotiate and discuss options with regards to safer sex. Yet, studies indicate that serostatus disclosure does not occur in a substantial minority of sexual partnerships (Niccolai, King, D'Entremont, & Pritchett, 2006). Overall rates of serostatus disclosure to sexual partners vary between studies due, in part, to the use of different outcome measures (Duru et al., 2006). Proportions of HIV-positive persons who disclosed their serostatus to sex partners in these studies ranged from 50% to 95%. A substantial body of literature on HIV serostatus disclosure exists; however, most studies have focused solely on men who have sex with men or among urban populations. A better understanding of the mechanisms through which PLWHA disclose their serostatus as well as practice safer sex behaviors is necessary to inform the development of interventions to facilitate such disclosure and to meet the needs of a diverse population of HIV-positive individuals to help reduce the spread of the virus.

1.2 STUDY AIMS

The aims of the proposed study are:

1)   To describe and examine the correlates of serostatus disclosure to sexual partners among HIV-positive patients in care at three clinics in North Carolina

2)   To assess the relationship between serostatus disclosure and sexual transmission risk behaviors among HIV-positive patients in care at three clinics in North Carolina and to evaluate the role of moderating variables in this relationship

These two aims are addressed through secondary data analysis of the SAFETALK study, a longitudinal study of HIV-positive individuals in North Carolina. SAFETALK is a

randomized controlled trial that takes place in three infectious disease clinics in North Carolina where approximately 2,400 male and female patients are receiving care. The parent study sought to examine the association between changes in participants' motivations, intentions, and self-efficacy regarding safer sex practices and their self-reported sexual behaviors.

This research study is imperative for many reasons. First, it responds to the CDC's Advancing HIV Prevention initiative that has the goal of increasing safer sex behaviors among PLWHA. Second, the scope of the HIV/AIDS epidemic in the South is different from that within the United States as a whole. As a region, the Southeast has the highest reported incidence of HIV in the nation. In addition, the annual rate of new HIV infections has increased among minority groups compared to their White counterparts in the United States as a whole, but particularly in the Southeastern U.S. (NC-DHHS, 2006). The region also has the greatest proportion of HIV cases from small metropolitan areas and non-metropolitan areas (CDC, 2007). Recent research suggests that health and economic disparities contribute to the higher HIV incidence among ethnic minorities and women seen in the Southeast (Adimora & Schoenbach, 2005; Adimora et al., 2006). Similar to other Southern states, North Carolina's HIV epidemic is more rural and more heterosexually transmitted in nature. The state has the second highest number of AIDS cases in the nation from non-metropolitan areas. In addition, the number of people living with HIV in North Carolina has increased 22% between 2002 and 2006 (NC-DHHS, 2007). Third, the proposed research will help us identify the factors that are associated with serostatus disclosure among PLWHA and how such disclosure influences a reduction in transmission risk behaviors in order to help develop more effective behavioral interventions.

1.3 ORGANIZATION OF THE DISSERTATION

The dissertation will have six chapters. Chapter Two provides the background and significance of the HIV epidemic in the United States, presents the scope of the epidemic in North Carolina, and describes the rationale for HIV prevention programming for PLWHA (known as Prevention with Positives). It also reviews studies assessing correlates of HIV serostatus disclosure, as well as the association between such disclosure and transmission risk behaviors among PLWHA. Chapter Three describes the study's conceptual model, presents the research questions, and sets forth the hypotheses to be tested. Chapter Four details the study methodology, including study design, sample population, variable definitions, and data analysis plan. Chapter Five presents the results of the analyses. Finally, Chapter Six summarizes and synthesize the key findings to make recommendations for future HIV prevention research and practice.

CHAPTER TWO: LITERATURE REVIEW

In this chapter, I will: (1) describe the scope of the HIV epidemic in the United States, the Southeast and in North Carolina; (2) discuss a rationale for HIV Prevention with Positives (PwP) research; (3) present a review of the literature that has evaluated serostatus disclosure and factors that influence it, including partner characteristics, stigma, transmission risk beliefs, viral load detectability, subjective norms, and urbanicity; and (4) present a review of the studies that have assessed the association between serostatus disclosure and transmission risk behaviors, including a discussion of how partner characteristics may moderate the relationship between serostatus disclosure and transmission risk behaviors. I conclude the chapter with a summary of the shortcomings of previous research of these questions. I argue that further research is needed to understand better the factors that influence whether or not PLWHA will disclose their serostatus to sexual partners. Also needed are studies that shed light on the relationship between disclosure and transmission risk behaviors among PLWHA.

2.1 HIV/AIDS IS AN EPIDEMIC IN THE UNITED STATES

The first few cases of acquired immune deficiency syndrome (AIDS) were identified in the United States in 1981. Since that time scientists have come to understand that human immunodeficiency virus (HIV) is the virus that causes AIDS and have made remarkable progress in understanding its modes of transmission and how to prevent its spread. Advances

in the detection, diagnosis, and treatment of HIV have also considerably improved the mortality and quality of life of persons living with HIV/AIDS (PLWHA) with a significant decline in AIDS-related deaths over time (Karon, Fleming, Steketee, & De Cock, 2001).

As a result of advances in HIV treatment, the U.S. has experienced considerable growth in the number of people living with HIV. At the end of 2006, an estimated 1,106,400 persons were living with HIV infection in the United States (CDC, 2008). The 2007 *HIV/AIDS Surveillance Report* shows that there has been a 15% increase in HIV diagnoses in the United States from 2004 to 2007 (CDC, 2009). It is important to note that this increase may be due to a variety of factors including changes in state reporting regulations, rises in testing rates, changes in state reporting regulations, or an actual increase in incidence.

The Centers for Disease Control and Prevention (CDC) estimated that in 2006 approximately 56,300 people were newly infected with HIV (Hall, 2008). In August 2008, CDC published the first national HIV incidence estimates using new technology and revised methodology that more directly measure the number of new HIV infections. The analyses showed the new estimate of 56,300 HIV infections was substantially higher than the previous estimate of approximately 40,000 new infections annually. However, it should be noted that this revised incidence estimate does not represent an actual increase in the numbers of HIV infections, but rather reflects a more accurate way of measuring new infections given new technology and methodology.

Given this incidence rate coupled with decreases in AIDS-related deaths, the number of HIV cases is expected to rise in the future (Wolitski, Janssen, Onorato, Purcell, & Crepaz, 2005). As more people are living with HIV, it has become increasingly important to educate

and provide them with the skills needed to reduce their risk of transmitting HIV to others. Given that the annual number of people newly acquiring HIV has not decreased over the last decade, we need more effective approaches to reducing HIV transmission than those currently implemented.

One way to gain a better understanding of the state of the domestic HIV epidemic, that is, who is being more affected by the epidemic currently, is to compare HIV incidence and prevalence among different sub-groups, such as groups based upon people's age, race/ethnicity, and mode of virus acquisition. Of the estimated number of HIV/AIDS cases in 2005, Table 1 shows the distribution of person's age at time of diagnosis (CDC, 2009).

Table 1: U.S. HIV/AIDS Incident Cases by Age Category, 2005		
Age Category	**HIV/AIDS Cases**	**Percent**
Under 13	168	<1
Ages 13-19	1,256	3.3
Ages 20-29	8,457	22.7
Ages 30-39	11,246	30.1
Ages 40-49	10,450	28.0
Ages 50-59	4,325	11.6
Ages 60 and older	1,428	3.8
Please note: These numbers do not represent reported case count but rather point estimates, which result from adjustments of reported case counts. The case counts have been adjusted for reporting delays and for redistribution of cases in persons initially reported without an identified risk factor, but not for incomplete reporting.		

In addition to age, the CDC also monitors HIV/AIDS cases among five racial and ethnic groups: White, Black (African American), Hispanic, Asian/Pacific Islander, and American Indian/Alaska Native. There is a stark racial disparity in HIV diagnoses in the U.S.; while African Americans comprise only 12.4% of the population (US, Census Bureau 2006), this racial group represented 48.9% of HIV diagnoses in 2005 (CDC, 2009). The CDC also monitors cumulative HIV cases by gender. While women account for a substantial minority of HIV cases in the United States (approximately 25%), this percentage has risen over the last two decades. In addition, HIV rates and the risk factors for infection differ for women of various races or ethnicities, which are important to consider for prevention programs to reduce transmission. For example, even though the annual estimated rate of HIV diagnosis for Black women decreased from 82.7 per 100,000 population in 2001 to 60.2 per 100,000 population in 2005, it remained 20 times the rate for White women (CDC, 2009; McDavid, Li, & Lee, 2006). In addition, HIV rates for Black women are higher than the rates for all racial groups of men with the exception of Black men (CDC, 2006, 2009; Whitmore, Satcher, & Hu, 2005).

To understand how to reduce HIV transmission, it is important to understand how it is spread. There are six commonly recognized modes of transmission of HIV/AIDS, including: male-to-male sexual contact, injection drug use, male-to-male sexual contact and injection drug use, heterosexual contact, mother-to-child (perinatal) transmission, and other (includes blood transfusions and unknown cause). Table 2 below illustrates the distribution of the estimated number of diagnoses of HIV/AIDS in 2005 by gender and transmission category. Of HIV/AIDS cases diagnosed among males, two-thirds were attributed to male-to-male sexual contact and 15% were attributed to high-risk heterosexual contact[1]. Additionally, 13% of cases in males were attributed to injection drug use and 5% attributed to a combination of both male-to-male sexual contact and injection drug use. The majority (80%) of the HIV/AIDS diagnoses among females was attributed to high-risk heterosexual contact, and 19% were attributed to injection drug use. Thus, sexual behavior is related to HIV transmission in the vast majority of new infections in the United States.

Table 2: U.S. HIV Cases by Transmission Category and Gender, 2005						
Transmission Category	Adult and Adolescent Male		Adult and Adolescent Female		Total	
	Number	%	Number	%	Number	%
Male-to-male sexual contact	18,296	67	--	--	18,296	49
Injection drug use (IDU)	3,441	13	1,851	19	5,292	14
MSM sexual contact and IDU	1,324	5	--	--	1,324	4
High-risk heterosexual contact*	4,255	15	7,734	80	11,989	32
Other**	139	1	124	1	263	<1
*Heterosexual contact with a person known to have, or to be at high risk for, HIV infection. ** Includes hemophilia, blood transfusion, perinatal, and risk not reported or not identified.						

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[1] High-risk heterosexual contact means sexual activity with a person known to have, or to be at high risk for, HIV infection.

2.2 SCOPE OF THE HIV/AIDS EPIDEMIC IN THE SOUTHEAST AND IN NORTH CAROLINA

As a region, the Southeast had the greatest proportional increases in HIV/AIDS incidence since 1990 (Whetten-Goldstein & Nguyen, 2002). From 2000 to 2003, there was a 5.2% increase of newly reported AIDS cases nationally, compared to a 36% increase in the Deep South (Alabama, Georgia, Louisiana, Mississippi, North Carolina, and South Carolina) (Whetten & Reif, 2006). The annual incidence rate has increased among minority groups compared to their White counterparts in the U.S. as a whole, but particularly in the Southeast (NC-DHHS, 2006). The region also has the greatest proportion of HIV cases from small metropolitan areas and non-metropolitan areas (CDC, 2007). Recent research suggests that health and economic disparities contribute to the higher HIV incidence among ethnic minorities and women seen in the Southeast (Adimora & Schoenbach, 2005; Adimora et al., 2006). Similar to other Southern states, North Carolina's HIV epidemic is more rural, and more heterosexually transmitted in nature. The state has the second highest number of AIDS cases from non-metropolitan areas. In addition, the number of people living with HIV in the state has increased 22% between 2002 and 2006 (NC-DHHS, 2007).

Through December 2007, the public health surveillance system in the state of North Carolina has reported 32,583 cumulative HIV cases. In 2007, the reported number of new cases of HIV in the state was 2,356 ((DHHS, 2008)). Furthermore, CDC records the estimated prevalence rates of individuals living with HIV in 2005; their most recent report

indicates that North Carolina is one of only nine states[2] with a prevalence rate of >150 per 100,00 population (CDC, 2009).

Table 3 below illustrates the age and gender breakdown for HIV cases in North Carolina in 2006. While the 30-39 and 40-49 age groups represent the highest percentages of cases for both genders, roughly one in five cases occurred among younger individuals (aged 20-29 years) (NC-DHHS, 2007). These state figures are relatively consistent with national percentages of HIV cases by age and gender.

Table 3: North Carolina HIV Cases by Age and Gender, 2006						
Age Group	Male		Female		Total	
	Number	%	Number	%	Number	%
0-12	1	<1	6	1	7	<1
13-19	55	4	27	5	82	4
20-29	355	24	94	17	449	22
30-39	417	28	153	28	570	28
40-49	423	29	165	30	588	29
50 and over	229	16	97	18	326	16
Total	1,480	100	542	100	2,022	100

A significant racial disparity exists in infection rates among North Carolinians. For example, the rate of infection for non-Hispanic Blacks (71.0 per 100,000) is more than eight times greater than for non-Hispanic Whites (8.1 per 100,000). These rates are similar to those found in the U.S. population as a whole with rates of HIV cases among Blacks at 71.3 per 100,000 and 8.8 per 100,000 for Whites (CDC, 2009). In 2006, the highest rate of infection was among non-Hispanic Black males at 103.3 per 100,000 which is more than seven times the rate for their non-Hispanic White counterparts (13.9 per 100,000).

This racial disparity also exists among women, where non-Hispanic Black females had an infection rate of 42.2 per 100,000 compared to 2.5 per 100,000 among non-Hispanic

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[2] The nine states with prevalence rates of >150 per 100,000 population are: New York, New Jersey, Nevada, Colorado, Mississippi, Louisiana, Florida, North Carolina, and South Carolina.

White females (NC-DHHS, 2007). A 2005 *Morbidity and Mortality Weekly Report* focusing

specifically on African American women in North Carolina found that the most commonly

reported reasons for engaging in behaviors that place them at risk for HIV infection were: 1)

financial dependence on male partners, 2) feeling invincible, 3) low self-esteem coupled with

a need to feel loved by a male figure, and 4) alcohol and drug use (CDC, 2005). Table 4

below illustrates the HIV cases in the state by race/ethnicity and gender for 2006.

Table 4: North Carolina HIV Cases by Race/Ethnicity and Gender, 2006						
Race/Ethnicity	Male		Female		Total	
	Number	%	Number	%	Number	%
Non-Hispanic White	406	27	77	14	483	24
Non-Hispanic Black	919	62	422	78	1,341	66
American Indian/Alaska Native	12	<1	0	0	12	<1
Asian/Pacific Islander	14	<1	4	<1	18	<1
Hispanic	127	9	38	7	165	8
Unknown	2	<1	1	<1	3	<1
Total	1,480	100	542	100	2,022	100

As evidenced in Table 5, of HIV incidence among adults and adolescents in 2006, the

main transmission risk category among North Carolinians was men who have sex with men

(51%), however heterosexual transmission risk occurred nearly as often (40%) whereas

injecting drug use was rarely a cause (6%). Among males only, MSM (69%) and MSM/IDU

(2%) together accounted for 71% of new HIV cases in 2006. Among females, 86% of new

HIV cases result from heterosexual contact (NC-DHHS, 2007).

Table 5: North Carolina Incident HIV Cases by Transmission Category and Gender, 2006						
Transmission Category	Male		Female		Total	
	Number	%	Number	%	Number	%
MSM	1,109	69	--	--	1,019	51
IDU	66	4	59	11	125	6
MSM/IDU	28	2	--	--	28	1
Blood products/hemophilia	13	1	14	3	27	1
Heterosexual	353	24	463	86	816	40
Total	1,479	100	536	100	2,015	100

2.3. RATIONALE FOR PREVENTION WITH POSITIVES (PwP)

The CDC estimates that approximately one-quarter of people living with HIV in the United States are unaware of their infection (Glynn & Rhodes, 2005). While the number of new HIV infections each year that result from unsafe encounters with people who know they are infected is difficult to calculate with certainty, the CDC estimates that about 30-46% of all new sexually transmitted HIV infections are transmitted from someone who is aware of their serostatus (Janssen & Valdiserri, 2004; Marks et al., 2006).

Studies have found that approximately 70% of PLWHA continue to engage in sexual activity after diagnosis (N. Crepaz & Marks, 2002; Marks et al., 1999). While many either reduce or eliminate risk behavior after diagnosis (Weinhardt, Carey, Johnson, & Bickham, 1999; Wolitski, MacGowan, Higgins, & Jorgensen, 1997), this risk reduction is not certain for all individuals under all circumstances. Furthermore, people who reduce transmission risk behaviors immediately after diagnosis may not maintain safer practices over time (N. Crepaz & Marks, 2002; McGowan et al., 2004). Several research studies have found needle sharing and unprotected sexual behavior among PLWHA (Ciccarone et al., 2003; N Crepaz & G Marks, 2003; DeRosa & Marks, 1998; S. C. Kalichman, Rompa, Luke, & Austin, 2002; Kok, 1999; Marks et al., 1999; Marks & Crepaz, 2001; McGowan et al., 2004; Niccolai, Dorst, Myers, & Kissinger, 1999; Stein et al., 1998). While rates of unprotected sexual behaviors reported in studies vary as a result of differences in research methodologies, recall periods, and risk behavior definition, one of the most commonly cited articles that reviewed several studies found that approximately 30% of PLWHA have unprotected intercourse (S.C Kalichman, 2000).

2.3.1 Historical Overview of PwP

Historically, most HIV prevention programs in the U.S. have focused on addressing the needs of those at risk for contracting HIV, such as specific high-risk subgroups and the general population. The chronological trajectory of PwP programs is interesting to note. It began with no PwP programs in existence and then moved to a few programs that ultimately failed to demonstrate effectiveness. By the late 1990s, a paradigm shift in HIV prevention was beginning to occur in which the lack of interventions for PLWHA was recognized by the CDC, and several calls for PwP programs in clinical settings followed in subsequent years. This historical trajectory is described in greater detail below.

Although there were calls for prevention programs for HIV-positive persons during the early years of the epidemic, no data demonstrated efficacious programs for PLWHA. The initial prevention programs for PLWHA that had been carried out had attempted to adopt programs that had been successful among people who were HIV-negative; not surprisingly, these programs were not effective for PLWHA. Since the aims and strategies of prevention were often markedly different for HIV-negative people compared with those for HIV-positive people, these programs were not directly applicable. With few exceptions, the primary prevention programs that existed for PLWHA entailed a single post-test counseling session when individuals received their diagnosis and briefly discussed safer sex practices and partner notification (Wolitski et al., 2005).

The need for targeted prevention programming for PLWHA did not become widely recognized or accepted until the broad dissemination of highly active antiretroviral therapy (HAART) in the mid-1990s led to increased longevity for people living with HIV. In 1997,

14

some of the strongest support for the need for Prevention with Positives (PWP) programs

came from a National Institutes of Health panel which concluded:

> "Programs must be developed to help individuals already infected with
> HIV to avoid risky sexual and substance behavior. This National priority
> will become more pressing as new biological treatments prolong life.
> Thus, prevention programs for HIV-positive people must have outcomes
> that can be maintained over long periods of time, in order to slow the
> spread of infection." (page 26) (National Institutes of Health (U.S.).
> Continuing Medical Education., 1997, p. 28).

In 2000, the Institute of Medicine released *No Time to Lose: Getting the Most from*

HIV Prevention which reported that the populations in greatest need of prevention efforts had

changed since the early years of the epidemic; specifically the report noted that growing

proportion of HIV cases were among women, racial minority groups, and rural and smaller

urban areas (Ruiz & Institute of Medicine (U.S.). Committee on HIV Prevention Strategies in

the United States., 2001). With this change in the demographic distribution of HIV, the

report offered specific strategies for HIV prevention including: 1) developing an accurate

surveillance system of new HIV infections to predict better the epidemic's trajectory; 2)

allocating prevention resources guided by principles of cost-effectiveness; 3) developing and

implementing prevention services for PLWHA that are integrated into the clinical care

setting; 4) translating findings from prevention research into action at the community level;

5) investing in the development of new tools and technologies to expand prevention efforts;

and 6) aiming to overcome social and political barriers that impede HIV prevention efforts.

The CDC initiated the Serostatus Approach to Fighting the HIV Epidemic (SAFE) in

2001. This new approach defined a framework for improving the health of PLWHA and

preventing transmission to other individuals. SAFE sought to achieve an increase in five

factors: 1) the number of HIV-infected persons who know their serostatus; 2) the use of

health care and preventive services among PLWHA; 3) high-quality care and treatment for people diagnosed with HIV; 4) adherence to HIV therapy among persons diagnosed with HIV; and 5) the number of persons diagnosed with HIV who adopt and maintain behaviors that reduce the risk of HIV and STI transmission (Janssen et al., 2001).

Two years late in 2003, the CDC announced the Advancing HIV Prevention (AHP) initiative to complement the SAFE approach. AHP formally adopted PwP as one of three core elements of a comprehensive approach to HIV prevention (2003b). Those three elements included: 1) HIV counseling, testing, and referral; 2) prevention for persons at high risk for HIV; and 3) prevention with persons living with HIV. AHP also included the availability of substantial public health resources to design and implement large-scale programs including one specific approach to prevent new infections by working with PLWHA and their partners (Seth C. Kalichman, 2005) and to integrate HIV prevention into the medical care of PLWHA.

In 2003, the CDC also released new guidelines for health care providers to incorporate HIV prevention into the care of their patients including recommendations for: 1) screening for HIV transmission risk behaviors and STIs, 2) providing brief behavioral risk-reduction interventions in the clinical setting and referring selected patients for additional prevention services, and 3) facilitating partner notification and counseling (CDC, 2003b).

There are potential auxiliary benefits to successful PwP initiatives in addition to prevention of new cases of HIV infection. A reduction in unprotected sexual activity protects PLWHA from contracting other sexually transmitted infections as well as from HIV reinfection, both of which can adversely impact their health (Blackard, Cohen, & Mayer, 2002; Filippini et al., 2001; O'Brien et al., 2003). In addition, programs for PLWHA can

provide access to medical services and improve adherence to medication regimens (Janssen et al., 2001). PwP initiatives often also include mental health, social service, and related ancillary programs to improve the general health and well-being of PLWHA, offering assistance with daily needs, such as transportation, meals, housing, and financial support (Conviser & Pounds, 2002).

2.4 HIV SEROSTATUS DISCLOSURE

A critical element of reducing HIV transmission risk is serostatus disclosure, that is, the informing by seropositive individuals of their serostatus to their sexual partners, in congruence with U.S. Public Health Service guidelines. HIV self-disclosure is commonly defined as the act of informing another person of one's own HIV serologic status. The general term "disclosure" in the context of HIV prevention has been primarily used for people who are HIV seropositive. Numerous factors influence one's decisions regarding when, how, and to whom to disclose.

Two reasons that public health officials have focused on serostatus disclosure to sexual partners as a critical element of PwP programs are that: 1) it may lead to safer sexual practices and 2) it may reduce the risk of re-infection with a resistant strain of HIV if both partners are HIV-positive. It can also decrease the risk of acquiring another STI if the discussion facilitates safer sex practices. In addition, disclosure may have greater public health benefit because it allows partners of HIV-positive individuals to make informed choices before initiating, or in some cases *re*-initiating, sexual contact. It also provides information to individuals that may motivate them to practice safer sex. Furthermore, disclosure creates an opportunity for both parties to negotiate and discuss options and

preferences for safer sex. When HIV-positive individuals do not disclose to their sexual partners, the partners may underestimate their own risk and may subsequently engage in less self-protective behaviors (Ciccarone et al., 2003; Derlega, Winstead, Oldfield, & Barbee, 2003; Zea, Reisen, Poppen, & Diaz, 2003). The lack of perceived personal benefit that PLWHA derive from disclosing may hinder them from disclosing. This raises the question of the extent to which HIV-infected persons disclose to sexual partners.

There are personal, social, and legal pressures to disclose one's HIV serostatus to sex partners. For example, 23 states currently have laws that make it a criminal offense for HIV-positive persons to engage in various types of sexual activity without serostatus disclosure to prospective sexual partners (Galletly & Pinkerton, 2006). In many states, health care professionals are also required to report to appropriate authorities instances when HIV-positive individuals have unprotected sex without informing partners of their infection (Lambda Legal Defense Fund, 2002).

Despite these incentives to disclose, other social pressures, such as stigma may serve as a barrier to disclosure. Several studies have assessed the proportion of PLWHA in a sample who have disclosed to partners but results vary, and the U.S. studies have been conducted primarily among gay or bisexual HIV-positive men. Proportions reported of HIV-positive persons who disclosed to sex partners in these studies ranged from 34% to 98% (Batterham, Rice, & Rotheram-Borus, 2005; D'Angelo et al., 2001; DeRosa & Marks, 1998; Hays et al., 1993; S. C. Kalichman et al., 2002; R. Klitzman et al., 2007; Marks et al., 1999; Marks & Crepaz, 2001; Niccolai et al., 1999; Patel et al., 2006; Prestage et al., 2001; Stein et al., 1998).

There is far more research in the international literature than the U.S. literature regarding serostatus disclosure among women. Most published studies were conducted in sub-Saharan Africa. Research from two studies of HIV-positive women in Kenya found disclosure rates ranging from 27% (time since diagnosis not reported) (Temmerman et al., 1990) to 37% within 1 year of diagnosis (Temmerman, Ndinya-Achola, Ambani, & Piot, 1995). Another study of women in Tanzania found that 17% disclosed their status to their partner (Kilewo et al., 2001). In a study of Tanzanian women, researchers found that a disclosure prevalence that varied based on time since diagnosis where 22% of HIV-positive women disclosed to a partner ranged within 2 months of diagnosis compared to 40% disclosing after a 4 year-period (Antelman et al., 2001). In a more recent study among women receiving HIV testing at a clinic in Dar es Salaam, Tanzania 64% of those who tested positive disclosed their HIV status to their sexual partners (Maman et al., 2003). Similarly, a study among women in Mali and Burkina Faso found a disclosure rate of 79.9% to sexual partners (Ndiaye et al., 2009). Of note, many of the barriers to disclosure discussed in the U.S. literature are also found in the international literature among women. For example, stigma, discrimination, level of intimacy in the sexual partnership, and fear are often cited as negative outcomes that may serve as barriers to disclosure of one's status to sexual partners (Daftary, Padayatchi, & Padilla, 2007; A. Norman, Chopra, & Kadiyala, 2007).

Table 6 on the following pages is a summary of studies that have assessed the extent of serostatus disclosure among PLWHA. Results from these studies illustrate that serostatus disclosure is not absolute, as partner serostatus and relationship type plays a role in disclosure decisions.

		TABLE 6: STUDIES ASSESSING DISCLOSURE AMONG PLWHA		
CITATION	**SAMPLE SIZE AND DESCRIPTION**	**PARTICIPANT DESCRIPTION**	**PRIMARY OUTCOME**	**RESULTS**
Simon Rosser et al, 2008	675 HIV-positive MSM	45% AA 25% White 23% Hispanic	Disclosure to secondary sexual partners	Disclosure to some secondary partners: 31% Disclosure to no secondary partners: 30%
Klitzman et al, 2007	1,828 HIV+ MSM at medical clinics and community agencies in LA, NY, Milwaukee, San Francisco	38% White 18% Hispanic 80% Homosexual 18% Bisexual	Disclosure to sexual partners	Disclosure to all partners: 46% Disclosure to main partner: 88% Disclosure to all casual partners: 42% Disclosure associated with relationship type and perceived partner status
Mohammed and Kissinger, 2006	273 HIV+ adults seeking HIV care in rural Louisiana	58% AA 68% Male Mean age: 30	Disclosure to partners 3 mos. after diagnosis and 3 mos. prior to interview	Disclosure to past partners: 57% Disclosure to current partner: 81% African Americans and those with >1 partner less likely to disclose to current partners.
Raj et al 2006	124 HIV+ adults in HIV Alcohol Longitudinal Cohort study	49% AA 79% Male Age range: 25-61	Disclosure to sexual partners in past 6 mos.	Disclosure to partner: 68% Odds of nondisclosure higher for those with multiple partners
Batterham et al, 2005	604 HIV+ adolescents at clinics in LA, NY, Miami, San Francisco	Pre-HAART cohort: 72% Male Post-HAART cohort: 70% Male	Disclosure to sexual partners in past 3 mos.	Odds of disclosure higher among MSM and those who have had a longer time since diagnosis. Odds of disclosure lower if partners were casual or were known to be HIV-negative.
Parsons et al., 2005	858 gay and bisexual males in Seropositive Urban Men's Study	25% AA 15% Hispanic 50% White	Disclosure to casual sexual partners in the past 3 mos.	Disclosure to all casual partners: 29% Disclosure to some casual partners: 38% Disclosure to no casual partners: 33%
Poppen et al, 2005	219 HIV+ males in large-scale study from clinics in Washington, DC, NY, Boston	Age range: 23-62	Disclosure to most recent sexual partner	Disclosure to HIV+ partners: 83% Disclosure to HIV- partners: 78% Disclosure to HIV? partners: 20% Disclosure to main partner: 81% Disclosure to casual partner: 34%
Crepaz and Marks, 2003	105 HIV+ male patients at public	64% AA 20% White	Disclosure to most recent sexual partner	Disclosure to at-risk partner: 53%

	outpatient clinic in LA	16% Latino Age range: 26-58		
O'Brien et al, 2003	269 HIV+ adults at outpatient clinic in New Orleans	84% AA 12% White 52% Male Age range:18-74	Disclosure to various types of people	Disclosure to main partner: 74% Disclosure to casual partner: 25%
D'Angelo et al, 2001	317 HIV+ adolescents in 15-site REACH study	72% White 14% Hispanic 70% Female	Disclosure to sexual partners	Disclosure to any partner: 47.5% Disclosure more likely to HIV+ partners (vs. HIV- or HIV?) and to main (vs. casual partners)
Petrak et al, 2001	95 HIV+ adults at outpatient clinics in London	76% White 83% Male	Disclosure to significant other	Disclosure to current partner: 91%
Kalichman and Nachimson, 1999	266 HIV+ adults at social service agencies and providers in Atlanta	67% AA 29% White 76% Male	Disclosure to sexual partners	Disclosure to most recent partner: 78% of men and 79% of women. Non-disclosure was associated with lower self-efficacy for disclosure.
Niccolai et al, 1999	147 HIV+ adults reporting to public STD clinic in New Orleans	52% Male 88% AA 44% under age 30	Disclosure to most recent partner	Disclosure to last partner: 76% Being in a monogamous relationship predicted disclosure.
DeRosa and Marks, 1998	255 HIV+ male patients at 2 outpatient clinics in LA	43% Hispanic 40% White 62% Homosexual 29% Bisexual	Disclosure to sexual partners in past 2 mos.	Disclosure to HIV+ partner: 93% Disclosure to HIV- partner: 57% Disclosure to HIV? partner: 23%
Stein et al, 1998	129 HIV+ adults at two hospitals in Boston and Providence	46% AA 23% Hispanic 69% Male	Disclosure to sexual partners in past 6 mos.	Disclosure to all partners: 60% Of the 40% non-disclosers, 50% did not disclose to their one and only partner.
Wolitski et al, 1998	701 HIV+ and HIV- men in Dallas, Denver, Seattle, and Long Beach	90% White 6% Hispanic Age range: 18-71	Disclosure to various types of people	Disclosure to main sex partner: 89%
Mason et al, 1997	369 HIV+ men at outpatient clinics in LA	72% White 28% AA Mean age: 38	Disclosure to various types of people	Disclosure to intimate lover: 89% of AA and 97% of Whites
Mansergh et al, 1995	684 HIV+ patients at 2 HIV outpatient clinics in LA	42% Hispanic 40% White Median age: 36	Disclosure to various types of people	Men recently diagnosed were more likely to have informed intimate lovers and friends than family members. Disclosure was lower among asymptomatic than symptomatic men.

Simoni et al, 1995	65 HIV+ female patients at 2 outpatient clinics in LA	63% Hispanic 20% AA Age range: 18-69	Disclosure to various types of people	Disclosure to lover/partner: 87% Spanish-speaking Latinas were less likely to disclose than English-speaking Latinas, African Americans, and Whites.
Stempel et al, 1995	93 HIV+ patients at hospital in San Francisco	Not available	Disclosure within year of diagnosis	Disclosure to main partners: 82%
Hays et al, 1993	163 HIV+ males in AIDS Behavioral Research Project	96% White Age range: 24-68	Disclosure to various types of people	Disclosure to partner: 98%
Schnell et al, 1992	249 HIV+ males in AIDS Community Project	86% White 10% Hispanic Median age: 32	Disclosure to sexual partners	Disclosure to main partner: 89%
Marks et al, 1991	138 HIV+ male patients at public clinic in LA	75% Hispanic 15% White	Disclosure since diagnosis	Disclosure to one or more partners: 48%

2.4.1 Factors Motivating PLWHA to Conceal or Disclose their Serostatus

Nondisclosure of one's HIV status can be regarded as either passive ("passive omission") or active ("active deception") (Stein et al., 1998). Disincentives to revealing one's status exist and may motivate people to avoid disclosing their serostatus (Ciccarone et al., 2003). Some commonly cited reasons for nondisclosure include the fear of discrimination, (Petrak, Doyle, Smith, Skinner, & Hedge, 2001) fear of physical violence from a partner, (Gielen, O'Campo, Faden, & Eke, 1997) fear of rejection, stigmatization, or fear that confidentiality will be broken (Hays et al., 1993; Moneyham et al., 1996) and the desire to maintain secrecy and to protect others from emotional distress (J. Simoni et al., 1995).

On the other hand, some people are motivated to disclose because, keeping one's HIV status a secret from others can have detrimental effects on one's physical and emotional well-being. For many PLWHA, disclosure can lead to gaining a variety of physical, social, and emotional resources (J.M. Serovich, 2001). Disclosure can lead to greater emotional support in helping PLWHA to cope with their illness as well as obtaining assistance in managing their illness, such as child care assistance or transportation to doctor appointments (Black & Miles, 2002). Furthermore, some studies have found that the sense of personal responsibility to protect one's partner is a motivator to disclose one's status (J. M. Serovich & K. E. Mosack, 2003; J. Simoni et al., 1995; Wolitski, Bailey, O'Leary, Gomez, & Parsons, 2003).

2.4.2 Theoretical Frameworks for Understanding HIV Disclosure

Unfortunately, few theoretical frameworks exist that specifically seek to explain HIV disclosure by PLWHA. However, Mason and colleagues contend that the theory of reasoned

action can be used to understand and explain much of the disclosure research ((Mason, Marks, Simoni, Ruiz, & Richardson, 1995). The theory of reasoned action (TRA) assumes that individuals are rational actors and make rational choices, with motivational factors serving as determinants of their likelihood of performing a given behavior. TRA states that behaviors are best predicted by intentions which stem partly from an individual's motivations.

More recently, two disclosure theories have been postulated: the disease progression theory and the competing consequence theory (J.M. Serovich, 2001). Disease progression theory proposes that PLWHA disclose their status as their HIV progresses to full-blown AIDS because they are no longer able to keep their illness a secret (Aronstein & Thompson, 1998; Seth C. Kalichman, 1995). Previous research supports this theory demonstrating that there is an association between increasing symptom severity, physical deterioration, and hospitalization and an increased likelihood of disclosure (Hays et al., 1993; Marks et al., 1992; Mason et al., 1995). However, research on disease progression and disclosure specifically to sexual partners have not demonstrated this relationship (Mansergh, Marks, & Simoni, 1995; Perry et al., 1994). It is also possible that the relationship between disease progression and disclosure may be less clear with the increased availability and use of HAART, as many of the aforementioned studies were conducted before HAART was available. As many PLWHA are living longer, healthier, more productive lives since the advent of HAART, the disease progression theory may be less plausible than it was in the early years of the epidemic.

On the other hand, consequence theory argues that the association between disease progression and serostatus disclosure is moderated by the consequences an individual expects

as a result of disclosure (J. M. Serovich, 2001). In other words, stresses accumulate as one's

HIV progresses, resulting in the need for an individual to evaluate the negative and positive

consequences of disclosure. This theory builds from social exchange theory, which

postulates that individuals tend to avoid costly relationships and prefer to seek rewarding

ones (Thibaut & Kelley, 1959). The consequences theory also expands upon the disease

progression theory in that it recognizes that disclosure is motivated by more than overt

symptoms, such as one's physical appearance, as disclosers take into consideration the

expected reactions of those to whom they disclose. As noted earlier, the negative

consequences associated with HIV serostatus disclosure are considerable and can include

feelings of anxiety and threats to personal well-being (J.M. Serovich, 2001).

Support for the consequence theory in the literature is growing. For example,

Derlega and colleagues found that the process of reducing risks and increasing benefits of

serostatus disclosure resulted in the selectivity of to whom to disclose (1998). Others have

also found support for the consequence theory with findings that suggest an individual

assesses the rewards and costs associated with disclosure before actual disclosure takes place

(Emlet, 2006; J.M. Serovich, 2001).

However, what remains unclear is the process that individuals undergo to determine

and evaluate such rewards and costs (Robert Klitzman & Bayer, 2003). Serovich argues that

better research into understanding disclosure patterns specifically to sexual partners is needed

because they are a unique sub-group of individuals to whom disclosure occurs. These

disclosure patterns, and the rewards and costs associated with them, may be quite different

from disclosure to family members, friends, or health care professionals. In particular,

Serovich states that feeling of an obligation or duty to inform may be more predictive of

disclosure to sexual partners that to other subgroups. Other relationship variables, such as strength and duration of a relationship or power differentials between partners, might be important to consider when applying the consequences theory to understanding disclosure patterns. In addition, given that serostatus disclosure to sexual partners is not carried out for all HIV-positive persons in all instances, understanding important factors that serve as barriers or disincentives to disclosure and the role the disclosure may play in facilitating safer sex are important for better understanding how to reduce transmission among PLWHA.

2.5 OVERVIEW OF STIGMA

There are many factors that contribute to the health and health-related behaviors of HIV-positive individuals. One such factor is stigma. Recent research demonstrates that HIV-related stigma may have an impact on various health behaviors, such as medication adherence (Fortenberry, 2002; Stall, 1996; Worthington, 2003) and disclosure (Clark, 2003; Derlega, 2002; Laryea, 1993; Lester, 2002).

Social anthropologist Erving Goffman defines a stigmatized individual as one who is seen as possessing an undesirable trait or characteristic that is viewed negatively or deemed to be flawed by societal standards. As an outcome, stigma takes place when the negative social meanings applied to the discrediting trait become connected to the individual. As a result of this link, an individual's social identity changes, leading to a less than full acceptance of the person in social interactions (Goffman, 1963).

In Goffman's view, the person's experience of stigma is influenced by the nature of the stigmatizing attribute. For example, if the trait is not directly apparent to others, the individual is considered "discredible" rather than immediately discredited. This reality

26

contributes to an individual's ability to conceal the attribute from others to be able to "pass" as "normal" (Goffman, 1963). However, even those individuals who effectively hide their stigma trait may still experience their own internalized perception of being imperfect or flawed. According to Goffman, both the awareness of how one violates social norms by possessing the trait as well as the negative reactions that stigmatized individuals either expect or have experienced first-hand in the past play a role in negative self-evaluation, anxiety, social withdrawal, and loss of self-esteem. However, a stigmatizing trait does not automatically induce a stigmatizing reaction in every situation. The inability to accurately predict a person's reaction contributes to the anxiety produced for the stigmatized individual. Some people completely reject the notion of shame and difficulty associated with accepting their stigmatizing trait or condition (Goffman, 1963). Rather, while acknowledging that they possess the attribute, they reject the social meaning assigned to the trait and to themselves as a possessor of that trait. Such individuals may become leaders in educational efforts or in community activism, which may include self-disclosure of one's attribute (Berger, Ferrans, & Lashley, 2001).

Research on stigma has been applied to a variety of health conditions, ranging from cancer (Fife & Wright, 2000) to mental illness (Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999). Health-associated stigma can result from a noticeable physical condition or limitation, such as a limb amputation, or from a concealable condition, such as asymptomatic HIV infection (Berger et al., 2001). Stigma has been found to be associated with a variety of psychological concerns including feelings of shame, guilt, fear, and anger (M. Bennett, 1990; Laryea & Gien, 1993). Stigmatized individuals are also susceptible to

feelings of self-hatred, often resulting from internalization of society's negative views of them (Herek, 1990; Novick, 1997).

2.5.1 HIV Stigma

Herek contends that HIV possesses four characteristics that explain its high stigmatization (1999). First, HIV is a disease that is perceived to be the responsibility of the individual affected, since the primary methods of transmission are behaviors considered to be controllable and avoidable. Second, HIV is perceived as a condition that is generally fatal, despite medication advances such as the effectiveness of HAART that are transforming HIV into a chronic rather than lethal disease. Third, those health conditions that are contagious are more likely to carry greater stigma than those conditions that are not communicable. Finally, health conditions that are visually noticeable, such as the advanced stages of HIV/AIDS, are more stigmatized than those conditions that are concealable.

Berger, Ferrans, and Lashley describe a model of HIV stigma that accounts for the seropositive individual's perception of stigma (2001) rather than the general public's views of PLWHA. They argue that because HIV may not have overt or noticeable symptoms or physical characteristics, an HIV-positive person can "pass" as normal. However, the individual may perceive him/herself negatively. This perception of stigma has two contexts: first, an internalized stigma component—the individual's own perception of being infected with HIV and an externalized component—individual's perception of society's view of the HIV-positive individual.

Much of the empirical research on HIV-related stigma has tended to focus on the attitudes and beliefs of those who are perceived to stigmatize others (Parker & Aggleton,

2003). For example, recent population-based telephone surveys in the United States have found that nearly 25% of those surveyed believed that people with AIDS "have gotten what they deserve," 22% believe that people with AIDS don't care if they infect others, and one-third reported that they would actively avoid interacting with an HIV-positive individual (Herek, Capitanio, & Widaman, 2002). It has been suggested that HIV stigma derives from the dislike of marginalized communities initially infected with HIV such as injection drug users and homosexuals (Herek & Glunt, 1988) as well as the connection to lifestyles and behaviors that are culturally taboo, such as homosexuality, sexual promiscuity, and illegal drug use (Hayes, Vaughan, Medeiros, & Dubuque, 2002; Herek et al., 2002; Herek & Glunt, 1988; Pryor, Reeder, Yeadon, & Hesson-McLnnis, 2004). For example, research has found that PLWHA who contracted the disease through sex with multiple partners or through sharing needles were viewed more negatively than those infected through sex with only one partner. PLWHA who contracted the virus through sex, gay and bisexual men are also viewed more negatively than heterosexual men and women (Herek and Capitanio, 1998). In addition, misinformation and fear of PLWHA also contributes to the persistence of HIV stigma in the general public (Vanable, Carey, Blair, & Littlewood, 2006). More recent qualitative research has suggested that the layering of stigma among PLWHA with gender, race, and sexual orientation stigmas presents a methodological challenge when attempting to understand stigma as well as develop effective interventions to lessen its effects (Sandelowski, Barroso, & Voils, 2009).

2.5.2 Research about the Association between HIV Stigma and Disclosure

The role of stigma is an important consideration when examining reasons for non-disclosure. Previous research has found that stigma has a negative impact on a number of factors in the lives of PLWHA including when, how, and to whom to disclose (Derlega, Winstead, Greene, Serovich, & Elwood, 2002; Lie & Biswalo, 1996; van der Straten, Vernon, Knight, Gomez, & Padian, 1998). Findings in the literature have shown that disclosure is consistently associated with stigma perceptions (Clark, Lindner, Armistead, & Austin, 2003; Derlega et al., 2002; Simbayi et al., 2006; Smith, Rossetto, & Peterson, 2008). Stigmatization may have an influence on disclosure decisions due in large part to preconceived ideas about PLWHA. For example, research has found that those who feel shameful about their HIV status are more likely withhold disclosure to casual sex partners (Serovich, 2003). In addition, nondisclosure can be viewed as an act of "protective silence" whereby limiting disclosure can control the possibility of facing stigma (Emlet, 2006).

As illustrated by Serovich's consequences theory of disclosure, research studies have found that the disclosure decision-making process results from people weighing the pros and cons associated with serostatus disclosure (Armistead, Tannenbaum, Forehand, Morse, & Morse, 2001; Black & Miles, 2002; J.M. Serovich, 2001). Stigma may deter PLWHA from disclosing their serostatus to others, including sexual partners, for fear of rejection, hostility, discrimination, (Chesney and Smith, 1999) fear of relationship dissolution or disruption (Mohammed & Kissinger, 2006) and fear of physical violence by their partner (Zierler et al., 2000). For example, one study found 50% of PLWHA who disclosed their status experienced rejection (Laryea & Gien, 1993) while another study found non-disclosure to be associated with fear of rejection and self-blame (Derlega et al, 2002). A more recent study

found that higher levels of stigma were associated with decreased levels of disclosure as well as psychosocial functioning (Clark et al., 2003). In addition, self-disclosure decreases the ability to control secondhand disclosure by others, which may lead to stigmatizing consequences (Ostrom, Serovich, Lim, & Mason, 2006). Regardless of one's previous experiences with and others' reaction to serostatus disclosure, many PLWHA fear they risk a stigmatizing response with each prospective disclosure.

A commonly cited result of stigma which makes it particularly challenging for HIV serostatus disclosure is the perceived loss of social support from partners, friends, and family members (S. C. Kalichman & Simbayi, 2003). Though no one community is immune to HIV transmission, it is still viewed as a disease that primarily affects marginalized populations and is associated with undesirable behaviors, such as injection drug use, prostitution, or promiscuity (Herdt, 2001). Black and Miles argue that few illnesses in modern times carry the level of stigma and resulting social isolation as seen among HIV-positive individuals (2002). Conceptualization of the epidemic as a process of disease and illness over time with consideration for those sub-populations that have been most impacted, one can begin to comprehend how stigma and discrimination have shaped rates of HIV infection as well as impacts the likelihood of serostatus disclosure (Herdt, 2001).

2.6 TRANSMISSION RISK PERCEPTIONS

The widespread use of HAART in the United States since 1996 has dramatically reduced the morbidity and mortality associated with HIV infection (CDC, 2002). The goal of HAART treatment is to lower the HIV viral load to levels that are deemed undetectable (<50 copies/mL), as research has shown that high viral load levels impair an individual's immune

system and can lead to the opportunistic infections characteristic of an AIDS diagnosis. Many HIV-positive persons have been able to achieve lower viral loads due to HAART use and strict adherence to their treatment regimens (Carpenter, 1997; Friedland, 1999; Montaner, 1998).

While there are clear clinical benefits of HAART availability and use, there may be some unintended negative effects of HAART use on the sexual behaviors of PLWHA. Research studies suggest that optimism about the effectiveness of HAART may be contributing to relaxed attitudes toward safer sex practices and increased sexual risk-taking by some PLWHA (Fleming & Wasserheit, 1999; Kelly, Hoffman, Rompa, & Gray, 1998; Kravcik et al., 1998; Van de Ven, Kippax, Knox, Prestage, & Crawford, 1999). In addition, serostatus disclosure patterns may have shifted recently in ways that have not yet been fully examined due to HAART availability and use (Klitzman et al., 2004).

Despite an abundance of literature investigating disclosure after the widespread availability of HAART, few studies have specifically examined HAART-associated perceptions among PLWHA or risk perceptions with undetectable viral loads as they relate specifically to serostatus disclosure. While some studies on disclosure include clinical or medical indicators (such as CD4 count) as variables of interest, the role of HAART-related beliefs has received much less focus in the disclosure literature. The few published studies discuss disclosure and actual HAART adherence, not disclosure and HAART-related beliefs among PLWHA (R. L. Klitzman et al., 2004). Furthermore, the research studies on transmission risk beliefs with HAART and risk perceptions given different viral loads have used unprotected sexual activity as the primary outcome variable, not serostatus disclosure (Crepax, Hart & Marks, 2004; Kalichman et al., 2006). Crepaz and colleagues argue that it is

important to investigate whether beliefs about HAART and its use are associated with sexual risk taking behaviors (2004). Yet, only one qualitative study to date has examined the relationship between serostatus disclosure and HAART beliefs (Klitzman et al., 2004). This study found that the desire to remain healthy and take one's medications may conflict with a desire to maintain privacy about one's HIV status, where disclosure can both facilitate and impede medication adherence.

Traditional health behavior theories tend to focus on constructs that emphasize an individual's attitudes, beliefs, motivations, and behaviors in an effort to predict or explain events or situations, often conceptualized as a way to keep *oneself* healthy and avoid disease or illness. Since the HIV transmission risk beliefs discussed above pertain to reducing or eliminating an individual's chances of exposing *another individual* to HIV, it is difficult to link directly theoretical constructs to these concepts. Despite the limitations of applying traditional health behavior theoretical constructs to these transmission risk beliefs, further research is needed into understanding the role of HAART-related beliefs and risk perceptions based on undetectable viral loads with serostatus disclosure among PLWHA, particularly since HAART is offering PLWHA to live longer, healthier lives. More specifically, additional studies examining these relationships are warranted that include a diverse sample of PLWHA, as beliefs may not be uniform across different sub-populations, such as MSM, women, and heterosexual men.

2.7 SUBJECTIVE NORMS

Subjective norms are defined as the beliefs about whether most people approve or disapprove of a given behavior (Glanz, Rimer, & Lewis, 2002). They represent a construct of the Theory of Planned Behavior (TPB) (Ajzen, 1991) and are determined by the perceived social pressure to perform a given behavior. The TPB has received significant support from research on the adoption of many health-related behaviors, including safer sex behavior (Albarracín, Fishbein, Johnson, & Muellerleile, 2001; Rye, Fisher, & Fisher, 2001; Sheeran, Abraham, & Orbell, 1999). TPB has been applied to a study on understanding the provision of HIV prevention information by health care providers to their patients (Montano, Kasprzyk, von Haeften, & Fishbein, 1998) and predictors of condom use among Black, Hispanic, and White heterosexual women at risk for HIV and STIs (Von Haeften & Kenski, 2001).

However, there has been a lack of research examining the influence of subjective norms on the disclosure practices of HIV-positive individuals. How different referent groups (friends, family members, and sexual partners) feel about the need for HIV-positive persons to 1) disclose their status and 2) engage in safer sex behavior may influence the actual behaviors of HIV-positive persons. This is an area that has been under-researched yet may shed some light into better understanding the influence of social forces on risk behavior.

2.8 URBANICITY

The demography of the HIV epidemic in the United States has changed over the last 25 years. While most cases were initially found among gay white men in urban areas (Kelly & Murphy, 1992) cases more recently are found in minority populations, heterosexual men,

women, and those living in non-urban areas (Chu & Selwyn, 2008; Karon et al., 2001).

Similar to other Southern states, North Carolina's HIV epidemic is more rural and more

heterosexually transmitted in nature. The state has the second highest number of AIDS cases

in the nation from non-metropolitan areas. Approximately one-quarter of the state's HIV

cases come from rural areas (DHHS, 2008). HIV-positive individuals who reside in rural

areas are often less educated, lack health insurance, and are more likely to be unemployed

compared to those living in urban areas (Gaskins, 2006). Furthermore, rural areas are more

likely to have conservative cultural norms that may contribute to stigmatization for PLWHA

and influence disclosure decisions (McKinney, 2002; Nguyen & Whetten, 2003; Tiemann,

2006; Whetten-Goldstein, Nguyen, & Heald, 2001). A recent study among HIV-positive

patients in New England found that the size of the community where a person resides was

associated with the level of disclosure stigma experienced (Gonzalez, Miller, Solomon,

Bunn, & Cassidy, 2008). Specifically, the authors found that rural women were more likely

to report disclosure concerns than women residing in metropolitan and micropolitan areas.

Similarly, rural women reported more disclosure concerns than rural men. In addition, men

residing in micropolitan communities were more likely to report disclosure concerns than

men in rural areas.

Given these findings, it is important to examine the level of urbanicity as a correlate

of serostatus disclosure. Rural urban community area (RUCA) codes classify U.S. census

tracts using measures of population density, urbanization, and daily commuting. The most

recent RUCA codes are based on data from the 2000 census. The codes are categorized as

whole numbers (1-10) and delineate metropolitan, micropolitan, small town, and rural

commuting areas based on the size and direction of the primary (largest) commuting flows.

2.9 RELATIONSHIP BETWEEN SEROSTATUS DISCLOSURE AND TRANSMISSION RISK BEHAVIORS

Underlying efforts to encourage serostatus disclosure is the assumption that disclosure will increase the safety of later sexual behaviors with informed partners. According to Norman and colleagues, "it is reasonable to assume that a couple's diligence in using condoms consistently and correctly would be enhanced by one partner's disclosure of positive serostatus (L. R. Norman, Kennedy, & Parish, 1998). Many have speculated that there is a relationship between serostatus disclosure to sexual partners and transmission risk behaviors. However, the relationship between HIV disclosure and sexual risk behavior is complex, and there has been inconsistency in research findings about this relationship.

A variety of ethical concerns are raised when discussing sexual contact in the absence of disclosure of one's serostatus. One of the largest ethical concerns is the denial of an opportunity for an at-risk partner to make an informed decision about acceptable levels of risk behaviors (Bayer, 1996; R. Bennett, Draper, & Frith, 2000). As a result of this concern, many public health officials have contended that disclosure and protected sex are necessities with all sexual partners in all cases, (Marks & Crepaz, 2001) particularly since 23 states have laws that make it a criminal offense for HIV-positive persons to engage in various types of sexual activity without, in most cases, serostatus disclosure to prospective sexual partners (Galletly & Pinkerton, 2006).

Studies suggest that disclosure may promote safer sex practices, such as safer sex negotiation and condom use, with serodiscordant partners (Hays et al., 1993; Marks, Richardson, & Maldonado, 1991; Prestage et al., 2001; Schnell et al., 1992; Semple, Patterson, & Grant, 2000). Disclosure has been found to be associated with reduced sexual

risk behavior (S. C. Kalichman & Nachimson, 1999; Niccolai et al., 1999) and having fewer sexual partners (Marks et al., 1991) although the direction of a potential causal relationship is unknown. Perceived partner serostatus may influence these patterns. For example, unprotected sex may be more likely in seroconcordant couples who have disclosed (Marks et al., 1994). Marks and Crepaz found that while 40% of PLWHA did not inform all sexual partners of their status, they were more likely than disclosers to use condoms regularly (Marks & Crepaz, 2001).

Just because individuals do disclose their status to sexual partners does not ensure that they will subsequently abstain from any unsafe sexual practices. Disclosure does not necessarily indicate that sexual partners will use this information to protect themselves from infection (J.M. Serovich & K.E. Mosack, 2003). Research supports this notion as several studies have found no association between disclosure and transmission risk behaviors (Hart, Wolitski, Purcell, Parsons, & Gomez, 2005; S. C. Kalichman et al., 2002; Marks & Crepaz, 2001; Stein et al., 1998; Wolitski, Rietmeijer, Goldbaum, & Wilson, 1998). In an effort to better characterize the relationship between disclosure and transmission risk behavior, Marks and Crepaz's 2001 study found that HIV-positive men fell into one of four categories regarding the relationship between disclosure and sexual practices:

1) 40% engaged in informed protection (safer sex with disclosure)

2) 35% engaged in uninformed protection (safer sex without disclosure)

3) 12% engaged in informed exposure (unsafe sex with disclosure)

4) 13% engaged in uninformed exposure (unsafe sex without disclosure).

Conversely, it should not be assumed that nondisclosure will automatically lead to unprotected sexual activity as some individuals may feel that safer sex obviates the need for

disclosure. For example, HIV-positive individuals may consciously choose not to disclose as a way to protect their privacy and escape the possible negative consequences of disclosure, such as stigma. Yet, these individuals will engage in protected sexual activity despite nondisclosure, perhaps as a result of personal responsibility to protect their partner (Seth C. Kalichman, 2005). However, practicing safer sex without disclosure is not an ideal behavior, as safer sex may not be practiced on a consistent basis with these partners.

Varied findings from the aforementioned studies suggest that future researchers should not assume that disclosure will lead to safer sex behaviors. Methodological limitations in many of these studies, such as a failure to assess the specific timing of disclosure in relation to sexual activity, lack of assessment of the serostatus of partners, and inconsistency in definitions of safer sex, prohibit the ability to make definitive interpretations about the relationship between serostatus disclosure and safer sex. In addition, the lack of a strong correlation in many studies between disclosure and safer sex may be due to the high frequency of uninformed protection (safer sex without disclosure) and informed exposure (unsafe sex with disclosure) likely to exist for many PLWHA. In terms of uninformed exposure (unsafe sex without disclosure), instances of this behavior are relatively small. However, even a small number of such cases can contribute to new cases of HIV infection (Marks & Crepaz, 2001; Simoni & Pantalone, 2005). Table 7 describes studies that have assessed the relationship between serostatus disclosure and transmission risk behaviors.

Table 7: Studies Assessing Serostatus Disclosure and Transmission Risk Behaviors				
Citation	**Sample Description**	**Disclosure to Sexual Partners**	**Transmission Risk Behaviors**	**Association between Disclosure and Transmission Risk Behavior**
Simon Rosser et al (2008)	675 HIV+ men in 6 cities	Secondary partners: 30% disclosed to none 31% disclosed to some 39% disclosed to all	66% of those with serodiscordant partners had unprotected sex	Those who disclosed to none of their partners had significantly greater odds of unprotected anal sex with a serodiscordant partner
Duru et al (2006)	875 HIV+ adults in HIV Cost and Services Utilization Study	MSM: 40% disclosed to every partner MSW: 66% disclosed to every partner Women: 73% disclosed to every partner	Not directly reported	Knowledge of partner serostatus associated with sex without disclosure. Women less likely to have sex without disclosure than men
Crepaz and Marks (2003)	105 HIV+ male patients at clinic in LA	53% disclosed to HIV-negative or HIV? partner	28% engaged in unprotected anal or vaginal sex with at-risk partner	Disclosure was not related to safer sex
Ciccarone et al (2003)	1,421 HIV+ adults in HIV Cost and Services Utilization Study	Not reported	Sex w/o disclosure: 42% of MSM 19% of MSW 17% of women	13% of serodiscordant partnerships involved unprotected anal or vaginal sex without disclosure
Kalichman et al (2002)	269 HIV+ men and 114 HIV+ women in Milwaukee	78% of those with a regular partner disclosed 54% of those with non-regular partner disclosed	71% of those who had sex did so with serodiscordant partners	% of protected sex with regular or non-regular serodiscordant partners (68-77%) was similar regardless of whether disclosure had occurred
Marks and Crepaz (2001)	206 HIV+ men at clinic in LA	52% disclosed to HIV-negative or HIV? partner	25% engaged in unprotected anal or vaginal intercourse	Safe sex more prevalent among disclosers (78%) than non-disclosers (73%)
Sturdevant et al (2001)	153 HIV+ and HIV- adolescent girls	Among HIV+ girls, disclosure related to perception partner was HIV+	59% of HIV+ youth reported unprotected sex in past 3 mos.	Among HIV+ girls, without disclosure (vs. with disclosure) less condom use was reported
Kalichman and Nachimson (1999)	266 HIV+ adults from clinics near Atlanta	59% had disclosed to at least 1 partner in the last 6 mos. 78% of men and 79% of women had disclosed to last partner	Not directly reported	Among men, disclosers reported higher rates of condom use (especially during anal sex) than non-disclosers

Niccolai et al (1999)	147 HIV+ adults at clinic in New Orleans	76% disclosed (passively or actively) to last partner	76% reported consistent condom use, 85% reported condom use at last sexual intercourse	Those with consistent condom use were 2.7 times more likely to disclose than those with inconsistent condom use.
Stein et al (1998)	203 HIV+ adults in Boston and Providence	60% disclosed to all partners	43% reported consistent condom use	Consistent disclosers, inconsistent disclosers, and non-disclosers reported similar condom use rates.
De Rosa and Marks (1998)	255 HIV+ men at 2 clinics in LA	93% disclosed to HIV+ partners 57% disclosed to HIV- partners 23% disclosed to HIV? partners	26% of informed partners and 16% of uninformed partners had protected sex	Among HIV- partners, exclusively protected sexual activity occurred with a significantly greater percentage of informed than uninformed partners
Wolitski et al (1998)	701 MSM in 4 cities	89% disclosed to primary partner 34% disclosed to non-primary partner	16% reported inconsistent condom use with an uninformed non-primary partner	With primary partners, HIV+ disclosers and non-disclosers did not differ in sexual practices or condom use. With non-primary partners, disclosers more likely than non-disclosers to report consistent condom use for insertive anal sex
Sobel et al (1996)	200 HIV+ adults in NY	77% disclosed	41% reported inconsistent or no condom use	No difference in proportion of consistent condom users vs. inconsistent/non-users who disclosed
Geary et al (1996)	167 HIV+ males with hemophilia	42% disclosed to most recent partner	64% of disclosers and 66% of non-disclosers reported consistent condom use	No significant association between disclosure and condom use
Marks et al (1994)	609 HIV+ men at 2 outpatient clinics in LA	86% disclosed to HIV+ partners 46% to HIV- partners 18% to HIV? partners	9% engaged in unprotected insertive sex in past 2 mos.	HIV+ respondents had unprotected insertive anal sex with 18% of HIV- partners who were informed and with 23% of HIV- partners who were not informed
Marks, Richardson, and Maldonado (1991)	138 HIV+ men at clinic in LA	48% of sexually active men disclosed to all partners, disclosure more common to HIV+ than HIV- partners	17% engaged in unprotected insertive anal sex with HIV- partners without disclosure	Disclosure to HIV+ partners occurred with unprotected contact, whereas disclosure to HIV- partners occurred with protected contact

2.9.1 Partner Characteristics

Partner characteristics, such as type of relationship (main/regular versus casual/non-regular) and serostatus of the partner (positive, negative or unknown) may also play a role in the relationship between serostatus disclosure and sexual transmission risk behaviors. Studies have found that HIV-positive persons are more likely to engage in unprotected sex with main versus casual partners and with HIV-positive partners versus uninfected partners (N. Crepaz & Marks, 2002; S.C Kalichman, 2000; S. C. Kalichman et al., 2002; Lightfoot, Song, Rotheram-Borus, & Newman, 2005). In addition, serostatus disclosure has been found to be associated with partner serostatus and relationship type. One study found that disclosure was more likely to occur to sex partners who were HIV-positive (90%) than to those partners who were HIV-negative (50%) or to those whose HIV serostatus was unknown (25%) (DeRosa & Marks, 1998). In a 16-study review, HIV-positive men were more likely to disclose to main sex partners than casual or non-steady partners (Sullivan, 2005). However, other studies have not found an association between type of relationship and serostatus of the partner with transmission risk behaviors (Milam et al, 2006). Unfortunately, many of these studies were conducted only with MSM, often in large, urban areas of the United States. Future research is needed to better understand the relationship between serostatus disclosure and transmission risk behaviors among heterosexual men and women.

2.10 SUMMARY

The methodological shortcomings of many previous studies on predictors of serostatus disclosure and on the relationship between disclosure and transmission risk

behavior suggest that further investigation is warranted. In addition, few studies have examined thoroughly the study aims with a heterogeneous population of PLWHA in the Southeast. More research also is needed on the extent to which transmission risk beliefs, stigma experienced by PLWHA, and subjective norms are correlated with serostatus disclosure. Furthermore, additional study on the role of partner characteristics as moderators of the relationship between disclosure and transmission risk behavior is necessary to better develop and implement prevention programming for PLWHA. To address these issues, the study presented here will investigate these areas of interest with a sample of HIV-positive patients at three clinics in North Carolina.

CHAPTER THREE: RESEARCH QUESTIONS, HYPOTHESES, AND CONCEPTUAL MODEL

Based on the review of the literature in Chapter Two, theoretical perspectives and empirical findings from the HIV prevention field inform the conceptual model for the proposed study. In this chapter, I present my specific aims and their associated research questions and hypotheses. I also present my conceptual model and illustrate the relationships between study variables of interest as set out in the research questions and hypotheses.

3.1 RESEARCH QUESTIONS AND HYPOTHESES

The broad goal of the proposed dissertation research is to assess the factors that are associated with HIV serostatus disclosure to sexual partners and HIV transmission risk behaviors among participants in a randomized controlled trial of patients attending three HIV clinics in North Carolina. The first aim is analytical and includes hypotheses about the extent to which predictor variables are associated with the dependent variable (serostatus disclosure), controlling for socio-demographic and HIV-related factors. The second aim is analytical and includes hypotheses about the potential moderating variables that may influence the relationship between serostatus disclosure and HIV transmission risk behaviors.

3.1.1 Aim 1

To describe and examine the correlates of serostatus disclosure to sexual partners among HIV-positive patients in care at three clinics in North Carolina

RQ 1.1. What is the prevalence of serostatus disclosure to sexual partners among HIV-positive patients? Does it vary by risk group, indicating participant gender-partner gender combination?

RQ 1.2. To what extent is serostatus disclosure associated with 1) partner relationship type (main versus casual partner) and 2) partner serostatus type (HIV-positive, HIV-negative, unknown serostatus)?

> *H 1.2.1:* HIV-positive persons are more likely to disclose their serostatus to other HIV-positive persons than to HIV-negative or unknown serostatus persons.
>
> *H 1.2.2:* HIV-positive persons are more likely to disclose their serostatus to main partners than casual partners.

RQ 1.3. What is the prevalence of disclosure stigma (defined as the experiences of or perceived consequences of other people knowing one's HIV status) among HIV-positive patients? Does it vary by risk group?

RQ 1.4. To what extent is serostatus disclosure associated with disclosure stigma among HIV-positive patients?

H 1.4.1: Disclosure stigma is negatively associated with serostatus disclosure such

that people with high levels of disclosure stigma are less likely to disclose than those

with low levels of disclosure stigma.

RQ 1.5. To what extent do the following three factors predict serostatus disclosure by HIV-

positive patients: 1) beliefs in the seriousness of transmission risk in the presence of highly

active antiretroviral therapy (HAART) medications; 2) transmission risk perception based on

viral load; and 3) viral load detectability?

H 1.5.1: HIV-positive patients who believe the risk of transmitting the virus is less

serious with the availability of new anti-HIV medications are less likely to disclose

than those who believe that the risk of transmitting the virus is more serious.

H 1.5.2: HIV-positive patients who believe transmission risk is low given an

undetectable viral load are less likely to disclose than those who believe that

transmission risk is less serious.

H 1.5.3: HIV-positive patients who report undetectable viral load test results are less

likely to disclose than those who report detectable viral load test results.

RQ 1.6. To what extent do subjective norms predict serostatus disclosure by HIV-positive

patients?

H 1.6.1: HIV-positive patients who agree that that their friends, family members, and

sexual partners think that HIV-positive individuals should disclose to sexual partners

are more likely to disclose than those who disagree.

RQ 1.7. To what extent is serostatus disclosure associated with urbanicity among HIV-positive patients?

> *H 1.7.1:* Urbanicity is positively associated with serostatus disclosure such that people who reside in more urban areas are more likely to disclose than those who reside in less urban areas.

RQ 1.8. What combination of the above factors best explain the variability in HIV-positive patients' serostatus disclosure to sexual partners?

3.1.2 Aim 2

To assess the role of moderating variables in the relationship between disclosure and sexual risk transmission behaviors among HIV-positive patients in care at three clinics in North Carolina

RQ 2.1. What proportion of participants report transmission risk behaviors? (defined as unprotected acts of vaginal or anal sex with an at-risk partner, meaning HIV-negative or unknown serostatus partner)

RQ 2.2. What is the association between serostatus disclosure and sexual risk transmission behaviors?

RQ 2.3. Does the relationship between disclosure and sexual risk transmission behaviors differ by partner characteristics that belong to (1) relationship type and (2) partner serostatus type?

>*H 2.3.1:* The association between serostatus disclosure and safer sex behaviors is moderated by relationship type, such that persons who disclose to main partners are less likely to practice safer sex behaviors than persons who disclose to casual partners.

>*H 2.3.2:* The association between serostatus disclosure and safer sex behaviors is moderated by partner serostatus type, such that persons who withhold disclosure to HIV-negative partners are more likely to practice safer sex behaviors than persons who withhold disclosure to unknown serostatus partners.

3.2 CONCEPTUAL MODEL

3.2.1 Model Description

The conceptual model (Figure 1) illustrates the relationships among predictor and outcome variables as described in my aims and research questions. Disclosure stigma, transmission risk beliefs, subjective norms, urbanicity, and partner characteristics are hypothesized to independently predict serostatus disclosure to sexual partners. The proposed conceptual model hypothesizes that the relationship between serostatus disclosure and transmission risk behavior is moderated by partner characteristics (relationship type and serostatus type). Note that boxes shaded in blue represent Aim #1, the box in pink represents

partner characteristic variables in Aims #1 and #2, the box in yellow represents Aims #1 and

#2, and the box in green represents Aim #2.

Figure 1: Conceptual Model

CHAPTER FOUR: METHODS

The proposed research is a secondary analysis of data from a three-clinic study of HIV-positive patients in North Carolina on which I served as a research assistant beginning in August 2005. In this chapter, I describe the: (1) data source, including a description of the SAFETALK study sites, (2) study sample, including eligibility criteria, recruitment, and enrollment procedures of the SAFETALK study, (3) construction and operationalization of study variables; and (4) analytic strategies by study aim.

4.1 DATA SOURCE

The data for the proposed study has been collected from baseline data for the SAFETALK study. SAFETALK is a two-armed, randomized controlled trial of a motivational interviewing-based safer sex intervention among 490 HIV-positive patients at three clinics in North Carolina. Data collection began in July 2006 at one site, September 2006 at the second site, and March 2008 at the third site.

The enrollment target of 490 participants was reached in July 2008. Participants who were randomized to the motivational interviewing arm of the study were scheduled to receive four counseling sessions approximately one month apart with a clinic-based SAFETALK counselor. Each session had a corresponding CD and booklet to help participants prepare

for their counseling appointments. Participants randomized to the control arm of the study received four heart healthy counseling sessions approximately one month apart with a counselor in the clinic. They also received written materials and four corresponding CDs that included information about healthy eating habits, recipes, and other nutritional information.

The primary data source for the proposed study is audio computer-assisted self-interviews (ACASI). At the baseline study visit, participants completed a 45-60 minute ACASI-administered survey with follow-up surveys at approximately 4, 8, and 12 months after baseline.

While a longitudinal analysis is possible for the proposed study, I chose to conduct a cross-sectional design for several reasons. First, the structure of the ACASI instrument did not allow me to assess if the serostatus disclosure and transmission risk behavior patterns over time represent behavior that occurs with the same sexual partners at each time point. Thus, it was possible that a participant can report a particular number of disclosed and undisclosed partners at baseline and a different number on subsequent data collection time points. Given the nature of the ACASI questions, it was impossible to determine if the sexual partner(s) reported across surveys are all the same, all different, or a mix of both. For example, if a participant reported no sex with undisclosed partners at baseline and then reported some unprotected sexual activity with undisclosed partners at follow-up 1, this would represent movement in the "wrong" direction regardless of the newness of the partner, since unprotected sexual activity is occurring at follow-up where it was not occurring at baseline. Another possible scenario is a participant could report no sex with an undisclosed partner at baseline, with whom they have ended that relationship by follow-up 1. Then at

follow-up 1, they reported a new disclosed partner with whom they are having protected sexual activity. This would represent movement in the "right" direction. However, the ACASI data collected in the SAFETALK study did not allow me to determine whether people disclosed to after baseline assessment are partners that participants hadn't disclosed to at baseline. Nor was I able to assess if partners with whom protected sex is reported at follow-up are the same partners with whom unprotected sex was reported at baseline. The same problem occurs when assessing partner type (main versus casual). Even participants who report one main partner at baseline, 4 months, and 8 months may have three completely different partners at each time, which we have no way of assessing with the SAFETALK dataset.

4.1.1 Description of Study Sites

The research occurred at three HIV clinics in North Carolina that collectively see more than 2,400 HIV-infected patients annually. The first site is the University of North Carolina at Chapel Hill Infectious Diseases Clinic located in UNC Hospitals. There are 27 medical providers at the clinic, including 14 attending physicians, 9 fellow trainees, two nurse practitioners, and two physician's assistants. At the time of data collection the clinic had over 1,600 active patients and saw approximately 420 patients per month, 400 of whom are continuing patients and 20 of whom are new patients. The demographics of the clinic are as follows: 62% African American, 4% Hispanic, 2% Native American, and 33% female. The median age is 38 years. Most are low-income (65% earn less than $10,000/year) individuals. Approximately 60% contracted HIV through heterosexual contact (75% of women and 45% of men) and 21% through MSM sexual activity. Nearly 70% have active

52

substance abuse or mental illness, however, intravenous drug use is rare. In an ongoing prospective chart audit by the ID clinic, 75% of patients are receiving antiretroviral therapy (ART) and of those, 52% are viremic.

The second site is the Wake County HIV Clinic located in the County Health Department in Raleigh, North Carolina. The clinic has 9 medical providers, including 5 physicians, 3 nurse practitioners, and one physician's assistant. It serves more than 600 patients and 200 additional HIV clients through its affiliated "Under One Roof" case management agency. Similar to the patient demographics at UNC, approximately 71% of Wake County HIV clinic patients are African American, 36% are female, 23% are MSM, and 1% bisexual. Nearly 75% of patients are sexually active and 50% are viremic. Nearly all (92%) are on ART.   Statistics are not available for income level, substance abuse, mental illness among this clinic population.

The third site is Lincoln Community Health Center Early Intervention Clinic located in Durham, North Carolina. The clinic has 5 medical providers, including four physicians and one nurse practitioner. The clinic served more than 330 patients in 2008. Each month, approximately 215 of patients are seen for continuing care and 4-6 individuals are new patients to the clinic. More than 87% of the clinic patients are African American, and 46% are between the ages of 25-44 years. More than three-quarters (83.6%) of patients are equal to or below the federal poverty level. Approximately 51% contracted HIV through heterosexual contact, 30% through MSM sexual activity, and 14% through intravenous drug use. Statistics are not available for patients who have active substance abuse, mental illness, or are receiving ART.

4.2 STUDY SAMPLE

4.2.1 Sample Selection

Figure 2 below illustrates the sample selection process for SAFETALK participants. Enrollment began in July 2006 at the first site, September 2006 at the second site, and March 2008 at the third site.

Figure 2: Sample Selection

4.2.2 Study Eligibility Criteria

Participants are eligible for the SAFETALK study if they are:

a) HIV infected;

b) 18 years of age and over;

c) English-speaking;

d) Have given prior consent to the clinic screener to be contacted regarding participation in research studies (only at UNC).

Exclusion criteria for participants are designed to eliminate individuals who are unable to participate in the study. A potential participant is excluded if he/she:

a) Has cognitive inability to provide consent;

b) Is too sick to travel to make frequent clinic visits;

c) Is currently participating in the STAR study (prevention with positives program at UNC ID clinic where HIV-positive patients enrolled in the program can be randomized to the motivational interviewing experimental arm);

d) Has received motivational interviewing counseling in the past 6 months as part of the STAR study;

e) Is coming to the clinic for his/her first visit;

f) Is intending to leave the clinic within the next 12 months;

g) Is a female patient at the Lincoln Community Health Center site (See 4.2.3 Recruitment and Enrollment).

For my study, a potential participant is also excluded if he/she:

a) Is a female who reports sexual activity with a female (WSW);

b) Is transgender;

c) Is not sexually active in the previous three months.

4.2.3 Recruitment and Enrollment

Participant recruitment strategies differed somewhat at each of the three clinic sites due to differences in clinic infrastructure. At UNC, patients were screened for eligibility in two steps. First, a clinic screener identified potentially eligible participants who met the following criteria: 1) HIV infected, 2) not first visit to clinic, 3) have provided consent to be contacted for studies, 4) English speaking, and 5) age 18 or older by chart review of scheduled patients. While the prescreened patients identified as potentially eligible for the study are at the UNC ID clinic for an appointment (either before or after the provider visit), a research assistant approached them to assess their interest in hearing about the study using a standardized recruitment script (See Appendix 1). Patients who did not have time to participate that day were approached at a later date if they give permission for the study team to re-approach them.

At the Wake County HIV clinic, where no clinic screener or prior consent to approach patients for research are available, medical providers and nurses gave patients who were potentially eligible for the study an informational study flier with a space to indicate interest in the study. Patients who completed the form either spoke to study staff that day or were contacted by phone to schedule an appointment to learn more about the study.

At the Lincoln Community Health Center Early Intervention Clinic, general study fliers were available on the front desk of the clinic. In addition, providers were asked to give fliers to every male patient on the two days a week that study staff members were available at the clinic. Substance abuse counselors and social workers also had fliers in their offices and occasionally referred interested patients. Female patients were not approached regarding the SAFETALK study as there is another study specifically for HIV-positive women at this clinic.

For those patients interested in learning more about the study, the research assistant explained the study in detail to potential participants. For those participants who expressed interest, the research assistant assessed their eligibility in a private room. The research assistant asked the additional exclusion criteria questions described above and administering a brief screener to verify patient sexual activity (oral, vaginal, or anal sex) in the past 12 months. For patients who were eligible and interested, the RA further informed them of the study and obtained their consent after assessing their understanding of the study procedures.

4.3 MEASURES

In an iterative process, we developed the ACASI instrument by adapting previously

validated measures for most constructs. For those constructs where no acceptable validated

measures were available, we developed and refined new items. We then conducted cognitive

interviews of the instrument to assess its understandability and meaning for participants.

4.3.1 Description of the Study Instrument

The ACASI instrument is divided into 12 sub-sections (see Appendix 1):

1. HIV History and Current Medical Status
2. Beliefs and Attitudes toward Safer Sex and Nutrition
3. Motivations and Intentions to Avoid Unsafe Sex
4. Stress and Coping
5. HIV Stigma
6. Discrimination
7. Sexual Behavior Self-Efficacy
8. Sexual Risk Assessment
9. Health Habits involving Substance Use and Physical Activity
10. Emotional Well-Being
11. Subjective Norms
12. Demographics

4.3.2 Pre-testing of ACASI instrument: Cognitive Interviews

Five HIV-positive participants who had previously given permission to be contacted

for future studies were recruited from the UNC ID clinic in March 2006 to complete

cognitive interviews of the ACASI instrument. These interviews were conducted to assess

potential participants' comprehension of the survey instrument items and comprehension of

the response options. I conducted four of the interviews and one was completed by the

study's project manager. The cognitive interviews were completed with two women and

three men. Two were African American and three were White, non-Hispanic. Their ages ranged from 34-49 (mean age 42.4 years).

Individuals were asked to complete the baseline questionnaire with a SAFETALK research assistant using the "think aloud" technique. This process involves the research assistant reading each question aloud from the questionnaire and asking participants to think aloud and verbalize the considerations that come to mind for them as they formulate their responses. This procedure is designed to assess the cognitive processes that happen as respondents answer items, and is a means to obtain insight into the way each survey item is comprehended by the respondent and the strategies they use to come up with responses (Visser, Krosnick, & Lavrakas, 2000). The research assistant also asks the participant specific questions about the items to elicit feedback about their wording and content. Answers to these questions assist in understanding whether the items were clear and elicit respondents' interpretations of what an item was designed to assess. All five participants agreed to have their session audiotaped. Two participants completed the entire survey and were compensated $45. Three participants were asked to complete a sub-section of the questionnaire and received $20.

The results of the cognitive interviews were used to refine the survey instrument. Changes to the instrument included a clarification of time frames for several items and listing the most socially desirable response last in the list of response options. We also added "Refuse to Answer" and "Not applicable" as response options for certain items, where appropriate. For transition from one survey instrument section to the next, we re-worded the lead-in sentences to allow for a stronger transition and to better introduce the types of questions to expect in the proceeding section. Based on the results of the cognitive

interviews, we also underlined key phrases for emphasis and clarity. To reduce participant

burden, we eliminated some items, specifically regarding HIV stigma.

4.3.3 Independent Variables of Interest

Participant-Level Variables

Disclosure Stigma (Questionnaire page 20-22)

Disclosure stigma is measured with a multi-item scale originally developed and

validated by Berger, Ferrans, and Lashley (2001). There are seven items in our abbreviated

subscale that measure disclosure stigma from the original 12 items. These items measure

disclosure stigma relating to keeping one's status a secret or worrying that others who knew

one's HIV status would tell others, where disclosure stigma is defined as the experiences of

or perceived consequences of other people knowing one's HIV status. I chose to use an

abbreviated sub-scale consisting of the top seven items which had factor loadings between

.65 and .73. We also modified the wording of the original four-point response options from

strongly disagree, disagree, agree, and strongly agree to 1 = agree a lot, 2 = agree a little, 3 =

disagree a lot, and 4 = disagree a little. Scores ranged from 7 to 28 with higher values

indicating higher disclosure stigma.

Subjective Norms about Disclosure (Questionnaire page 52-53)

I measured subjective norms regarding serostatus disclosure using an item that asked

three times, one for each of three different referent groups (friends, close family members,

and sex partners), "How much do you agree or disagree that: Most of your [reference group]

think that people living with HIV should always tell their sex partner their HIV status before having vaginal or anal sex with them." Responses were scored on a four-point scale as $2 =$ agree a lot, $1 =$ agree a little, $-1 =$ disagree a little, and $-2 =$ disagree a lot. I then summed the three subjective norm scores and multiplied it by the respondent's answer to an item which asks, *In general, how important or unimportant is it to you what other people think you should do?* These responses are $1 =$ not at all important, $2 =$ somewhat important, $3 =$ very important, and $4 =$ extremely important.

Transmission Risk Beliefs (Questionnaire page 5-6)

I assessed transmission risk beliefs using two items. The first asked participants, on a 5-point scale, to rate their perception of the seriousness of HIV transmission risk given the availability of new HIV medications. Responses were coded on a five-point scale with $1=$ much less serious than it used to be, $2 =$ a little less serious than it used to be, $3 =$ about as serious as it used to be, $4 =$ a little more serious than it used to be, and $5 =$ much more serious than it used to be. The second item asked about the chances of HIV transmission given the respondent's current viral load. Responses were scored on a four-point scale, $1=$ high, $2 =$ medium, $3 =$ low, and $4 =$ no chance.

Urbanicity (Not assessed directly in Questionnaire)

I assessed level of urbanicity using rural urban community area (RUCA) codes. These codes classify U.S. census tracts using measures of population density, urbanization, and daily commuting. Based on the size and direction of the primary (largest) commuting flows, the 33 codes are categorized on a scale from 1-10 where smaller numbers delineate metropolitan and micropolitan areas and larger numbers indicate small town and rural areas.

The RUCA codes are intended to be aggregated for use. I obtained a list of participants' zip codes (without the release of any personal identifying information) from the SAFETALK project manager and linked them to RUCA codes to determine level of urbanicity for each study participant. Due to low frequencies in several RUCA codes, I chose to aggregate them into two groups: rural and urban with a dichotomous variable where 0 == rural and 1 = urban.

Viral Load Detectability (Questionnaire page 3)

I assessed viral load detectability using one ACASI item which asks of those participants who reported having a viral load test in the past six months, "At that time, were you undetectable?" Responses were coded on a three=point scale where 0 = undetectable, 1 = unaware, and 2 = detectable. Participants were classified as unaware of their viral load detectability if a) they did not report having a viral load test in the past six months, b) they don't know if they had a viral load test in the past six months, and c) they had a viral load test in the last six months but they don't know the test result.

Partner-Level Variables

Partner Relationship Type

Partner relationship type was determined in two manners based on the number of reported sexual partners. First, participants who reported **only one sexual partner** were asked, "Were you in a primary relationship with this sex partner? By primary we mean someone you have lived with or seen a lot, and to whom you have felt a special emotional

commitment." Responses of "yes" (1) were categorized as a main partner and responses of "no" (0) were categories as a casual partner.

Second, participants who reported **more than one sexual partner** were asked, "Were you in a primary relationship with at least one female sex partner during the last 3 months? This would be someone you have lived with or seen a lot, and to whom you have felt a special emotional commitment." Those who answered yes were then asked, "How many primary partners have you had in the last 3 months?" Those who answered "1" were categorized as having one main partner (1). Those who answered "more than one" were asked a subsequent question, "How many primary partners have you had in the last 3 months?" and were able to write in a response.

I created a thee-category variable for partner relationship type to collapse all participants regardless of number of partners where 0 indicates casual partners only, 1 indicates a mixture of both casual and primary partners, and 2 indicates primary partners only. The primary partner category serves as the reference group.

Partner Serostatus Type

Partner serostatus type was determined in two manners based on the number of reported sexual partners. First, participants who reported only one sexual partner were asked, "What was this partner's HIV status?" with response options of 0 = positive, 1 = negative, and 88 = not sure. Second, participants who reported more than one sexual partner were asked how many partners they had in the past three months. They were then asked about the HIV statuses of these partners with three subsequent questions: 1)"How many of your [Response to M1a=total number of partners] sex partners were **HIV-positive**?" 2) "How

many of your [Response to M1a=total number of partners] sex partners were **HIV-negative**?" and 3)"How many of your [Response to M1a=total number of partners] sex partners were you **unsure of**?"[3]

I first created a categorical variable for partner status type to collapse all participants regardless of number of partners to compare: 1) HIV-positive partners relative to HIV-negative and unknown status partners, 2) HIV-negative partners relative to unknown status partners and HIV-positive partners, and 3) unknown status partners relative to HIV-positive partners and HIV-negative partners. I then created a four-category variable for partner status type to collapse all participants regardless of number of partners where 0 indicates only negative partners, 1 indicates only unknown serostatus partners, 2 indicates a combination of negative, unknown, and positive partners, and 3 indicates only positive partners. The HIV-positive partner category serves as the reference group.

4.3.4 Dependent Variables

HIV Serostatus Disclosure (Questionnaire page 29-43)

HIV serostatus disclosure was assessed by the ACASI responses to questions regarding whether or not a study participant actively told any sexual partner(s) from the last three months that he/she is HIV-positive. This variable was assessed by a multi-item index that measures the proportion of sexual partners to whom respondents have disclosed their HIV status. All response formats were open-ended so study participants fill in a numerical value to avoid subtle influences that may result from a closed format. Given the bimodal distribution of the data, I created a three-level variable indicating disclosure to none (0%),

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[3] ACASI item M1a refers to MSW. Items M15a refer to MSM, and W1a refers to WSM.

some (1-99%), or all (100%) sexual partners. I counted an item as missing if the response for the number of partner(s) disclosed to was "don't know" or "refused to answer."

I assessed serostatus disclosure based on a proportion whereby the numerator represented the number of partners disclosed to and the denominator represented the total number of partners. For analysis, I defined this proportion categorically as disclosure to none, some, or all partners.

I also categorized participants into risk groups based on their gender and the gender of their sexual partner(s) to create the following groups: MSW, MSM, and WSM. Men were placed in the MSW category if they only had sexual contact with women in the last three months. Men were placed in the MSM category if they only had sexual contact with men in the last three months. When men indicated they had had sexual contact with both men and women in the previous three months (n=5), they were categorized as MSM and information about their female sexual contact, and subsequently dropped from the analysis. All women were included in one group of women who have sex with men (WSM).

Table 8 below presents a schematic of the proposed levels of disclosure of HIV status to sexual partners. I looked at the aforementioned categories of partners disclosed to among MSW, MSM, and WSM. This table illustrates all potential pairings of participant gender with sexual partner gender as well as the HIV serostatus of partners that were assessed.

Table 8: Disclosure by Gender of Participant, Gender of Sexual Partner, and Serostatus of Partner				
Gender of participant and sexual partner	**HIV Status of Sexual Partners**			**Total**
	HIV-positive	**HIV-negative**	**HIV status unknown**	
Men with women (MSW)	HIV+ female partners disclosed to	HIV- female partners disclosed to	HIV? female partners disclosed to	Total female partners disclosed to
Men with men (MSM)	HIV+ male partners disclosed to	HIV- male partners disclosed to	HIV? male partners disclosed to	Total male partners disclosed to
Women with men (WSM)	HIV+ male partners disclosed to	HIV- male partners disclosed to	HIV? male partners disclosed to	Total male partners disclosed to
Total	HIV+ sexual partners disclosed to	HIV- sexual partners disclosed to	HIV? sexual partners disclosed to	Sexual partners disclosed to

*Transmission Risk Behaviors (*Questionnaire page 28-46)

Participants were asked about the frequency of their sexual behavior over the past three months, the frequency of condom use, and the serostatus of their partner(s). All response options were open-ended, requiring numerical values for responses to be entered by the participant.

I looked at reported vaginal and anal sexual activity in the past three months with different types of partners (main versus casual) and serostatus of an at-risk partner (HIV-positive or HIV-negative/unknown serostatus. We asked participants how many times they had vaginal and anal sex with their HIV-positive, HIV-negative, and unknown serostatus partners. We then asked how many times a condom was used for these reported sex acts. For the MSM subgroup, we asked about frequency of insertive and receptive anal sex separately and frequency of condom use for each type of act separately.

Transmission risk behavior was dichotomized into "protected" (100% condom use) and "unprotected" (condom use less than 100%) as only consistent condom use is associated

with reduced HIV transmission risk (Rotheram-Borus, Swendeman, & Chovnick, 2009; Weller & Davis, 2002). HIV transmission risk behavior (TRB) is defined as any unprotected acts of vaginal and anal sex with HIV-negative or unknown serostatus partners. Since the SAFETALK study did not assess partner-by-partner data for serostatus disclosure and sexual transmission risk behaviors, it is not possible to examine the relationship between serostatus disclosure and transmission risk behavior for those individuals who report more than one sexual partner in the previous three months. As such, the sample for Aim 2 includes those participants who report one partner.

4.3.5 Control Variables

Potential control variables include the following variables obtained at baseline: gender, age, race/ethnicity, employment status, health insurance, relationship status, educational attainment, time between date of HIV diagnosis and date of baseline ACASI, alcohol use in the past three months, substance use (marijuana, crack, or cocaine) in the past three months, and previous enrollment in the STAR study. Previous studies have found that these covariates, with the exception of STAR enrollment, are associated with both serostatus disclosure and transmission risk behavior among HIV-positive individuals.   Table 9 presents the control variables. The full ACASI Instrument is presented in the Appendix 1.

Table 9: Control Variables				
Variable	**# of items**	**Original ACASI Item**	**Scale**	**Recoded Variable in Analysis**
Gender	1	BS8Q1 Are you: (select one) 1 = Male 2 = Female 3 = Transgender (male to female) 4 = Transgender (female to male)	Nominal	Recoded into two groups: 0 = Male 1 = Female
Age	1	BS12Q1 How old are you? ___	Continuous	No change
Race/Ethnicity	1	BS12Q2 What is your primary race or ethnic identification? 1 = Black/African American 2 = Hispanic/Latino 3 = White, not of Hispanic origin 4 = Asian/Pacific Islander 5 = American Indian/Alaska Native 6 = Another race/ethnicity 7 = Mixed race	Nominal	Collapsed into three groups: 1 = Black 2 = White 3 = Other
Employment status	2	BS12Q3a At this time, are you: 1 = Working full-time 2= Working part-time 3 = Not working	Nominal	Collapsed into two groups: 0 = Unemployed 1 = Employed
Health insurance	1	BS12Q4 What kind of health insurance do you have now? __ Medicaid __ Medicare __ Veteran's Administration __ Private insurance or HMO __ None __ Other	Nominal	Collapsed into two groups: 0 = No health insurance 1 = Health insurance
Relationship status	1	BS12Q6 How would you describe your relationship status at this point in time? 1 = Single, not living with a partner 2 = Single, living with a partner 3 = Married 4 = Separated 5 = Divorced 6 = Widowed 7 = Other: _____	Nominal	Collapsed into two groups: 0 = single not living with a partner, separated, divorced, or widowed 1 = married or single living with a partner
Sexual identity	1	BS12Q7 Do you now identify as: (Choose one) 1 = Straight/heterosexual 2 = Gay/Homosexual 3 = Bisexual 4 = Other 5 = Not sure	Nominal	Collapsed into two groups: 1 = Heterosexual 0 = Homosexual, bisexual, other, not sure
Educational attainment	1	BS12Q8 What is the highest level of education you have completed? (Choose one) 1 = No formal education 2 = Did not graduate high school 3 = High school graduate or GED	Ordinal	Collapsed into four groups: 0 = No formal education or did not graduate from high school

		4 = Some college/AA degree/technical school training 5 = College graduate (BA/BS) 6 = Some graduate school 7 = Master's degree 8 = Doctorate/medical degree/law degree		1 = High school graduate or GED 2 = Some college/AA degree 3 = College degree or more
Time between HIV diagnosis and date of baseline ACASI	1	BS1Q2 What month and year did you first learn that you were HIV-positive? __ __ / __ __ __ __ (mm / yyyy)	Interval	1 = < 1 year 2 = 1-5 years 3 = 5-10 years 4 = 10-15 years 5 = 15-20 years 6 = >20 years
Alcohol use	2	BS9Q1 Pick the answer that best tells how often you drank alcohol in the last 3 months. By alcohol, we mean wine, beer, or any kind of liquor. In the last 3 months, did you drink alcohol: 1 = Every day 2 = 2 to 6 times a week 3 = Once a week 4 = 1 to 3 times a month 5 = Less than once a month 6 = Never	Categorical	Recoded into two groups: 0 = No use 1 = Any use
Substance use	1	BS9Q4 Please check the box next to all those drugs that you sniffed, snorted, smoked, swallowed or injected in the last 3 months. (Select all that apply) __ Marijuana __ Crack, freebase cocaine, or rock cocaine __ Powder cocaine *Note that these are the only drugs with greater than 5% use.	Categorical	No change
Previous enrollment in the STAR study	NA	0 = not a STAR participant, or STAR participant but not randomized to MI arm, or STAR participant randomized to the MI arm but no MI sessions completed. 1 = STAR participation in the MI arm and at least one MI session completed.	Categorical	See column to the left

4.4 DATA ANALYSIS

4.4.1 Data Preparation

Missing Data: Every effort was made by the SAFETALK team to obtain complete data on all study participants. For each variable of interest in the proposed study, missing values were identified and distributions and patterns of these missing values were evaluated carefully. Participants who refused to answer questions regarding disclosure or sexual behavior or were otherwise missing information on whether or not they disclosed were classified as missing. I chose not to employ any imputation methods for stand-alone items or items as part of scales that were missing. Missing values were less than 5% for every variable of interest with the exception of one control variable (relationship status had 5.6% missing values).

Data Editing and Cleaning: Study staff noticed several baseline ACASIs in which data appeared to have been entered incorrectly, possibly due to participants' clicking the wrong button on the computer or clicking a button too many times. These would include participants who reported an unusually large number of sexual partners (e.g., 333) in the past three months. We received IRB approval to speak with these participants to double-check answers that appear to be erroneous. When there were key-in errors identified, ACASI responses were corrected by re-asking the participant the relevant questions that were associated with the erroneous initial responses. These updated responses were added to my revised dataset.

Data Screening: I conducted my data analyses using Stata 10.0. To screen the data, I examined the dataset for reasonableness using univariate descriptive statistics to produce frequencies, distributions, measures of central tendency, and measures of dispersion for all variables of interest. The existence of outliers was examined. When such cases were found, separate analyses were performed including and excluding those outliers. I also analyzed scales to assess their psychometric properties (DeVellis, 2003). I assessed internal consistency estimates of reliability for scales (reporting Cronbach's alpha) and item-by-tem analysis was conducted to consider any items that should be dropped from the scales. Overall scale scores were calculated by averaging item responses. I chose to not impute any missing responses. Scale items had, on average, fewer than 5% missing values.

Assessing for Multicollinearity: Multicollinearity occurs when independent variables are highly correlated with one other, making it difficult to assess the independent importance of an individual predictor variable as each accounts for similar variance in the dependent variable. When two variables are highly correlated, they are basically measuring the same phenomenon. When multicollinearity between variables is present, p-values can be misleading and the regression coefficients' confidence intervals will be very wide. This can lead to incorrect conclusions about the relationships between independent and dependent variables of interest. Since my research questions seek to estimate the contributions of individual correlates of serostatus disclosure (see Aim 1 below), I assessed for multicollinearity by producing a Pearson correlation matrix in Stata to examine the bivariate correlations between my independent variables. The analysis failed to detect a high level of

association among any of the predictor variables. Therefore, no variables were deleted from the model as a result of high multicollinearity.

Stata output also displays collinearity diagnostics, including tolerance and Variance Inflation Factor (VIF) values for each predictor variable. Tolerance indicates the percent of variance in the predictor that cannot be accounted for by the other predictors. As such, very small values indicate that a predictor is redundant, and values that are less than .10 merit further investigation. If the VIF calculated as 1 divided by tolerance, is greater than 10 there are cause for concerns about multicollinearity. Based on these criteria, no variables demonstrated high correlation. Thus, all were included in subsequent analyses.

4.4.2 Analysis for Aim 1

To describe and examine the correlates of serostatus disclosure to sexual partners among HIV-positive patients

The dependent variable for Aim 1 was serostatus disclosure to sexual partners. My conceptual model includes eight correlates listed below. Note that the first two variables listed below relate to characteristics of the partner of the participant and the remaining six variables pertain to the participant case directly.

1) Partner relationship type (main versus casual)
2) Partner serostatus (HIV-positive, HIV-negative, unknown serostatus)
3) Disclosure stigma
4) Beliefs in the seriousness of transmission risk in the presence of HAART
5) Beliefs in transmission risk based on viral load
6) Subjective norms regarding serostatus disclosure
7) Urbanicity
8) Viral Load Detectability

To address Aim 1, I examined bivariate relationships between serostatus disclosure to sex partners as the dependent variable and each of the independent variables of interest. Those independent variables that were significantly associated with serostatus disclosure at an alpha of 0.20, the standard threshold for achieving a parsimonious model, were retained for the subsequent multivariate analysis. I then entered all independent variables into a logistic regression model simultaneously based on my conceptual model.

I used multinomial logistic regression to determine the independent associations between serostatus disclosure and the proposed independent variables and to determine the best combination of variables that predict serostatus disclosure. I used a p-value of .05 as the criterion for statistical significance of factors in the final regression models. In order to be able to compare each of the categories of disclosure (to none, some, or all partners) I ran two separate multinomial logistic regression models. In the first model, disclosure to all partners was entered as the base category for a comparison with disclosure to no partners. The second model was performed with disclosure to all partners serving as the base category for a comparison with disclosure to some partners. Adjusted odds ratios and 95% confidence intervals are presented in the final model for the variables.

Multinomial logistic regression is a commonly used technique for determining the probability of a dichotomous outcome variable, given a set of independent variables that may be continuous, discrete, dichotomous, or a mixture of types. Logistic regression allows for flexibility compared to other techniques as the correlates do not have to be linearly related, normally distributed, or of equal variance in each group (Tabachnick & Fidell, 2001).

Those participants who reported greater than 10 partners were excluded from my analysis as the validity of reports of more than 10 partners are low (Kissinger et al., 2003;

O'Brien et al., 2003). Since results for those cases with multiple partners might be correlated, I also ran a sensitivity analysis including and excluding those with greater than 10 partners. Since the sensitivity analysis yielded the same conclusions as my original analysis, I only present results from the original analysis only reporting those with 10 or fewer partners.

For the first two independent variables (partner relationship type and partner serostatus), I used multinomial logistic regression to examine HIV serostatus disclosure to sexual partners to determine partners to whom participants disclosed. More specifically, I examined disclosure across two groups: a) participants who report one sex partner and thus only one opportunity to disclose, and b) participants who report more than one partner with more than one opportunity to disclose. I then combined these two groups to examine overall disclosure across all study participants who report one or greater sexual partners. I also ran separate analyses for MSW, MSM, and WSM. These analyses demonstrate how partner relationship type and partner serostatus affect serostatus disclosure. I conducted a correlated data analysis since results for participants with multiple partners are likely to be correlated.

In order to assess the association between relationship type, partner serostatus type, serostatus disclosure, and disclosure stigma, several steps were taken to recode the data. First, I trichotomized the continuous relationship type variable that represents relationship type proportionally into three groups for participants who have: a) all primary partners, b) all casual partners, and c) mixed relationship type, which represents a combination of both primary and casual partners. I also recoded partner serostatus type from a continuous variable that represents serostatus proportionally to a categorical variable with the following four groups among participants who report sexual partner(s) who are: a) all HIV-positive

partners, b) all HIV-negative partners, c) all unknown serostatus partners, and 4) mixed

serostatus partners.

4.4.3 Analysis for Aim 2

To assess the role of moderating variables in the relationship between serostatus disclosure

and sexual transmission risk behaviors

I first used a contingency table analysis first to determine the rate of transmission risk

behaviors. In each of the four cells in table 10 below, I will examine how many times

vaginal and anal sex occurred in the past three months with HIV-negative partners and

unknown serostatus partners. I also examined the number of times these sexual acts were

protected with condoms. This allowed me to determine if the rate of unprotected sexual

activity is the same across partner relationship type and partner serostatus. I conducted a

similar analysis in each of the four cells in table 11 below for primary partners and casual

partners.

Table 10: Contingency Table for WSM to Examine Rate of TRB by Partner Serostatus		
TRB	**Partner serostatus**	
	HIV-negative	HIV status unknown
Yes		
No		

Table 11: Contingency Table for WSM to Examine Rate of TRB by Relationship Type		
TRB	**Relationship Type**	
	Primary	Casual
Yes		
No		

I examined transmission risk behavior using logistic regression with the two categories listed below.

a) Sexually active and 100% protected sexual activity
b) Sexually active and less than 100% protected sexual activity

I used logistic regression to examine the moderator effects in my conceptual model since my independent (serostatus disclosure) and moderator (partner relationship type and partner serostatus) variables were categorical. When the strength of the relationship between two variables is dependent on a third variable, moderation is occurring. The third variable, or moderator (W), interacts with X in predicting Y if the regression weight of Y on X varies as a function of W. The relationship between the independent variable (serostatus disclosure) and outcome variable (transmission risk behavior) will be explored for each of the levels of each moderator variable. The moderating variable of relationship type was categorized into two levels: a) all primary partners and b) all casual partners. The moderating variable of partner serostatus was categorized into two levels: a) all HIV-negative partners and b) all unknown partners. When there is evidence of a qualitative (different direction of the effect) or quantitative (different strength of association) difference, I assessed the effect of the moderation (Frazier, Tix, & Barron, 2004). The analysis involved the following three steps:

1. I recoded variables so that categorical variables had dummy codes.

2. I created an interaction term that was the product of the predictor and moderator variables.

3. I ran stepwise logistic regression by entering the predictor variable, the moderator variables, and finally the interaction terms.

4.4 Power calculation

An accepted guideline for estimating the sample size needed to have significant power to detect differences in multivariate logistic regression is to have approximately 20 cases for each independent variable in the regression model (Kleinbaum, Kupper et al. 1982). In my dissertation, I have eight independent variables of interest.

In logistic regression, effect sizes are stated in terms of the probability at the mean of the predictor variable and the probability at the mean plus one standard deviation. Using PASS, a statistical and power analysis software program, I set alpha at 0.05 and my sample size at 490 (the pre-set participant enrollment number in the SAFETALK study). P0 is the response probability at the mean of X and P1 is the response probability when X is increased to one standard deviation above the mean. With six independent variables, 490 cases provide adequate power for logistic regression (Hsieh, Bloch, & Larsen, 1998). Table 11 below illustrates the calculations with 490 as my sample size with power set at .8 and power set at 0.9.

Table 12: Power Calculation							
Power	**N**	**P0**	**P1**	**OR**	**Squared**	**Alpha**	**Beta**
0.9	490	0.7	0.774	1.465	0.3	0.05	0.1
0.8	490	0.7	0.764	1.391	0.3	0.05	0.2

CHAPTER FIVE: RESULTS

In this chapter, I present the results of my dissertation research. First, I present sample characteristics, including frequencies of demographic characteristics and variables of interest. Next, I present the results of the analysis of each research question stated in Chapter Three.

5.1 RESULTS FOR AIM 1

5.1.1 Sample for Aim 1

Baseline demographic and HIV clinical characteristics of the sample used for Aim 1 are presented in Table 13. The sample was composed of SAFETALK participants who completed baseline ACASIs between June 2006 and May 2008 and met my study inclusion criteria (n=369[4]). More than half the study sample was enrolled at the UNC site (61.3%). Nearly two-thirds of the sample was male and the average age was 42.1 years (range = 18 to 67). More than half reported an annual income of $10,000 or less. Approximately half reported being single and not living with a partner. More than two-thirds of the sample was African American and the majority was not working. In terms of HIV clinical characteristics, approximately half of the sample reported an undetectable viral load in the

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[4] My sample excludes transgendered participants (n=4), sexually abstinent participants (n=109), and women who report sexual activity only with other women (n=8).

last six months. Time since HIV diagnosis was varied, with half of the sample diagnosed

between 5-15 years prior to baseline survey (mean = 9.51 years).

Table 13: Sociodemographic and Clinical Characteristics of Sample for Aim 1 (N=369)		
Variable	**N**	**% of sample**
Age (y)	Mean = 42.1	SD = 8.91
Study Site		
UNC	226	61.3
Wake	121	32.8
Durham	22	5.9
Gender		
Male	245	66.4
Female	124	33.6
Sexual Identity		
Straight/heterosexual	206	56.3
Gay/homosexual	124	33.9
Bisexual	25	6.8
Other/Not sure	11	3.0
Annual Income		
$10,000 or less	189	54.0
$10,001 to $40,000	129	36.9
More than $40,000	32	9.1
Relationship status		
Single, not living with a partner	180	49.1
Single, living with a partner	78	21.2
Married	52	14.2
Separated/Divorced/Widowed/Other	57	15.5
Race		
Black/African American	258	70.1
White, not of Hispanic origin	77	20.9
Other	33	9
Education		
Less than high school	75	20.4
High school graduate or GED	129	35.0
Some college/AA degree/technical school training	106	28.8
College degree or more	58	15.8
Employment		
Working	135	36.6
Duration of Diagnosis		
Less than one year	19	5.3
1-5 years	80	22.1
5-10 years	100	27.6
10-15 years	83	22.9
15-20 years	59	16.3
Greater than 20 years	21	5.8
HAART Use		
Currently on HAART	295	88.9

Baseline sexual partner and psychosocial characteristics of the sample used for Aim 1 are presented in Table 14. Most participants had primary partners (61.8%). Approximately one-third reported HIV-positive partners (31.3%) and less than half reported HIV-negative partners (41.0%). Three-quarters of the sample resided in urban areas. Slightly less than half believed that their chances of transmitting HIV with their current viral load was high (42.5%) and approximately half believed that the seriousness of transmission risk is about as serious as it used to be (53.8%).

Table 14: Partner and Psychosocial Characteristics of Sample for Aim 1 (N=369)		
Variable	N	% of sample
Disclosure Stigma	Mean = 13.3	SD = 5.54
Subjective Norms	Mean = 10.4	SD = 6.12
Relationship Type		
Primary	220	61.8
Casual	88	24.7
Both primary and casual	48	13.5
Partner Serostatus Type		
HIV-positive	110	31.3
HIV-negative	144	41.0
Unknown serostatus	60	17.1
Multiple serostatus types	37	10.6
Urbanicity		
Rural	94	25.8
Urban	271	74.2
Beliefs in Transmission Risk Likelihood with Current Viral Load		
High	154	42.5
Medium	86	23.8
Low	99	27.4
No chance	23	6.3
Beliefs in Seriousness of Transmission Risk in the Presence of HAART		
Much less/a little less serious than it used to be	76	21.2
About as serious as it used to be	193	53.8
A little more/much more serious than it used to be	90	25.0
Viral load Test Result in Last 6 Months		
Undetectable	190	51.6
Detectable	141	38.3
Unaware	37	10.1

In this aim, I explored predictors of serostatus disclosure to sexual partners among HIV-positive patients. The dataset consisted of 369 individuals who were sexually active and reported between 1-10 sexual partners in the previous three months.

5.1.1 Research Question 1.1

Research Question 1.1 was: *What is the prevalence of serostatus disclosure among HIV-positive patients?* To answer this question, below I report disclosure patterns separately for three groups: 1) first among those participants who reported only one partner; 2) then among those who reported more than one partner; 3) combining participants who report only one and those who report more than one partner. The group with more than one partner are reported categorized into three groups—those with disclosure to none, some, or all of their partners. Finally, I combined all participants with one sexual partner and those with more than one sexual partner.

Figure 3 below presents disclosure patterns among study participants who report **one sexual partner** among the three risk groups: MSW (n=67), MSM (n=69), and WSM (n=102).[5] Disclosure rates were generally high averaging 88.3% across the three sub-groups of participants who report only one sexual partner in the previous three months. MSM were significantly less likely to disclose to their one sexual partner than MSW or WSM (Unadjusted OR= 0.39, *95% CI = 0.17, 0.88, p = 0.023*).

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[5] Risk groups indicate participant gender-partner gender combinations.

Figure 3: Among Those with One Partner, Disclosure across Three Risk Groups (N=238)

Figure 4 below presents disclosure patterns among study participants who report **more than one sexual partner** (2-10 partners) across the three risk groups of MSW (n=20), MSM (n=69), and WSM (n=14). This figure illustrates disclosure to all, some, and no partners where "full disclosure" represents complete disclosure to 100% of sexual partners, "partial disclosure" represents disclosure proportions between 1-99%, and "no disclosure" represents the absence of disclosure to any sexual partner. In general, full disclosure among participants who reported multiple partners was lower compared to those participants with only one partner, ranging from as low as 46.7% among WSM to as high as 65.0% among MSW. Due to low cell frequencies, the risk groups were collapsed into two categories to compare MSM to heterosexual participants (MSW and WSM combined). However, there were no statistically significant differences in disclosure between the groups.

Figure 4: Among Those with Multiple Partners, Disclosure across Three Risk Groups (N=103)

Figure 5 presents overall disclosure proportions combining those with one partner and those with multiple partners. Overall, disclosure across the entire sample was high at 78.9% but variation among the three risk groups is evident. Women and MSW were more likely to disclose to their partners than MSM (Unadjusted OR= 2.54, *95% CI* 1.21, 5.34, *p* = 0.014 and OR= 2.63, *95% CI* = 1.14, 6.05, *p* = 0.023, respectively).

Figure 5: Among Full Sample, Disclosure across Three Risk Groups (N=341)

5.1.2 Research Question 1.2

Research Question 1.2 was: *To what extent is serostatus disclosure associated with 1)
partner relationship type (main versus casual partner) and 2) partner serostatus type (HIV-
positive, HIV-negative, unknown serostatus)?*

In the full sample, most participants reported only primary partners (72.2%) with
12.1% reporting only casual partners, and 15.7% reporting both primary and casual partners.
Figure 6 below illustrates relationship type categories by risk group and the total for the
entire sample.

Figure 6: Among Full Sample, Proportion of Participants with each of Three Types of Relationships across Three Risk Groups (N=341)

Figure 7 below illustrates partner serostatus categories by risk group and the total for the entire sample. More than one-third of the sample (40.8%) reported only HIV-negative partners, 31.6% reported only HIV-positive partners, 10.3% reported only unknown serostatus partners, and 17.2% reported partners of more than one serostatus type. No WSM reported having partners of multiple serostatus types.

Figure 7: Among Full Sample, Partner Serostatus Type across Three Risk Groups (N=341)

5.1.2.1 Disclosure and Relationship Type

Looking at the association between serostatus disclosure and relationship type, for the 242 participants with only one partner, 205 participants had one primary partner (84.7%) and 37 had one casual partner (15.3%). Figure 8 below illustrates disclosure patterns for these participants with **only one sexual partner** who was either a primary or a casual partner. Across all risk groups, primary partners were more likely to receive disclosure compared to casual partners. Primary partner disclosure rates ranged from as low as 87.9% for MSM to 98.0% for MSW. Among those participants with casual partners, disclosure rates ranged

from 42.8% among WSM to 66.7% for MSW. Overall, primary partners were more likely to

receive disclosure than casual partners (OR= 9.25, *95% CI = 3.86, 22.18, p < 0.001*).

Figure 8: Among Those with One Partner, Disclosure based on Relationship Type across Three Risk Groups (N=242)

Of the 114 participants who reported multiple partners, 15 had only primary partners

(13.2%), 51 had only casual partners (44.7%), and 48 had both casual and primary partners

(42.1%). Figure 9 below illustrates disclosure patterns for these participants with **multiple**

sexual partners. Full disclosure was less common to casual partners than to those with

primary relationship types (OR= 0.21, *95% CI = 0.06, 0.69, p = 0.01*) or mixed relationship

types (OR= 0.18, *95% CI = 0.02, 1.5, p = 0.12*).

Figure 9: Among Those with Multiple Partners, Disclosure based on Relationship Type (N=114)

Of the 356 participants in the full sample, 220 had primary partners (61.8%), 88 had casual partners (24.7%), and 48 had both casual and primary partners (13.5%).[6] Figure 10 presents overall disclosure based on relationship type for the **full sample** combining those with one partner and those with multiple partners. Full disclosure was more likely to primary partners than to those with casual or mixed relationship types (OR= 5.28, *95% CI = 2.70, 10.31, 0.72, p < 0.001*).

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[6] Sample includes those participants who answered the relationship type question and does not include the 13 individuals who refused to answer this question.

Figure 10: Among Full Sample, Disclosure based on Relationship Type (N=356)

Figure showing grouped bar chart with Percent on y-axis (0-100):

- Casual Partners: No Disclosure 35.7, Partial Disclosure 10.7, Full Disclosure 53.6
- Both Primary and Casual Partners: No Disclosure 9.5, Partial Disclosure 28.6, Full Disclosure 61.9
- Primary Partners: No Disclosure 6.5, Partial Disclosure 1.4, Full Disclosure 92.1

Legend: ☐ No Disclosure ■ Partial Disclosure ☐ Full Disclosure

5.1.2.2 Disclosure and Serostatus of Partner

Of the 242 participants reporting one sexual partner, 85 had HIV-positive partners (35.1%), 119 had HIV-negative partners (49.2%), and 38 had partners of unknown serostatus (15.7%). Figure 11 below illustrates disclosure patterns for these participants with only one sexual partner who have had only one opportunity to disclose to their one sexual partner. Compared to HIV-positive partners, unknown serostatus partners (OR= 0.12, *95% CI* = 0.02, 0.93, *p* = 0.04) and HIV-negative partners (OR= 0.01, *95% CI* = 0.002, 0.13, *p* < 0.001) were significantly less likely to receive disclosure. When HIV-negative and unknown serostatus partners were combined into an "at risk" group, they were 86% less likely to receive disclosure compared to HIV-positive partners (OR= 0.14, *95% CI* = 0.058, 0.36, *p* < 0.001).

Figure 11: Among Those with One Partner, Disclosure by Partner Serostatus (N=242)

Participants with multiple partners were categorized based on the serostatus of their sexual partners into four groups (HIV-positive, HIV-negative, unknown serostatus, and mixed serostatus partners). Of those with multiple partners, 25 had only HIV-positive partners (22.9%), 25 had only HIV-negative partners (22.9%), 22 had only partners of unknown serostatus (20.3%), and 37 had partners of mixed serostatus (33.9%). Figure 12 below illustrates disclosure patterns for these participants who report **more than one sexual partner** and have more than one opportunity to disclose their status. Among this sub-group of participants with multiple partners, variation was evident across the serostatus categories of partners. Participants with multiple unknown serostatus partners were less likely to disclose to all partners compared to partners in other serostatus groups. Due to low cell frequencies, participants with multiple partners were dichotomized into 1) HIV-positive and

2) at-risk (HIV-negative, unknown serostatus, and mixed serostatus) partners. However, there were no statistically significant differences in disclosure between the groups.

Figure 12: Among Those with Multiple Partners, Disclosure by Partner Serostatus (N=109)

Of the 351 participants in the full sample, 110 had HIV-positive partners (32.2%), 144 had HIV-negative partners (42.5%), 60 had partners of unknown serostatus (17.6%), and 37 had partners of mixed serostatus (10.6%).[7] Figure 13 below presents a combination of the previous two figures and illustrates overall serostatus disclosure to all partners (one or multiple) across the entire sample. Those with HIV-negative, unknown serostatus, and mixed serostatus were slightly less likely to disclose their status to all partners compared to those with HIV-positive partners. However, only disclosure to unknown status partners was statistically significantly different (OR= 0.038, *95% CI* = 0.01, 0.12, *p* < 0.001).

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[7] Sample includes those participants who answered the partner serostatus type question and does not include the 18 individuals who refused to answer this question.

Figure 13: Among Full Sample, Disclosure by Partner Serostatus (N=351)

5.1.3 Research Question 1.3

Research Question 1.3 was: *What is the prevalence of disclosure stigma (defined as the experiences of or perceived consequences of other people knowing one's HIV status) among HIV-positive patients? Does disclosure stigma vary by risk group?*

On the seven-item disclosure stigma scale, total scores ranged from 7 to 28 (higher values indicating lower disclosure stigma), and the mean score was 13.41595 (sd 5.67) for the full sample. Differences in mean stigma scale scores were not statistically significant among the three risk groups, as presented in Table 15.

Table 15: Mean Stigma Scale Scores by Risk Group			
	Mean	Standard Deviation	N
MSW	14.25	5.6112622	92
MSM	12.792857	5.4038308	140
WSM	13.372881	5.6776614	118
Total	13.41595	5.67605	350
Analysis of Variance			
Source	SS	MS	F (Prob > F)
Between groups	117.878208	58.9391041	1.91 (0.1493)
Within groups	10695.8361	58.9391041	
Total	10813.7143	30.9848547	
Bartlett's test for equal variances: $X^2 = = 0.3381, p = 0.844$			

The distribution of scores for each individual disclosure scale item across risk groups is shown in Table 16. The only difference between groups that reaches statistical significance is the question related to hiding one's illness from others (ACASI item bs5q7). MSW were significantly less likely to agree that they feel they need to hide the fact that they have HIV from others ($p < 0.01$). A finding important to note is that regardless of risk group, HIV-positive individuals experience HIV stigma related to disclosure of one's serostatus. For example, 80.7% of MSW, 81.8% of MSM, and 79.3% of WSM agreed that telling someone they have HIV is risky. Similarly, 86.3% of MSW, 86.0% of MSM, and 84.2% of WSM agreed that they are very careful who they tell that they have HIV.

Table 16: Individual Stigma Items by Risk Group	
ACASI item	**Agree a lot/ Agree a little**
In some areas of my life, no one knows I have HIV.	
MSW	76.6
MSM	86.0
WSM	81.8
Telling someone I have HIV is risky.	
MSW	80.7
MSM	81.8
WSM	79.3
I work hard to keep my HIV a secret.	
MSW	70.3
MSM	69.2
WSM	70.3
I am very careful who I tell that I have HIV.	
MSW	86.3
MSM	80.0
WSM	84.2
I feel the need to hide the fact that I have HIV.	
MSW	56.4
MSM	72.6
WSM	70.8
I worry that people who know I have HIV will tell others.	
MSW	71.6
MSM	78.3
WSM	70.0
I have told people close to me to keep the fact that I have HIV a secret.	
MSW	56.4
MSM	68.1
WSM	72.0

5.1.4 Results of Multinomial Logistic Regression

To test hypotheses 1.2 through 1.8, a multinomial logistic regression model was fit that regressed serostatus disclosure on predictor variables (see Table 17). First, results from the bivariate associations of predictor and control variables with the outcome variable, disclosure, identified five factors that had an association with the outcome variable at a p-

value of <0.20 in the expected direction: 1) relationship type (casual versus main), 2) partner serostatus type, 3) disclosure stigma scale score, 4) score on the subjective norms scale, and 5) urbanicity. (Bivariate results are not presented). The following independent variables were not associated with serostatus disclosure in my sample: beliefs in transmission risk perception based on current viral load, beliefs in the seriousness of transmission risk in the presence of HAART, and viral load detectability. The final multivariate model also included six control variables (age, relationship status, sexual partnering (heterosexual versus homosexual) elapsed time between date of diagnosis and baseline ACASI date, alcohol use, and drug use). In the multinomial logistic regression, likelihood (or odds) of being in one category of the outcome versus a reference category are calculated for each group within the predictor variables.

The final model yielded interesting findings. The first section of the model reports results indicating the likelihood of disclosing to no partners relative to disclosing to all partners. The odds of disclosing to no partners is 18% more likely for every one-point increase in disclosure stigma (OR = 1.1815, *95% CI* = 1.0505, 1.3288, *p* =.005). Among those with casual partners, the odds of disclosing to no partners is .27 times that of the odds of disclosing to all partners (OR = 0.2734, *95% CI* = 0.1003, 0.7449, *p* = 0.011). Participants were 97% less likely to disclose to unknown serostatus partners relative to HIV-positive partners (OR =0.0343, *95% CI* = 0.0079, 0.1482, *p* <0.001). Similarly, participants were 75% less likely to disclose to HIV-negative partners (OR = 0.2549, *95% CI* = 0.0626, 1.0038, *p* = 0.056) compared to HIV-positive partners, although not statistically significant at the 0.05 level.

The second section of the model reports results indicating the likelihood of disclosing to some partners relative to disclosing to all partners. With disclosure to some partners as the referent group, those who disclosed to all partners had higher subjective norms regarding disclosure (OR = 1.1467, *95% CI* = 1.0176, 1.2923, *p* = 0.025). Participants who reported having both casual and primary partners were 95% less likely to disclose to all of their partners (OR = 0.0560, *95% CI* = 0.0094, 0.3567, *p* = 0.002). Participants reporting mixed serostatus types were 97% less likely to disclose to all of their partners (OR = 0.0358, *95% CI* = 0.0026, 0.4822, *p* = 0.012). No control variable predicted disclosure in any of the models.

	Table 17: Predictors of Serostatus Disclosure for Full Disclosure Model: Adjusted Odds Ratios with 95% Confidence Intervals			
Variables	**Disclosure to None vs. Disclosure to All (N=317)**		**Disclosure to Some vs. Disclosure to All (N=293)**	
	OR[†]	95% CI	OR	95% CI
Disclosure Stigma For each 1 point increase	1.1815**	1.0505, 1.3288	1.1861	.9955, 1.4132
Subjective Norms For each 1 point increase	1.0294	0.9597, 1.1043	1.1467*	1.0176, 1.2923
Urbanicity Urban Rural	0.4871 Reference	0.1503, 1.5789 -----	1.1222 Reference	0.2222, 5.6660 -----
Relationship Type Casual Partners Both Casual and Primary Primary Partners	0.2734* 1.7091 Reference	0.1003, 0.7449 0.1721, 16.9692 -----	0.2358 0.0560** Reference	0.0352, 1.5784 0.0094, 0.3567 -----
Partner Serostatus Type HIV-Negative Unknown Serostatus Mixed Serostatus Types HIV-Positive	0.2549 0.0343** 0.8175 Reference	0.0626, 1.0038 0.0079, 0.1482 0.0662, 10.0886 -----	0.1702 0.1003 0.0358* Reference	0.0139, 2.0769 0.0062, 1.6268 0.0026, 0.4822 -----
[†] Indicates Odds Ratio CI = Confidence Interval * Indicates $p < 0.05$ ** Indicates $p < 0.01$				

5.2 RESULTS FOR AIM 2

Of the 242 persons enrolled in the SAFETALK study who met my eligibility requirements for Aim 2, 157 had an at-risk partner (either HIV-negative or unknown serostatus). Table 18 on the following page presents the characteristics of the sample used for Aim 2. In general, the participants were similar in composition to the sample used in Aim 1. Most of the sample was enrolled at the UNC Site (65.0%), of African American race (64.3%), male (52.9%), straight/heterosexual (69.0%), and not working (59.2%). The average age was 42.0 years (range = 19 to 67). More than half of participants had an annual income of less than $10,000. In terms of HIV clinical characteristics, 56.4% of the sample reported an undetectable viral load and more than half have been living with HIV for between 5-15 years (mean = 9.83 years).

Table 18: Sociodemographic and Clinical Characteristics of Sample for Aim 2 (N=157)		
Variable	**N**	**% of sample**
Age (y)	Mean = 42.0	SD = 9.13
Study Site		
UNC	102	65.0
Wake	47	29.9
Durham	8	5.1
Gender		
Male	83	52.9
Female	74	47.1
Sexual Identity		
Straight/heterosexual	107	69.0
Gay/homosexual	37	23.9
Bisexual	6	3.9
Other/Not sure	5	3.2
Annual Income		
$10,000 or less	78	52.4
$10,001 to $40,000	55	36.9
More than $40,000	16	4.7
Relationship status		
Single, not living with a partner	67	43.2
Single, living with a partner	34	22.0
Married	23	14.8
Separated/Divorced/Widowed/Other	31	20.0
Race		
Black/African American	101	64.3
White, not of Hispanic origin	38	24.2
Other	18	11.5
Education		
Less than high school	32	20.4
High school graduate or GED	46	29.3
Some college/AA degree/technical school training	55	35.0
College degree or more	24	15.3
Employment		
Working	64	40.8
Duration of Diagnosis		
Less than one year	5	3.2
1-5 years	36	23.4
5-10 years	40	26.0
10-15 years	37	24.0
15-20 years	26	16.9
Greater than 20 years	10	6.5
HAART Use		
Currently on HAART	132	91.0

5.2.1 Sexual Activity in the Sample

Table 19 describes the number of participants in the sample who report one sexual partner of different serostatus types (HIV-negative, and unknown serostatus) in the previous three months across risk groups (MSW, MSM, WSM). Three-quarters reported (n=119) having HIV-negative sexual partners, and the remaining quarter report unknown sexual partners (n=38) in the previous three months. The association between risk group and partner serostatus was not statistically significant (X^2=3.44, $p = 0.179$).

Table 19: Partner Serostatus by Risk Group			
Risk Group	Partner Serostatus N (%)		
	HIV-Negative	Unknown Serostatus	Total
MSW	32 (82.1%)	7 (17.9%)	39
MSM	29 (65.9%)	15 (34.1%)	44
WSM	58 (78.4%)	16 (21.6%)	74
Total	119 (75.8%)	38 (24.2%)	157

Table 20 describes the number of participants in the sample who report sexual partners in the previous three months across the three risk groups by relationship type. The majority of participants report primary partners (80.3%). Women were more likely to report primary partners than males (OR = 1.18, *95% CI* = 0.35, 2.01, $p < 0.001$).

Table 20: Partner Serostatus by Relationship Type			
Risk Group	Relationship Type N (%)		
	Casual	Primary	Total
MSW	11 (28.2%)	28 (71.8%)	39
MSM	13 (29.5%)	31 (70.5%)	44
WSM	7 (9.5%)	67 (90.5%)	74
Total	31 (19.7%)	126 (80.3%)	157

5.2.2 Transmission Risk Behavior in the Sample

RQ 2.1. *What proportion of participants report transmission risk behaviors? (defined as unprotected acts of vaginal or anal sex with an at-risk partner, meaning HIV-negative or unknown serostatus partner)*

Only 16.6% of the sample reported engaging in unprotected vaginal or anal sex with an at-risk partner (HIV-negative or unknown serostatus). Among MSW, 25 reported anal or vaginal sex with a female who was HIV-negative or of unknown serostatus. Of these MSW, 4 report unprotected activity (16.0%). Among MSM, 23 reported anal sex with a male who was HIV-negative or of unknown serostatus. Of these MSM, 6 report unprotected activity (26.1%). Among WSM, 48 reported anal or vaginal sex with a male who was HIV-negative or of unknown serostatus. Of these women, 16 report unprotected activity (33.3%).

Prior to examining the relationship between serostatus disclosure and sexual risk transmission behaviors in the sample, I present contingency table analyses to determine the extent of transmission risk behaviors in the sample. As shown in Table 21, the majority of those with HIV-negative and unknown serostatus partners engaged in safer sex behaviors (86.6% and 73.7%, respectively). Those with unknown serostatus partners were more likely to report TRB than those with HIV-negative partners. However, this result was not statistically significant (OR = 2.30, *95% CI* = 0.94, 5.62, *p* = 0.068).

Table 21: Contingency Table to Examine Rate of TRB by Partner Serostatus			
TRB	**Partner Serostatus** **N (%)**		
	Negative	**Unknown**	**Total**
No	103 (86.6%)	28 (73.7%)	131
Yes	16 (13.4%)	10 (26.3%)	26
Total	119	38	157

As shown in Table 22 below, participants with primary partners were less likely to engage in TRB than those with casual partners, (15.9% vs. 19.3%). However, this finding was not statistically significant (OR = 0.79, *95% CI* = 0.28, 2.16, *p* = 0.641).

Table 22: Contingency Table to Examine Rate of TRB by Relationship Type			
TRB	**Relationship Type** **N (%)**		
	Casual	**Primary**	**Total**
No	25 (80.7%)	106 (84.1%)	131
Yes	6 (19.3%)	20 (15.9%)	26
Total	31	126	157

5.2.3 Relationship between Serostatus Disclosure and Transmission Risk Behavior

<u>*RQ 2.2*</u>. *What is the association between serostatus disclosure and sexual risk transmission behaviors?*

Tables 23 through 26 below illustrate the relationship between serostatus disclosure and TRB for each of the three risk groups and then for the entire sample combining the three risk groups. Ninety four percent of MSW engaged in safer sex consistently and 6% engaged in unsafe sex (either unprotected vaginal or anal intercourse with an HIV-negative or unknown serostatus partner) at least once in the previous three months. Of the 33 MSW disclosers, 3 MSW engaged in TRB while 30 engaged in safer sex. Of the 5 MSW non-disclosers, 1 MSW engaged in TRB and 4 engaged in safer sex. There was no statistically significant association between disclosure and TRB among MSW (*p* = 0.471).

Table 23: Disclosure and TRB among MSW				
		Disclosure		
		No	**Yes**	Total
TRB	**No**	4 (80.0%)	30 (90.9%)	34 (89.5%)
	Yes	1 (20.0%)	3 (9.1%)	4 (10.5%)
	Total	5 (13.2%)	33 (86.8%)	38 (100.0%)

Among MSM, 72.7% disclosed their HIV status to their sexual partner and 86.4% consistently engaged in safer sex (protected anal intercourse with an HIV-negative or unknown serostatus partner) in the previous three months. Three MSM engaged in TRB and disclosed while 29 engaged in safer sex and disclosed. Three MSM engaged in TRB and withheld disclosure while 9 engaged in safer sex and withheld disclosure. MSM who disclosed were less likely to engage in TRB. However, this finding did not reach statistical significance ($p = 0.19$).

Table 24: Disclosure and TRB among MSM				
		Disclosure		
		No	Yes	Total
TRB	No	9 (75.0%)	29 (90.6%)	38 (86.4%)
	Yes	3 (25.0%)	3 (9.4%)	6 (13.6%)
	Total	12 (27.3%)	32 (72.7%)	44 (100.0%)

Among WSM, 87.5% disclosed their HIV status to their sexual partner and 77.8% engaged in safer sex. Ten WSM engaged in TRB and disclosed while 53 engaged in safer sex and disclosed. Six WSM engaged in TRB and withheld disclosure while 3 engaged in safer sex and withheld disclosure. Women who disclosed were less likely to engage in TRB than those who withheld disclosure (OR = 0.09, *95% CI* = 0.02, 0.44, *p* = 0.003).

Table 25: Disclosure and TRB among WSM				
		Disclosure		
		No	Yes	Total
TRB	No	3 (33.3%)	53 (84.1%)	56 (77.8%)
	Yes	6 (66.7%)	10 (15.9%)	16 (22.2%)
	Total	9 (12.5%)	63 (87.5%)	72 (100.0%)

For the full sample, 83.1% disclosed their HIV status to their sexual partner; 16.9% withheld disclosure. Eighty three percent engaged in safer sex and 17% engaged in unsafe sex (either unprotected vaginal or anal intercourse with an HIV-negative or unknown

serostatus partner) in the previous three months. Sixteen participants engaged in TRB and

disclosed while 112 participants engaged in safer sex and disclosed. Ten participants

engaged in TRB and failed to disclose while 16 engaged in safer sex and failed to disclose.

Among the full sample, those who reported disclosing their status were 77% less likely to

report engaging in TRB than those who withheld disclosure (OR = 0.23, *95% CI* = 0.09,

0.59, *p* = 0.002).

Table 26: Disclosure and TRB across Three Risk Groups				
		Disclosure		
		No	Yes	Total
TRB	No	16 (61.5%)	112 (87.5%)	128 (83.1%)
	Yes	10 (38.5%)	16 (12.5%)	26 (16.9%)
	Total	26 (16.9%)	128 (83.1%)	154 (100.0%)

5.2.3 Relationship between Serostatus Disclosure and Transmission Risk Behavior with Moderating Variables

RO 2.3. *Does the relationship between disclosure and sexual transmission risk behaviors*

differ by partner characteristics that belong to (1) relationship type and (2) partner

serostatus type?

Prior to examining the statistical relationship between HIV serostatus disclosure,

TRB, partner relationship type, and partner serostatus type, I provide data regarding the

trends in TRB and disclosure compared across relationship type categories and partner

serostatus type categories. Tables 27 and 28 present serostatus disclosure and transmission

risk behaviors by relationship type. Most primary partners were disclosed to (90.3%) and

most engaged in safer sex (83.9%). Those who disclosed to primary partners were 78% less

likely to engage in TRB than those who withheld disclosure (OR = 0.22, *95% CI* = 0.06, 0.77, *p* = 0.018).

Table 27: Disclosure and TRB among Participants with Primary Partners				
		Disclosure		
		No	Yes	Total
TRB	No	7 (58.3%)	97 (86.6%)	104 (83.9%)
	Yes	5 (41.7%)	15 (13.4%)	20 (16.1%)
	Total	12 (9.7%)	112 (90.3%)	124 (100.0%)

As evidenced in Table 28 below, just over half of casual partners received disclosure (53.3%) and most engaged in safer sex (80.0%). Those who disclosed to casual partners were 78% less likely to engage in TRB than those who withheld disclosure (OR = 0.22, *95% CI* = 0.06, 0.77, *p* = 0.018). However, this result was not statistically significant (OR = 0.12, *95% CI* = 0.01, 1.19, *p* = 0.071).

Table 28: Disclosure and TRB among Participants with Casual Partners				
		Disclosure		
		No	Yes	Total
TRB	No	9 (64.3%)	15 (93.8%)	24 (80.0%)
	Yes	5 (35.7%)	1 (6.2%)	6 (20.0%)
	Total	14 (46.7%)	16 (53.3%)	30 (100.0%)

Table 29 presents disclosure and transmission risk behavior with HIV-negative partners. Most of the sub-group disclosed to their partner (90.7%) and engaged in safer sex while (87.5%). There was no statistically significant relationship between disclosure and TRB among those with HIV-negative partners (*p* = 0.177).

Table 29: Disclosure and TRB among Participants with HIV-Negative Partners				
		Disclosure		
		No	Yes	Total
TRB	No	8 (72.7%)	94 (87.8%)	102 (87.5%)
	Yes	3 (27.3%)	13 (12.2%)	16 (13.5%)
	Total	11 (9.3%)	107 (90.7%)	118 (100.0%)

Table 30 presents disclosure and transmission risk behavior with partners of unknown serostatus. Exactly half of the sub-group disclosed to their partner and engaged in safer sex while (50.0%) while 8.3% disclosed their status and engaged in unsafe sex. Those who disclosed to unknown serostatus partners were less likely to engage in TRB than those who withheld disclosure (OR = 0.19, *95% CI* = 0.04, 0.93, *p* = 0.041).

Table 30: Disclosure and TRB among Participants with Unknown Partners				
		Disclosure		
		No	Yes	Total
TRB	No	8 (53.3%)	18 (85.7%)	24 (72.2%)
	Yes	7 (46.7%)	3 (14.3%)	10 (27.8%)
	Total	15 (41.7%)	21 (58.3%)	36 (100.0%)

5.2.4 Relationship between Serostatus Disclosure and Transmission Risk Behavior with Moderating Variables: Multivariate Model

Research Question 2.3 examined if the relationship between serostatus disclosure and transmission risk behavior varied by partner-specific variables: 1) relationship type (main, casual) and 2) partner serostatus type (HIV-negative and unknown serostatus) as well as interactions between relationship type and serostatus disclosure, and the interaction between partner serostatus type and serostatus disclosure. When the two interaction terms were included in the model, neither term had a statistically significant association with serostatus disclosure and therefore neither was retained in the final multivariate model. From the

bivariate associations, the following three control variables were associated with transmission risk behavior at an alpha of 0.20 and included in the full model: (age, sexual pairing (heterosexual versus homosexual) and drug use. As evidenced in Table 31, those who disclosed to their partners were 18% less likely to engage in TRB ($p = 0.01$). Those who were in primary relationships and those with unknown serostatus partners were more likely to engage in TRB; however, neither of these differences was significant. The only control variable that was significant was age; younger participants were less likely to engage in TRB ($p = 0.002$).

Table 31: Predictors of Transmission Risk Behavior as assessed in Multivariate Logistic Regression Model: Adjusted Odds Ratios with 95% Confidence Intervals		
Variable	**Adjusted Odds Ratio**	**95% CI**
Serostatus Disclosure	0.1881**	(0.0520, 0.6806)
Relationship Type	2.6160	(0.5849, 11.7006)
Partner Serostatus		
Unknown Serostatus	1.789	(0.5509, 5.8109)
HIV-Negative	Reference	-----
Age Continuous	0.9161**	(0.8670, 0.9680)
Drug Use		
Yes	2.3027	(0.8101, 6.5432)
No	Reference	-----
Sexual Pairing		
Opposite sex partner	2.7085	(0.8224, 8.9197)
Same sex partner	Reference	-----
** Indicates *p* < 0.01		

CHAPTER SIX: DISCUSSION

This chapter provides an in-depth discussion of the findings presented in Chapter Five. First, I summarize findings organized by specific aim, compare the results to findings in the literature, and offer explanations for them. Then, I present the study's strengths and challenges. I conclude the chapter with the public health implications of the research and areas for further research consideration.

6.1 DISCUSSION OF FINDINGS

6.1.1 Summary of Findings for Aim 1

The goal of the first aim was to examine predictors of serostatus disclosure among sexually active HIV-positive individuals.   This section discusses disclosure across different categories (risk group and number of partners) as well as the relationship between disclosure and the correlates presented in the conceptual model.

I found an overall disclosure rate (78.9%) to sexual partners consistent with many previous studies (range 68-81%) (Mohammed & Kissinger, 2006; Niccolai et al., 1999; Niccolai et al., 2006; Petrak et al., 2001; Raj, Cheng, Levison, Meli, & Samet, 2006) but higher than some key studies (range 29-57%) (N. Crepaz & G. Marks, 2003; D'Angelo et al., 2001; R. Klitzman et al., 2007; O'Brien et al., 2003; Simon Rosser et al., 2008). This result may have occurred for several reasons. First, the majority of published literature on

disclosure to sexual partners includes only gay or bisexual men, excluding heterosexual men and women. This difference from our more diverse study population may partially explain the higher levels of overall disclosure in the sample. Second, many previous studies examined disclosure in the context of one specific sexual event or to the most recent sexual partner (N. Crepaz & G. Marks, 2003; Holtgrave, Crosby, & Shouse, 2006; Niccolai et al., 1999; Poppen, Reisen, Zea, Bianchi, & Echeverry, 2005), using a dichotomous outcome variable (Niccolai et al., 2006). This study presents a novel way to examine disclosure to all partners in the previous three months by using a three-category outcome variable that captured disclosure to none, some, or all partners. Third, this study examined disclosure across both seroconcordant and serodiscordant partners, while several studies only explored at-risk partners (HIV-negative and unknown serostatus) which may explain the lower disclosure rates (Ciccarone et al., 2003; N Crepaz & G Marks, 2003).

6.1.2 Discussion of Findings for Aim 1

While serostatus disclosure was high in the sample reported here, variation among the three risk groups is evident. MSM had the lowest disclosure to all partners (70%) where MSW and WSM had similarly high full disclosure (85.0% and 85.2%, respectively). These findings support previous work that found differences in disclosure based on sexual orientation and partner pairing, in which gay and bisexual men were more likely to withhold disclosure (Ciccarone et al., 2003; N Crepaz & G Marks, 2003; Mayfield Arnold, Rice, Flannery, & Rotheram-Borus, 2008; Semple, Patterson, & Grant, 2004; J. M. Serovich & K. E. Mosack, 2003). Of the published research on serostatus disclosure and men, few include heterosexual men, and those that do often collapse heterosexual participants to include both

men and women (Sullivan, 2005). As such, more research is needed to provide a better picture of factors that facilitate or impede disclosure among heterosexual men. Among women, reported rates of disclosure to sexual partners in the literature have ranged between 56-87% (Armistead et al., 2001) (J. M. Simoni et al., 1995; R. Sowell, Seals, Phillips, & Julious, 2003; R. L. Sowell et al., 1997).   A 2009 study among HIV-positive women found disclosure to spouse or romantic partner to be 88.9% (Rice, Comulada, Green, Arnold, & Rotheram-Borus, 2009) which is consistent with the findings in this study regarding disclosure to main partners among women.

When examining disclosure in the sample by the number of sexual partners reported, a different and important pattern emerged in these data. The majority of participants (88.3%) with one partner disclosed their status. Of those reporting more than one partner, however, full disclosure was to just over half of partners (56.3%). These findings are consistent with previous research that found the likelihood of disclosure decreased as the number of partners increased (DeRosa & Marks, 1998; Mohammed & Kissinger, 2006; Reece, 2003; Wolitski, Parsons, & Gomez, 2004). This finding suggests that at least part of the reason that the prevalence of serostatus disclosure is higher among HIV-positive women than men is because more women reported only one sexual partner.

It is important to note methodologic differences in the measures used for those participants with one partner versus those with greater than one partner. For example, those with one partner can only fall into the "full disclosure" or "no disclosure" categories and not the "partial disclosure" category since there is only one partner involved. However, for those with more than partner, all three disclosure categories are possible. There are clear trade-offs in different disclosure measurements and the decision to create a three-category variable for

disclosure is not perfect. While it presents a challenge when comparing participants with one partner to participants with multiple partners, it is possible that it may have over-simplified comparisons, particularly among those participants who disclosed to some, but not all, of their partners.

6.1.2.1 Disclosure and Hypothesized Correlates in the Final Model

<u>Disclosure and Partner Characteristics</u>

Among those with one partner, most participants reported a primary partner (84.7%) compared to a casual partner (15.3%). The vast majority of primary partners received disclosure (93.6%) compared to casual partners (59.4%). Among those with multiple partners, 66.7% of primary partners received full disclosure compared to 47.9% of casual partners. Among the full sample, almost all (92.1%) of primary partners received disclosure compared to 53.6% of casual partners and 61.9% of mixed relationship types (casual and primary combined).

Published studies on the effect of relationship type on disclosure have differed in the manner in which they have defined or categorized "relationship type. For example, such designations in the context of a sexual relationship have been defined as "the degree of intimacy" or "level of involvement", "depth of a relationship", or "whether the relationship is exclusive". A 16-study review of evaluations among HIV-positive men found full disclosure to main partners ranged from 67-88% (Sullivan, 2005), which is lower than the findings of this study. This difference may have resulted from the fact that the review only included men and this study sample included both men and women. For example, the vast majority of

114

women in this study reported only one partner (86.5%) compared to men (57.5%). Similarly, most women with one partner said that individual was a main partner (81.2%) who received disclosure (94.9%) compared to men who had one partner (51.5%) who received disclosure (89.7%).

We also found slightly higher disclosure rates to casual partners than what is published in the literature, where full disclosure ranges from 24-42% (Klitzman et al., 2007; O'Brien et al., 2003; Parsons et al., 2005; Simon Rosser et al., 2008). However, it is critical to point out that approximately half of casual partners and some main partners did not receive serostatus disclosure and may be at risk for HIV acquisition. Such lack of knowledge of their partner's serostatus may deny these partners the opportunity to make an informed decision about accepted levels of risk.

Among those with one partner, virtually all HIV-positive partners received disclosure (98.8%) compared to HIV-negative and unknown serostatus partners (90.7% and 58.3%, respectively). A similar trend was found among those with multiple partners, with seroconcordant partners most likely to receive disclosure (87.5%) compared to mixed serostatus, HIV-negative, and unknown serostatus partners (60.0%, 56.0%, and 9.5%, respectively). Among the full sample, 96.3% of HIV-positive partners were disclosed to compared to HIV-negative, mixed serostatus, and unknown partners (84.6%, 60.0%, and 40.3%, respectively).

Research findings often demonstrate higher disclosure to seroconcordant partners (DeRosa & Marks, 1998; Lightfoot et al., 2005; Marks & Crepaz, 2001; Niccolai et al., 2006; Parsons, Missildine, Van Ora, Purcell, & Gomez, 2004; Somlai, Kalichman, & Bagnall, 2001) and the results in this study are consistent with previous studies. It is not surprising to

find that differences in disclosure rates with HIV-positive, HIV-negative, and unknown serostatus partners occur, which may be a reflection of differences in perceptions of the risk of rejection (Sullivan, 2005; Zea et al., 2003) . In addition, the findings in the literature that disclosure is more prevalent to HIV-negative partners than to those of unknown status may suggest that in instances where partner status is not discussed (i.e., unknown status) partners are at risk for transmission (Sullivan, 2005).

Disclosure and Stigma

Similar to other studies among PLWHA in the United States, the results of this study demonstrate considerable levels of stigma associated with disclosure concerns (Berger et al., 2001; Clark et al., 2003; Dowshen, Binns, & Garofalo, 2009; Smith et al., 2008). In particular, the greater the disclosure stigma perceived by participants the less likely they were to disclose their serostatus to sexual partners. Although some literature cites differences between genders in the daily experiences of living with HIV, such as physical harm following disclosure (Hader, Smith, Moore, & Holmberg, 2001; Zierler et al., 2000), I did not find differences in stigma across gender lines or between risk groups.

The findings in this study lend support to the consequences theory described in Chapter Two in which disclosure decisions are influenced by the consequences an individual expects as a result of disclosure (Serovich, 2001). In other words, stresses accumulate as one's HIV progresses, resulting in the need for an individual to evaluate the negative and positive consequences of disclosure, and stigma can be a stressor for PLWHA.

Disclosure and Subjective Norms

This study goes beyond prior studies of factors affecting HIV serostatus disclosure in that it examines whether subjective norms are associated with serostatus disclosure. I found that disclosure is more likely when people feel that their friends, family members, and partners approve of this behavior. This important finding sheds some light into understanding how the influence of different referent groups acts as a social force to affect disclosure behavior which has potential implications for interventions to enhance disclosure. This study, to my knowledge, is the only study to show that subjective norms are correlated with serostatus disclosure among PLWHA. However, a meta-analysis using 96 datasets demonstrated that subjective norms were correlated with condom use (Albarracin, Johnson, Fishbein, & Muellerleile, 2001). A better understanding of the influence of different referent groups on disclosure decisions could be incorporated into interventions delivered to HIV-positive persons and build upon previous research which has found norms to be associated with safer sex behaviors. Understanding how and why friends, family members, and sexual partners' beliefs about disclosure influence actual disclosure decisions has implications for increasing the rate of partner disclosure among PLWHA.

An interesting finding in the multinomial logistic regression model was that subjective norms were not associated with disclosure in the first section of the model that compares disclosure to none versus disclosure to all. However, subjective norms were associated with disclosure in the second section of the model that compares disclosure to some versus disclosure to all. It is important to note that the sample sizes for these two sections of the model were different in that the first section includes those with one or more partners and the second section only includes those with more than one partner. The

mechanisms of being influenced by subjective norms regarding serostatus disclosure are different for those who report more than one partner.

Disclosure and Transmission Risk Beliefs

While literature suggests that the use of highly active antiretroviral treatment (HAART) may lead to an increase in disclosure to partners, this study was unique in that I examined HAART-related *beliefs* not actual HAART use. Neither the perception that transmission risk is serious given the availability of HAART nor the beliefs regarding one's chances of transmitting HIV given one's current viral load was associated with serostatus disclosure. The few research studies on transmission risk beliefs with HAART and risk perceptions given different viral loads have used unprotected sexual activity as the primary outcome variable, not serostatus disclosure (Crepaz & Marks, 2004; Kalichman et al., 2006; Vanable, Ostrow, & McKirnan, 2003). These studies found HIV-positive patients' beliefs about HAART and viral load were associated with unprotected sexual activity.

Traditional health behavior theories tend to focus on constructs that emphasize an individual's attitudes, beliefs, and behaviors to predict or explain events, often conceptualized as a way to keep *oneself* healthy and avoid disease or illness. Since the two HIV transmission risk belief variables utilized in this study pertain to reducing or eliminating an individual's chances of exposing *another individual* to HIV, it may be more difficult to link directly constructs from the Health Belief Model to these concepts. A possible explanation for the lack of association between HAART-related beliefs and disclosure may lie in the limited number of questions to examine the association that may not have fully recognized the complex interactions at play between medication beliefs, actual adherence,

118

and disclosure patterns. While it is reasonable to assume that beliefs precede behavior, it is also plausible that the lack of association was a result of the people making a connection between beliefs and risk behavior (i.e., unprotected sexual activity) and not disclosure behavior. Perhaps people do not take HAART-related beliefs into account when making decisions about disclosure to sexual partners.

To date, only one qualitative study specifically examined HAART-associated beliefs among PLWHA as they relate specifically to serostatus disclosure and the sample only included MSM (Klitzman et al., 2004). This limitation of previous research warrants additional research into a better understanding of not only actual HAART use but the beliefs about how these medications and corresponding viral loads influence actual disclosure behaviors, particularly since HAART is offering PLWHA to live longer, healthier lives. Future studies must also broaden the study population to include women and heterosexual men.

Disclosure and Viral Load Detectability

Viral load detectability was not associated with disclosure in this study. The finding of a lack of association between these two variables may have resulted from people who use safer sex as a substitute for the need to disclose. This "uninformed protection" may contribute to an individual's belief that disclosure is not necessary as long as condoms are used for sexual activity with an at-risk partner. Therefore, viral load detectability would not predict disclosure but it may predict safer sex. It is also possible that while viral load detectability influences individuals, it may do so in different ways that therefore obscures any association. For example, I hypothesized that those HIV-positive patients who report

undetectable viral load test results are less likely to disclose than those who report detectable

viral load test results.   It is reasonable to expect those with undetectable viral loads to

believe that they don't have to disclose because they are not putting a partner at risk due to

their undetectable viral load. Similarly, it is possible that those with undetectable viral loads

may be more conscientious in general about their health, medication adherence, and

responsibility to partners and are therefore more likely to disclose. Such relationships may

vary from person to person and this lack of consistency may contribute to the absence of an

association. Another possible explanation is that people do not take their viral load

detectability into account when making decisions about whether or not to disclose to a sexual

partner.

It is possible that viral load detectability may involve a more complex relationship

with serostatus disclosure. I was not able to evaluate such relationships in this study. I had

only one item with self-reported viral load detectability (detectable, undetectable, and

unaware). Examining *actual* viral load detectability via chart abstractions in conjunction

with *perceived* viral load detectability may yield different results and warrant further

exploration, particularly for those individuals who perceive an undetectable viral load but

actually have a detectable viral load.

Disclosure and Urbanicity

Contrary to the original hypothesis presented in Chapter Three, greater urbanicity was

not associated with more serostatus disclosure to partners. This finding may have been an

artifact of the way in which urbanicity was categorized. Due to low frequencies in several

RUCA codes, I chose to aggregate them into two groups: rural and urban. I did not have a

broad range of codes in the sample, so if a relationship exists between urbanicity and disclosure, I would not be able to detect it given the distribution of the sample. Researchers have used a variety of definitions for classifying rural and urban communities, and one difficulty in studying rural populations is a lack of agreement in the literature about how to define urban and rural. Given the lack of consensus, it is difficult to compare the results presented here with the few published studies on urbanicity/rurality and disclosure among PLWHA. In addition, more research is needed to explore how urban/rural differences manifest themselves in the daily living experiences of PLWHA.

If anything, people in urban areas were *less* likely to disclose than those in rural areas, though this association was not statistically significant. Although we should interpret this finding with caution, one may speculate that perhaps people in urban areas are more likely to have partners who they meet in clubs or bars for a one-time sexual encounter and are then less likely to receive disclosure from their HIV-positive partners. It is possible that people in rural areas are more likely to have primary partners only and therefore are less likely to withhold disclosure. Therefore, it is not so much where you live, but rather who your partner is that influences disclosure patterns.

6.1.3 Summary of Findings for Aim 2

The goal of the second aim was to examine the relationship between serostatus disclosure and transmission risk behaviors among sexually active HIV-positive individuals. This section discusses transmission risk behavior for the sample and reviews the hypothesized partner characteristics as moderating variables presented in the conceptual model.

Reported transmission risk behavior was low as only 17% of the sample reported engaging in unprotected vaginal or anal sex with an at-risk partner (HIV-negative or unknown serostatus). The majority of those with HIV-negative and unknown serostatus partners engaged in safer sex behaviors (87.5% and 72.2%, respectively). Participants with casual partners were less likely to engage in TRB than those with primary partners. Overall, an important finding in this study was that serostatus disclosure was correlated with transmission risk behavior; specifically, those who disclosed their status were less likely to engage in TRB than those who withheld disclosure.

Given the high levels of safer sex behavior in the sample, there was limited power to detect differences between those who engaged in TRB and those who did not across disclosers and non-disclosers. I also had an insufficient sample size to fully explore the moderating effects of partner serostatus and relationship type on serostatus disclosure as predictors of TRB with adequate statistical power. These finding are discussed in the following section.

6.1.4 Discussion of Findings for Aim 2

Many HIV researchers have speculated that there is an association between serostatus disclosure to sexual partners and transmission risk behaviors. However, the relationship between HIV disclosure and sexual risk behavior is complex, and there has been inconsistency in research findings about this relationship.

Only 16.6% of the sample reported engaging in unprotected vaginal or anal sex with an at-risk partner (HIV-negative or unknown serostatus). When examining serostatus disclosure as a predictor of transmission risk behavior regardless of partner serostatus or

relationship type, the following pattern emerged where participants fell into one of four

categories:

1) 72.7% engaged in informed protection (safer sex with disclosure)
2) 10.4% engaged in uninformed protection (safer sex without disclosure)
3) 10.4% engaged in informed exposure (unsafe sex with disclosure)
4) 6.5% engaged in uninformed exposure (unsafe sex without disclosure)

This distribution is markedly different from a key study of HIV-positive patients

(Marks & Crepaz, 2001) regarding the relationship between disclosure and sexual practices

which found the following:

1) 40% engaged in informed protection (safer sex with disclosure)
2) 35% engaged in uninformed protection (safer sex without disclosure)
3) 12% engaged in informed exposure (unsafe sex with disclosure)
4) 13% engaged in uninformed exposure (unsafe sex without disclosure)

The findings in the study presented here are consistent with that of Marks and Crepaz

with the highest percentage falling into the "preferred category" of safer sex with disclosure

("informed protection"). However, in the study reported here, not only did the highest

percentage fall into the "preferred category," but also this group was the vast majority

whereas in Marks and Crepaz's study, this group made up less than 50% of the total. The

study reported here had only 17% of the sample engaging in TRB which is fairly consistent

to 25% found by Marks and Crepaz.

The study presented here differs from Marks and Crepaz's study in several ways.

Although both studies were cross-sectional assessments, I assessed disclosure and TRB

among MSM, MSW, and WSM at three clinics in North Carolina from data collected from

2005-2007. Marks and Crepaz only sampled MSM at a clinic in Los Angeles with data

collected between 1995 and 1997. Given some earlier findings presented here, MSM are

more likely to engage in TRB than heterosexual men and women and less likely to disclose.

It is possible that PLWHA are becoming more safety conscious over time which may explain the higher figures of both disclosure and safer sex found in my study compared to Marks and Crepaz's study with data collection from the mid 1990s. In addition, I assessed the number of unprotected sex acts relative to the total number of sex acts in the previous three months to determine any transmission risk behaviors. Marks and Crepaz assessed protected and unprotected sex acts in the most recent sexual encounter, which may have higher recall than a three-month period as was the case in my sample. Finally, this sample did not assess the timing of disclosure relative to sexual acts while Marks and Crepaz determined if participants disclosed to partners *prior* to sexual activity. It is possible that participants in my sample engaged in TRB either before or after disclosure. These differences may explain why these two studies found different relationships between serostatus disclosure and transmission risk behaviors.

The type of relationship a person has with their sexual partner may influence the association between disclosure and safer sex behavior. When examining the main effect, those who disclosed to primary partners were less likely to engage in TRB than those who withheld disclosure. Similarly, those who disclosed to casual partners were less likely to engage in TRB than those who withheld disclosure. These findings are consistent with the results of three recent studies. A large study with a national probability sample of more than 2,000 PLWHA that found that gay or bisexual men were more likely to report TRB without disclosure with non-exclusive partners than primary partners (Ciccarone et al., 2003). However, this relationship was not found among women and heterosexual men. Another study with a national probability sample found that compared to primary relationships, occasional and one-time sexual encounters were more likely to involve sex without

disclosure (Duru et al., 2006). A more recent study had similar findings where unprotected sex with serodiscordant partners was more likely among those with casual partners than main partners. However, this study only included MSM (Schwarcz et al., 2007).

Perceived partner serostatus also appears to influence the relationship between disclosure and safer sex behavior. In the main effects model, those who disclosed to unknown serostatus partners were less likely to engage in TRB than those who withheld disclosure. This finding is consistent with the literature which shows that unprotected sex without disclosure with serodiscordant partners is more likely to involve "mutual non-disclosure" where the partner was of unknown serostatus (Ciccarone et al., 2003; Duru et al., 2006).

When examining relationship type and partner serostatus type as moderators of the relationship between serostatus disclosure and transmission risk behavior, none of the interaction effects met criteria for significance and they were therefore dropped from the final models. The main reason why I may not have found evidence of moderation in this study is that I may not have had adequate power to detect differences due to unequal sample sizes across groups as the majority of participants disclosed and engaged in safer sex. Finding no evidence of moderation highlights the need to address disclosure and TRB for all sub-groups of PLWHA, regardless of partner serostatus or relationship type.

6.2 LIMITATIONS AND STRENGTHS

The research findings reported here, building on previous studies of serostatus disclosure and transmission risk behavior among PLWHA, sought to understand why some HIV-positive individuals disclose and practice safer sex behaviors or both while others fail to carry out these behaviors. The findings discussed above may help identify key behavior change targets for future public health efforts in the area of Prevention with Positives. The study has both strengths and limitations, discussed below.

The sample for this study was unique in that it included individuals from several counties across the state of North Carolina, who ranged in age from 18-70 years, were racially diverse, and fell into three different risk groups. The heterogeneous nature of the study sample with regard to race, gender, and mode of HIV acquisition represents a greater reflection of the changing epidemiology of HIV in the United States compared with previous studies that have more homogenous populations. In addition, the majority of studies on serostatus disclosure and transmission risk behaviors have been conducted in large urban areas, particularly in New York, San Francisco, and Los Angeles. This study is unique in that it is was conducted in the South, a region of the country that is experiencing a significant growth in HIV/AIDS cases that is likely to continue in the near future.

Another strength of this study is that the sample includes women, thus allowing us to examine variables associated with serostatus disclosure and transmission risk behaviors among this sub-population. In general, HIV-positive women in the United States have been an understudied group, especially in disclosure and safer sex behavior research.   Another strength is the measure used to assess serostatus disclosure to partners. By asking the participant if a partner "knew you were positive because you told him/her that you were

positive" I was able to determine active disclosure rather than a passive or implied disclosure, such as leaving a pill bottle in clear view. Similarly, using a three-category variable to assess disclosure improves upon dichotomous measures frequently used in previous studies, where non-disclosure to one partner is categorized the same as those who report nondisclosure to all partners.

All data were self-reported using baseline ACASI data from the parent study (SAFETALK). As such, it is possible that some HIV-positive persons were reluctant to share information about withholding disclosure or unprotected sexual behavior and provided socially desirable responses to ACASI items regarding disclosure and sexual beavior. However, several studies have demonstrated that ACASI methods produce a more accurate reporting of self-reported sensitive behaviors compared to other data collection method (Des Jarlais et al., 1999; Hewett, Mensch, & Erulkar, 2004; Morrison-Beedy, Carey, & Tu, 2006; Newman et al., 2002).

The cross-sectional nature of the study allows for the identification of possible associations between independent variables of interest and outcome variables (serostatus disclosure in Aim 1 and transmission risk behavior in Aim 2.) However, it limits our ability to draw conclusions regarding causality. The directionality of the relationships between variables is unclear. For example, it is not possible to determine whether previous negative experiences with disclosure to a sexual partner lead to stigma or if past experiences of stigma decrease the likelihood of disclosure. In addition, because those participants who were not sexually active are not included in the study sample, I am unable to determine if my independent variables in my conceptual model contributed to sexual abstinence. Future studies could examine serostatus disclosure to partners as more of a process, whereby data

are collected longitudinally to collect partner-by-partner information not only on serostatus disclosure but also on sexual transmission risk behavior.

All study participants were individuals who were diagnosed with HIV and were patients at an HIV clinic receiving clinical care by infectious disease providers. Therefore, the findings cannot be generalized beyond this group to either HIV-positive individuals not receiving medical care or HIV-positive individuals who are unaware of their status. Patterns of disclosure and sexual transmission risk behavior may be different among those who are not receiving medical care for their HIV and those represented in the SAFETALK study. As all study participants were from North Carolina, generalizations outside of the region cannot be made. The ACASI instrument did not assess the timing of disclosure relative to the timing of sexual activity. It is possible that some people had unprotected sex before or after disclosure occurred.

For Aim 1, I chose to create a three-category outcome variable for serostatus disclosure and grouped individuals by whether they disclosed to all, some, or none of their partners. Many previous studies only looked at disclosure with the last sexual encounter which only allows for a dichotomous outcome of disclosure. This strategy has the disadvantage of only examining disclosure to the most recent partner and fails to capture data for those who report more than one sexual partner. By including participants who reported between 1-10 partners in the previous three months in my study, I was able to provide a more thorough picture of serostatus disclosure based on the number of sexual partners as not all participants had only one partner. However, a disadvantage of my chosen approach was that those who reported only one partner can only be categorized as disclosing to "all" or "none" of their partners and cannot fall into the "some" category. In addition, individuals with more

than partner who were categorized in the "some" category disclosed to more than one but less than all of their partners, which captures a large range of partner disclosure. As such, the results of the final multinomial logistic regression model must take this into consideration.

For Aim 2, there was limited power to detect differences between those who engaged in TRB and those who did not across disclosers and non-disclosers given the high levels of safer sex behavior in the sample. I also had an insufficient sample size to fully explore the moderating effects of partner serostatus and relationship type on serostatus disclosure as predictors of TRB with adequate statistical power. This issue was partially due to the fact that Aim 2 only included participants who reported one partner. By excluding those with greater than one partner for Aim 2, the sample may have lacked variability in the proposed moderators, specifically partner relationship type and partner serostatus.

6.3 IMPLICATIONS OF RESEARCH

Findings of this research have multiple methodological, theoretical and practice implications. The findings for Aim 1 are consistent with Serovich's consequence theory of serostatus disclosure. Serovich argues that better research into understanding disclosure patterns specifically to sexual partners is needed because they are a unique sub-group of individuals who are disclosed to, different from family members, friends, or health care providers. Serovich states that feeling of an obligation or duty to inform may be more predictive of disclosure to sexual partners that to other subgroups. Many public health officials argue that disclosure is a necessity with *all* sexual partners in *all* cases, (Marks & Crepaz, 2001) particularly since 23 states have laws that make it a criminal offense for HIV-

positive persons to engage in various types of sexual activity without disclosure to prospective sexual partners (Galletly & Pinkerton, 2006).   Perhaps part of the explanation for the high disclosure figures found in this study can be linked to the idea that PLWHA feel not only the moral responsibility to disclose to a sexual partner out of concern for a partner and his/her health, but also the legal obligation to disclose one's status.

The influence of stigma on disclosure decisions is critical for prevention interventions that aim to enhance serostatus disclosure to sexual partners. While withholding disclosure to sexual partners is a product of multiple factors, the decision likely involves a cognitive appraisal of the potential positive and negative consequences based on perceived social attitudes towards PLWHA. Future interventions might examine how people gauge discrimination to decide on the safety of disclosure as well as provide a supportive environment for discussing the ways in which stigma affects disclosure decisions. Findings presented here also suggest that HIV education among the general public must continue to decrease the discrimination, prejudice, and stigma experienced by PLWHA.

Despite an abundance of literature on the topic, there remains much to be learned not only regarding factors that affect disclosure but also the patterns of disclosure and risk behavior among PLWHA.   The findings of this study regarding these patterns enrich the literature on this relationship. The particular nature of the relationship between serostatus disclosure and TRB is not clear, partially because of inconsistency of results found in the literature. As discussed in Chapter Two, considerable debate has centered on whether disclosure increases or decreases the occurrence of unsafe or safe sex with an at-risk partner. Varied findings from the aforementioned studies suggest that future researchers should not assume that disclosure will lead to safer sex behaviors. As evidenced in results presented

here, an individual's disclosing of his/her status to a sexual partner does not ensure that the couple abstain from any unsafe sexual practices. Disclosure does not necessarily indicate that sexual partners will use this information to protect themselves from infection (Serovich & Mosack, 2003). Research supports this notion as several studies have found no association between disclosure and transmission risk behaviors (Hart, 2005; Kalichman, 2002; Marks, 2001; Stein, 1998; Wolitski, 1998). Conversely, as found here, it should not be assumed that nondisclosure will automatically lead to unprotected sexual activity as some individuals may feel that safer sex obviates the need for disclosure. For example, HIV-positive individuals may consciously choose not to disclose as a way to protect their privacy and escape the possible negative consequences of disclosure, such as stigma. Yet, these individuals will engage in protected sexual activity despite nondisclosure, perhaps as a result of personal responsibility to protect their partner (Kalichman, 2005). However, practicing safer sex without disclosure is not an ideal behavior, as safer sex may not be practiced on a consistent basis with these partners.

There are methodological limitations in many of the studies of serostatus disclosure including the study described here. For example, failure to assess the specific timing of disclosure in relation to sexual activity and lack of assessment of partnership-specific characteristics regarding disclosure and sexual activity prohibit the ability to make definitive interpretations about the relationship between serostatus disclosure and safer sex. In addition, the lack of a strong correlation in many studies between disclosure and safer sex may be due to the high frequency of uninformed protection (safer sex without disclosure) and informed exposure (unsafe sex with disclosure) likely to exist for many PLWHA. However, this was not the case in this study as the majority of the sample disclosed and engaged in

131

safer sex with at-risk partners. In terms of uninformed exposure (unsafe sex without disclosure), instances of this behavior were relatively small in this study. However, even a small number of such cases can contribute to new cases of HIV infection (Marks & Crepaz, 2001; Simoni & Pantalone, 2005).

6.4 CONCLUSIONS AND AREAS FOR FUTURE RESEARCH

Future research should include a larger sample from a broader geographic area to provide more insight into the correlates of serostatus disclosure to partners and transmission risk behaviors. Clarifying the relationship between serostatus disclosure and transmission risk behavior remains a critical public health priority as researchers need to better understand the strategies people employ to decide whether or not to disclose and how the dyad ultimately decides to engage in protected or unprotected sexual activity. Future research may consider examining stigma and substance abuse as moderators of the relationship between serostatus disclosure and transmission risk behavior. Perhaps alcohol and other substance use alter the decision-making process to disclose and engage in protected sex with an at-risk partner. A key issue involves the potential shift of responsibility from HIV-positive partner to at-risk partner after disclosure to determine the level of risk one is comfortable taking.

As a whole, the results presented here raise vital questions regarding the encouragement of disclosure to partners as a larger part of Prevention with Positives programming. I argue that programs should stress the need to protect the health of all partners who may be serodiscordant (including unknown status partners) regardless of disclosure. Future studies need to examine the dyadic relationship both quantitatively and qualitatively and include at-risk persons in the study sample. Qualitative research could help

to answer the unanswered questions left in this study, such as the situations that determine whether disclosure and sexual risk behavior occur or not and why. In addition to individual-level and intrapersonal-level determinants, future research must examine contextual factors that affect transmission risk behaviors among PLWHA (Aidala et al., 2006).

Although actual measurement of disclosure can vary from study to study, the majority of research identifies disclosure dichotomously with a simple yes/no question. However, this style of measurement does not capture the timing of disclosure in relation to sexual activity with a particular partner (Niccolai et al., 2006). Future research should elucidate the timing of disclosure relative to risk behavior by determining if disclosure occurred before or after having had sexual activity with a partner as standard measures of disclosure found in the literature do not capture this timing element. It is important to recall that disclosure is inherently an activity within the context of a social relationship between two individuals (Rice et al., 2009). That said, disclosure is also undeniably complicated by fears of discrimination, rejection, and violence (Gaskins, 2006; Sowell, 2003; Simbayi, 2007). This reality cannot be ignored and stigma associated with disclosure concerns needs to continue to be studied across various sub-groups of PLWHA.

While the majority of the sample did not engage in transmission risk behaviors, the fact that unprotected sex with at-risk partners was found provides a rationale for continuing Prevention with Positives programs in HIV clinical care settings. Establishing and maintaining ongoing relationships between health care providers and HIV-positive patients about their experiences with disclosure and risk behavior has the potential to make Prevention with Positives a meaningful and necessary component of HIV care in the clinical setting.

APPENDIX 1:

SAFETALK BASELINE ACASI SURVEY

SAFETALK SURVEY

REVISED Patient Assessment (English)

The date is recorded as [DATE] and the time is recorded as [STTIME]. If these are incorrect, please exit and correct system clock.

BAQ1. Patient ID Number: __ __ __ __ __

BAQ2. Site ID: __ __

If Q2 is not equal to PAID2 then Site ID does not correspond with first two digits of Patient ID. Please correct." skip to BAQ1.

BAQ3. Visit Number: __

BAQ4. RA Initials: __

The ID is recorded as [Response to BAQ1]. Site is recorded as [Response to BAQ2] and visit is recorded as [Response to BAQ3]. If these are incorrect, please go back and correct.

HISTORY QS.

Ever on ART

BAQ5. Have you **ever** taken HIV medications to treat your HIV-infection?

1	Yes
0	No
7	Don't Know
8	Refuse to Answer

If BAQ5 is equal to 0, then skip to BS1Q1.

Currently on ART

BAQ6. Are you **currently** taking HIV medications to treat your HIV-infection?

1	Yes
0	No
7	Don't Know
8	Refuse to Answer

If BAQ6 is equal to zero, skip to BS1Q1.

[INTER: *Enter HIV medicines into column headings on next page using Card A and prior interview.*
[INTER: *Proceed to BAQ7 on GRID on next page*]

Thank you for agreeing to participate in our study today. The purpose of this study is to help us develop programs for people living with HIV to help them stay healthy. The information we gather will help us learn how different health programs affect what people living with HIV think and believe about their health.

This survey contains questions about sensitive topics such as drug and alcohol use, and sexual behavior. Everything you say will be kept private and confidential. We do not share your individual answers with any doctors or nurses in the clinic. We will combine what you tell us with everyone else's answers to the same questions and remove all names for reports.

Because many men and women are participating, some questions in this interview may not apply to you; however, we have to ask the same questions of all participants. All the information you can provide is important and will be helpful, but we don't want you to feel uncomfortable. Feel free to skip any questions that you do not feel comfortable answering, or when the question doesn't apply to you, if that's the case. When you answer, please answer as honestly as possible. There are no right or wrong answers.   We want to get a true picture of what you and everyone else who answers these questions thinks or feels. We appreciate your helping us today, as well as your important contribution to HIV prevention research. This interview will take about 45-50 minutes to complete. Do you have any questions for me before we get started?

[Tutorial here–optional]

1. HIV History and Current Medical Status

We will start by asking you some questions about your health and medical care.

GLOBAL HEALTH

BS1Q1. In general, would you say your health is: (Select one)

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
8	Refuse to Answer

CLINICAL QUESTIONS.

BS1Q2. We are doing this study with people who are living with HIV. It is helpful for us to know how long you have been personally dealing with HIV. What month and year did you first learn that you were HIV-positive? *[The HIV antibody test was first given in 1985.]*

__ __ / __ __ __ __   mm / yyyy

BS1Q2a. Have you had a viral load test **in the past 6 months**?

1	Yes
0	No->SKIP TO BS1Q3
7	Don't Know->SKIP TO BS1Q3
8	Refuse to Answer->SKIP TO BS1Q3

BS1Q2b. At that time, were you undetectable?

1	Yes
0	No
7	Don't Know
8	Refuse to Answer

BS1Q3. Do you have an HIV case manager at this clinic or at any other location (someone who helps with getting medical and social support services)?

1	Yes
0	No
7	Don't Know
8	Refuse to Answer

Patient/Provider Communication

BS1Q4. During your office visits, how much do you and your healthcare provider usually talk about HIV prevention issues like safer sex and drug use? Would you say that you talk about HIV prevention issues:

1	A lot
2	Somewhat
3	A little
4	You do not really talk about them at all
8	Refuse to Answer

II. Beliefs/Attitudes toward Safer Sex and Nutrition

Now, we will ask some questions about what **YOU** believe about your health. Some of the questions are about eating habits and some are about safer sex. Each of the following questions is asking about your habits in the **last month (30 days).** For each one, pick the response that matches best for you.

BS2Q1. In the **last month (30 days),** about how many servings of fresh fruits or vegetables did you eat **each day**?

1	5 or more servings
2	3-4 servings
3	2 or less servings

BS2Q2. In the **last month (30 days),** how many non-diet sodas or glasses of sweetened tea did you drink **each day**?

1	3 or more a day
2	1-2 a day
3	Less than 1 a day

BS2Q3. In the **last month (30 days),** how much margarine, butter, or meat fat did you use to season vegetables or put on potatoes, bread, corn or other foods **each day**?

1	A fair amount
2	Some
3	Very little

BS2Q4. In the **last month (30 days), how many times a week** did you eat fast food?

1	4 or more times a week
2	1-3 times a week
3	Less than once a week

BS2Q5. In the **last month (30 days) how many times a week** did you eat chicken, **or** fish, **or** beans (like pinto or black beans)?

1	3 or more times a week
2	1-2 times a week
3	Less than once a week

BS2Q6. In the **last month (30 days), how many times a week** did you eat snack chips or crackers (not the low-fat)?

1	4 or more times a week
2	1-3 times a week
3	Less than once a week

BS2Q7. In the **last month (30 days), h**ow many times a week did you eat desserts OR other sweets?

1	4 or more times a week
2	1-3 times a week
3	Less than once a week

Now, the next question is about what you believe your chances are of getting or giving a sexually transmitted disease or STD.

Likelihood of infecting others
STEP (Thomas/Earp)

BS2Q8. If you had sex with someone just one time, it would be pretty hard to catch a STD from that person. Do you:

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot

The next questions are about the chances of passing HIV to others. The first few questions are about the possibility of giving HIV to someone who is HIV negative. After that, we'll ask you about transmitting to people who are HIV positive. After hearing each statement, pick the answer that best matches what you believe.

Seriousness of transmission risk
Elford (revised)

BS2Q9. New HIV medications make giving someone HIV:

1	Much less serious than it used to be
2	A little less serious than it used to be
3	About as serious as it used to be
4	A little more serious than it used to be
5	Much more serious than it used to be
7	Don't Know
8	Refused to Answer

Belief about condom efficacy
(spns)

BS2Q10. Using condoms correctly is:

1	A completely effective way to keep you from giving HIV to someone else
2	A very effective way to keep you from giving HIV to someone else
3	A somewhat effective way to keep you from giving HIV to someone else
4	Not a very effective way to keep you from giving HIV to someone else
5	Not at all an effective way to keep you from giving HIV to someone else
7	Don't Know
8	Refused to Answer

Worry

BS2Q11. How worried are you that you gave HIV to someone else **in the last six months?** Would you say that you are:

1	Very worried that you gave HIV to someone else
2	Somewhat worried that you gave HIV to someone else
3	A little bit worried that you gave HIV to someone else
4	Not worried at all that you gave HIV to someone else
7	Don't Know
8	Refuse to Answer

TRANSMISSION RISK–Perceived Risk with Different Viral Loads
Kalichman "In the Mix"

The next three questions ask you about your likelihood of giving HIV to someone. (Have narrator's inflection change when saying the level of viral load)

BS2Q12. Imagine you had <u>unprotected</u> sex one time today with an HIV <u>negative</u> partner. What's the chance that you would give HIV to that partner given your **current** viral load?

1	High
2	Medium
3	Low
4	No chance
7	Don't Know
8	Refused to Answer

BS2Q13. Now imagine that your **viral load is undetectable**.   Now, what's the chance you would give HIV to a HIV negative partner if you had <u>unprotected</u> sex one time today?

1	High
2	Medium
3	Low
4	No chance
7	Don't Know
8	Refused to Answer

BS2Q14. Now imagine the other extreme. Imagine your **viral load is high** (over 100,000). What's the chance you would give HIV to a HIV negative partner if you had <u>unprotected</u> sex one time today?

1	High
2	Medium
3	Low
4	No chance
7	Don't Know
8	Refused to Answer

Transmission Risk–Perceived Risk of reinfection
(Colfax, 2004)

Now let's talk about <u>reinfection</u>. Reinfection is when a person who has one strain of HIV becomes infected with a different strain of the virus. Some people call this <u>superinfection.</u>

BS2Q15. Have you ever heard of HIV reinfection or superinfection?

1	Yes
0	No
8	Refused to Answer

For the next two questions, give the answer that comes closest to how you feel. What we'd like is your first reaction, your "gut reaction."

BS2Q16. Given your current sexual behaviors, how likely do you think you are to be <u>reinfected</u> with another strain of HIV **in the next year?**

1	Very likely
2	Somewhat likely
3	A little likely
4	Not at all likely
7	Don't Know
8	Refused to Answer

BS2Q17. Getting reinfected with HIV could really harm my health. Do you?

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
8	Refused to Answer

ATTITUDES TOWARD CONDOMS
STEP (THOMAS/EARP)

Now I am going to read you some things people think about sex and sexually transmitted diseases (STDs). For each one, tell me whether you agree or disagree with it by clicking on the answer that best fits with what you believe.

BS2Q18. Just about any kind of sex feels better when you don't use a condom. Do you:

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot
8	Refuse to Answer

BS2Q19. Having to stop sex to put on a condom takes the fun out of it. Do you:

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot
8	Refuse to Answer

BS2Q20. Using a condom during sex is like telling others that you might have an STD or HIV. Do you:

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot
8	Refuse to Answer

Golin (de novo)
BS2Q21. Using a condom during sex feels uncomfortable. Do you:

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot
8	Refuse to Answer

Golin (de novo)

BS2Q22. Using a condom during sex is embarrassing. Do you:

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot
8	Refuse to Answer

Satisfaction with Sex Life

BS2Q23. Think about your sex life. **In the past 6 months,** would you say you have been:

1	Very satisfied with your sex life
2	Somewhat satisfied with your sex life
3	Not very satisfied with your sex life
4	Not satisfied at all with your sex life
7	Don't Know
8	Refused to Answer
9	Not Applicable

III. MOTIVATION and INTENTIONS TO AVOID UNSAFE SEX

Roffman's "The Sex Check" study (modified)

The next questions are about how you feel about having sex in the **next 3 months** with a **main partner.** By sex, we mean anal (in the butt) or vaginal sex. A **main partner** would be someone you have lived with or seen a lot, and to whom you have felt a special emotional commitment.

BS3Q1. **In the next three months**, how motivated or unmotivated do you feel about having safer sex. Do you feel:

1	Not at all motivated
2	Somewhat motivated
3	Very motivated
4	Totally motivated
8	Refused to Answer
9	Not Applicable

Golin (de novo adapted from PACT adherence motivation question)

BS3Q2. **In the next three months,** how important or unimportant will it be to you to use a condom every single time you have sex? Would you say that for you it is:

1	Not at all important to use a condom every single time
2	Somewhat important to use a condom every single time
3	Very important to use a condom every single time
4	Extremely important to use a condom every single time
8	Refused to Answer
9	Not Applicable

BS3Q3. **In the next three months,** how important or unimportant is it to you to tell any **new** partner that you have HIV? Would you say it is:

1	Not at all important
2	Somewhat important
3	Very important
4	Extremely important
8	Refused to Answer
9	Not Applicable

The next questions are about how you feel about having sex in the **next 3 months** with a **casual partner.** (**by sex, we mean anal or vaginal sex**)   A "**casual partner**" would be anyone you don't consider a main partner?

BS3Q4. **In the next three months**, how motivated or unmotivated do you feel about having safer sex with a casual partner. Do you feel:

1	Not at all motivated
2	Somewhat motivated
3	Very motivated
4	Totally motivated
8	Refused to Answer
9	Not Applicable

Golin (de novo adapted from PACT adherence motivation question)

BS3Q5. **In the next three months,** how important or unimportant will it be to you to use a condom every single time you have sex? Would you say that for you it is:

1	Not at all important to use a condom every single time
2	Somewhat important to use a condom every single time
3	Very important to use a condom every single time
4	Extremely important to use a condom every single time
8	Refused to Answer
9	Not Applicable

BS3Q6. **In the next three months,** how important or unimportant is it to you to tell any new partner that you have HIV? Would you say it is:

1	Not at all important
2	Somewhat important
3	Very important
4	Extremely important
8	Refused to Answer
9	Not Applicable

Roger Roffman's Intentions Scale ("The Sex Check" Study)

We know that many people do not practice safer sex every time they have sex. (Pause)
For the next few questions, please think about what you would be likely to do and who you would be likely to have sex with.

If you were going to have sex in the next 3 months, how likely or unlikely is it that every time you have sex, you…

BS3Q7. will keep condoms nearby?

1	Very unlikely
2	Somewhat unlikely
3	Somewhat likely
4	Very likely
8	Refused to Answer

BS3Q8.   will be sure you know your partner's HIV status, (meaning knowing whether your partner is HIV positive or negative) <u>before</u> having sex with him or her?

1	Very unlikely
2	Somewhat unlikely
3	Somewhat likely
4	Very likely
8	Refused to Answer

BS3Q9. will tell your partner that you need to use a condom?

1	Very unlikely
2	Somewhat unlikely
3	Somewhat likely
4	Very likely
8	Refused to Answer

Think about what you would be likely to do and who you would be likely to have sex with.

If you were going to have sex in the next 3 months, how likely or unlikely is it that every time you have sex, you…

BS3Q10. will actually use a condom?

1	Very unlikely
2	Somewhat unlikely
3	Somewhat likely
4	Very likely
8	Refused to Answer

BS3Q11. will discuss safer sex with your partner?

1	Very unlikely
2	Somewhat unlikely
3	Somewhat likely
4	Very likely
8	Refused to Answer

Think about what you would be likely to do and who you would be likely to have sex with.

If you were going to have sex in the next 3 months, how likely or unlikely is it that every time you have sex, you…

BS3Q12. will use alcohol before sex?

1	Very unlikely
2	Somewhat unlikely
3	Somewhat likely
4	Very likely
8	Refused to Answer

BS3Q13. will use drugs before sex?

1	Very unlikely
2	Somewhat unlikely
3	Somewhat likely
4	Very likely
8	Refused to Answer

BS3Q14. will use a condom even if your partner does NOT want to?

1	Very unlikely
2	Somewhat unlikely
3	Somewhat likely
4	Very likely
8	Refused to Answer

IV. Stress and Coping

A. Stressful Life Events

The following questions ask you about important things that may have happened to you **in the past.**

BS4Q1. Have you **ever** been molested, sexually attacked, raped, sexually abused, or forced to have sex?

1	Yes
0	No
8	Refused to Answer

BS4Q1a. [If yes to BS4Q1]

What age were you when you were first molested, sexually attacked, raped, sexually abused, or forced to have sex? (select one)

1	age 12 years or younger
2	13-18 years old
3	Over 18 years old
8	Refused to Answer

BS4Q2. Have you **ever** been a victim of a violent crime (like assault or physical abuse) **other than sexual abuse**?

1	Yes
0	No
8	Refused to Answer

BS4Q3. Have you **ever** traded sex for money, drugs, food or shelter?

1	Yes
0	No
8	Refused to Answer

BS4Q4. Have you **ever** been in prison or in jail?

1	Yes
0	No
8	Refused to Answer

B. SETH KALICHMAN-REVISED ACASI FOR STRESSORS

People react to stress in many different ways. In a minute, I will read you a list of possible stressful events. Thinking about your life, tell me how much stress each of these events has caused **YOU** in **the past 6 months**. For each event I read to you, if you have not experienced it <u>at all</u> in the <u>last 6 months</u>, please check "did not happen in the last six months". Otherwise, please check the box that shows how much stress this event has caused you **in the last 6 months.**

BS4Q5. Started disability

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q6. Experienced the serious illness or the death of a close friend or family member

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q7. Experienced discrimination of some type

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q8. Found out you had a change in your viral load

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q9. Found out you had a change in your T cell or CD4 count

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q10. Started a new medication

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q11. Got a serious illness

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q12. Was hospitalized

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q13. Fired or laid off from a job

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q14. Put in prison or jail

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q15. Told your HIV status to someone new

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q16. An important relationship ended with a separation, divorce, or break-up

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q17. A close friend, or family member or sex partner told you they had HIV

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q18. Knowing you infected another person with HIV

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q19. Evicted or asked to leave your housing

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BSQ420. Had problems with your health insurance

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q21. Experienced violence or abuse, either physical or sexual

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q22. Traded sex for money, drugs, food or shelter

0	No stress
1	A little stress
2	Some stress
3	A lot of stress
8	Refused to Answer
9	Did not happen in last 6 months

BS4Q23. Are there any other events that I didn't list that caused you stress **in the last 6 months?**

1	Yes
0	No
7	Don't Know
8	Refused to Answer

If BS4Q23 is equal to 0, then skip to BS4Q25.

BS4Q24.   What were they? Please type in your answer(s).

————————————————————————————————

KALICHMAN-REVISED ACASI FOR STRESSORS (BASED ON PICKING TOP STRESSOR)

BS4Q25. The stressors from the previous screen that you said caused you the most stress are listed below. Please indicate which **ONE STRESSOR** caused you the GREATEST amount of stress **in the last 6 months**. (Choose one)

JG: program ACASI so only those that got the highest rating by them on the previous screens actually get listed here on this screen

1	I went on disability
2	I experienced a serious illness or the death of a close friend or family member
3	I experienced discrimination of some type
4	I experienced a change in my viral load
5	I experienced a change in my T cell or CD4 count
6	I started a new medication
7	I got a serious illness
8	I was hospitalized
9	My appearance changed
10	I was fired or laid off from a job
11	I was put in prison or jail
12	I told my HIV status to someone new
14	An important relationship ended with a separation, divorce, or break-up
15	A close friend, family member, or sex partners told me they had HIV
16	I infected another person with HIV
17	I was evicted or asked to leave my housing
18	I had problems with my health insurance
19	I experienced violence or abuse, physical or sexual
20	I traded sex for money, drugs, food or shelter
21	*If they checked other above and typed it in, then shouldn't it be programmed to automatically show that*
22	Other: _____ *then this one, 22 would be if they at this point, decide there is something else that is more stressful. Although do we really need to give them this option twice???*
98	Refused to Answer

If BS4Q25 is equal to 1, then skip to instruction before BS4Q26 (had to change all the numbering here).
If BS4Q25 is equal to 2, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 3, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 4, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 5, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 6, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 7, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 8, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 9, then skip to instruction before BS4Q26.

If BS4Q25 is equal to 10, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 11, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 12, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 13, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 14, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 15, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 16, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 17, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 18, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 19, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 20, then skip to instruction before BS4Q26.
If BS4Q25 is equal to 21, then skip to instruction before BS4Q26.

BS4Q25a. Please type in what other stressor you found to be the MOST stressful.

——————————————————————— ———————————————

Coping: Combination of Kalichman and Folkman's short version of Ways of Coping

People tend to deal with stress in different ways. Please think about [Response to BS4Q25], the situation that you indicated on the previous screen that was the most stressful for you. Please check how much you used each of the following ways to help you deal with [Response to BS4Q25a].

BS4Q26.   I tried to keep my feelings to myself.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q27.   I talked to someone to find out more information.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q28.   I knew what had to be done, and I worked harder at it.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q29.   I prayed.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

Please check how much you used each of the following ways to help you deal with [Response to BS4Q25].

BS4Q30. I went on as if nothing had happened.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q31. I made a plan of action and followed it.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q32. I asked a friend or relative for advice.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q33. I tried to forget the whole thing.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

Please check how much you used each of the following ways to help you deal with [Response to BS4Q25a].

BS4Q34. I tried to make myself feel better by sleeping, or eating, or drinking, or smoking, or using drugs, etc.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q35. I concentrated on what I had to do next.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q36. I talked to someone about how I was feeling.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q37. I criticized or lectured myself.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

Please check how much you used each of the following ways to help you deal with [Response to BS4Q25a].

BS4Q38. I let my feelings out somehow.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q39. I found new faith.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q40. I rediscovered what is important in life.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q41. I avoided being with people in general.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

Please check how much you used each of the following ways to help you deal with [Response to BS4Q25a].

BS4Q42. I kept others from knowing how bad things were.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q43. I made a promise to myself that things would be different next time.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q44. I wished that the situation would go away or somehow be over with.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

BS4Q45. I stood my ground and fought for what I wanted.

1	Not used at all
2	Used a little
3	Used some of the time
4	Used a lot
8	Refused to Answer

V. Stigma

Berger et al, 2001

Next are some things people living with HIV may have experienced in the past or may be experiencing right now. We realize the next few questions may make you feel uncomfortable. (PAUSE) For each one you see on the screen, please pick how much you agree or disagree with it by clicking on the answer that best fits you.

BS5Q1. In some areas of my life, no one knows that I have HIV.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q2. Telling someone I have HIV is risky.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q3. I work hard to keep my HIV a secret.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q4. People I care about stopped calling after finding out I had HIV.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q5. I am very careful who I tell that I have HIV.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q6. Some people I know have become more distant from me after finding out I have HIV.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q7. I feel the need to hide the fact that I have HIV.

1	Agree a lot
2	Agree a little
3	Disagree a little

4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q8. I have been hurt by how people reacted after finding out I have HIV.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q9. I worry that people who know I have HIV will tell others.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q10. Some people avoid touching me after they find out I have HIV.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q11. People physically backed away from me when they found out I had HIV.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q12. I have stopped socializing with some people because of their reactions to my having HIV.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q13. I lost friends by telling them I have HIV.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q14. I have told people close to me to keep the fact that I have HIV a secret.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

BS5Q15. People seemed afraid of me once they found out I had HIV.

1	Agree a lot
2	Agree a little
3	Disagree a little
4	Disagree a lot
7	Don't Know
8	Refused to Answer

VI. Discrimination

BS6Q1. Thinking of your experiences with receiving health care **in the past 12 months**, have you ever felt you were discriminated against for any reason?

1	Yes
2	No->SKIP TO BS7Q1
8	Refuse to Answer>SKIP TO BS7Q1
9	Not Applicable>SKIP TO BS7Q1

BS6Q2. What do you think was the **biggest** reason that you were discriminated against? (Choose one)

01	Age
02	Race or ethnic group
03	Language/accent
04	HIV status
05	Body weight
06	Insurance type
07	Income level
08	Health or disability
09	Religion
10	Sexual orientation
11	Gender/sex
12	Some other reason (specify): _____
97	Don't Know
98	Refuse to Answer

VII. Sexual Behavior Self Efficacy

PARSONS ET. AL, 1998
Here are some questions about your sexual activity. When we say "partner", we mean a boyfriend, girlfriend, spouse, or person who you have sexual activity with. This can include kissing, petting, oral sex, and intercourse. For the next questions, please tell me on a scale of 1 to 10, how confident you feel that you could do each of the following <u>today</u> *if you decided to do it* with zero (00) being "not at all confident" and 10 being "completely confident".

BS7Q1.   How confident are you that you can talk with your partner(s) about sex?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

BS7Q2.   How confident are you that you can use a condom correctly?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

BS7Q3.   What if you DID want to have vaginal or anal sex but you didn't have any condoms? How confident are you that you could switch to other sexual activities instead?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident

06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

BS7Q4. How confident are you that you can convince your partner(s) to use condoms every single time you have sex?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

BS7Q5. How confident are you that you could say "**No**" to having sex with your partner?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

BS7Q6. If a partner tells you that they would **not** use condoms, how confident are you that you could refuse to have sex with them?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	

          10   Completely confident

          98   Refused to Answer

BS7Q7. How confident are you that you can talk about using condoms with **EVERY** future partner?

          00   Not at all confident

          01

          02

          03

          04

          05   Somewhat confident

          06

          07

          08

          09

          10   Completely confident

          98   Refused to Answer

Now, please rate how confident you are that you <u>can use</u> condoms in each of the following situations <u>today,</u> *if you decided to do it:*

BS7Q8. How confident are you that you can use condoms if you are feeling depressed?

          00   Not at all confident

          01

          02

          03

          04

          05   Somewhat confident

          06

          07

          08

          09

          10   Completely confident

          98   Refused to Answer

BS7Q9. How confident are you that you can use condoms when you've been drinking or using drugs before sex?

          00   Not at all confident

          01

          02

          03

          04

          05   Somewhat confident

          06

          07

          08

09	
10	Completely confident
98	Refused to Answer

BS7Q10. How confident are you that you can use condoms if condoms are NOT readily available and you (or your partner) have to go and get them?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

BS7Q11. How confident are you that you can use condoms if you are feeling good?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

BS7Q12. How confident are you that you can use condoms if you are in love with your partner?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

BS7Q13. How confident are you that you can use condoms with a new partner?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

BS7Q14. How confident are you that you can use condoms if you won't see this partner again?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

BS7Q15. How confident are you that you can use condoms with a partner who you have **not** used condoms with before?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

.

BS7Q16. How confident are you that you can use a condom when your partner doesn't want to use a condom?

00	Not at all confident
01	
02	
03	
04	
05	Somewhat confident
06	
07	
08	
09	
10	Completely confident
98	Refused to Answer

VIII. Risky Sexual Behavior
SEXUAL RISK ASSESSMENT FOR MEN- Sexual Behavior with Women

GENDER

BS8Q1. Are you: (Select one)

1	Male
2	Female
3	Transgender (Male to Female)
4	Transgender (Female to Male)
8	Refused to Answer

If BS8Q1 is equal to 1, then skip to M1.

If BS8Q1 is equal to 2, then skip to W1.

If BS8Q1 is equal to 3, then continue to BS8Q2.

If BS8Q1 is equal to 4, then skip to BS8Q2.

BS8Q2. Do you have a penis?

1	Yes
0	No

If BS8Q2 is equal to 1, then skip to M1.

If BS8Q2 is equal to 0, then skip to W1.

The next questions are about the sexual relationships you might have had in the **last 3 months.** Again, please remember that all your answers are strictly confidential. Your answers are protected by law and cannot be shared with any outside organization or agency not involved with this study.

The following questions ask about your sexual behavior with partners who are HIV-positive and HIV-negative, as well as partners whose HIV status you are not sure of. Again, these questions are about the **last 3 months**.

M1.   Have you had any female sex partners in the **last 3 months**? By female sex partners, we mean women with whom you had vaginal, anal or oral sex, with or without ejaculation.

1	Yes
0	No
8	Refuse to

Answer

If M1 is equal to 0, then skip to instruction before M15.

        M1a.   How many female sexual partners have you had in the last 3 months?

                — — —

998	Refuse to

Answer

If M1a is greater than 1, then skip to instruction before M2.

        M1b.   What was this partner's HIV status? (Choose one)

0	Positive
1	Negative
88	Not Sure
998	Refuse to

Answer

        M1c.   Were you in a primary relationship with this sex partner? By primary we mean someone you have lived with or seen a lot, and to whom you have felt a special emotional commitment.

1	Yes
0	No
8	Refuse to

Answer

        M1d.   Did this partner know that you were HIV-positive because you told her that you were positive? (Choose one)

0	No
1	Yes
88	Not Sure
998	Refuse to

Answer

If M1b is equal to 0, then skip to instruction before M6.

If M1b is equal to 1, then skip to instruction before M9.

If M1b is equal to 88, then skip to instruction before M12.

The next questions ask about the HIV-status of the sexual partners we asked about in the last question. When we say **HIV status,** we mean whether you know, for certain, whether your partners are **either** HIV positive, HIV negative, or not sure. First, we will ask you about your **HIV-positive** sexual partner(s). Then we will ask you about your **HIV-negative** sexual partner(s). Lastly, we will ask you about sex partner(s) whose **HIV status you are not sure of**. For these next questions, please keep in mind that the number of HIV-positive sexual partners, HIV-negative sexual partners, and partners whose HIV status you are not sure of <u>MUST EQUAL</u> the **total** number of partners that you entered in the last question. If you want to, write your number of partners down on the sheet of scratch paper provided to help you answer the next questions.

M2.   **In the last three months...** How many of your [Response to M1a] female sex partners were **HIV-positive**?

— — —

998   Refuse to Answer

If M2 is greater than M1a then The number of your HIV-positive sex partners cannot be greater than your total number of sex partners." skip to M2.

If M2 is equal to 0 or M2 is equal to "Refuse to Answer", then skip to instruction before M3.

M2a.   Of this/these [Response to M2] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

— — —

998   Refuse to Answer

If M2a is greater than M2 then the number of partners you told cannot be greater than your number of partners." Skip to M2a.

M3.   **In the last three months...** How many of your [Response to M1a] female sex partners were **HIV-negative**?

— — —

998   Refuse to Answer

If M3 is greater than M1a then The number of your HIV-negative sex partners cannot be greater than your total number of sex partners." skip to M3.

If M3 is equal to 0 or M3 is equal to "Refuse to Answer", then skip to instruction before M4.

M3a.   Of this/these [Response to M3] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

— — —

998   Refuse to Answer

If M3a is greater than M3 then The number of partners you told cannot be greater than your number of partners." skip to M3a.

M4.   **In the last three months...** How many of your [Response to M1a] female sex partners' HIV status were you unsure of?

— — —

998   Refuse to Answer

If M4 is greater than M1a then The number of your sex partners whose status you were not sure of cannot be greater than your total number of sex partners." skip to M4.

If M2 + M3 + M4 is not equal to M1a and M2 is not equal to "Refuse to Answer" and M3 is not equal to "Refuse to Answer" and M4 is not equal to "Refuse to Answer" then The number of HIV+, HIV-, and unknown HIV status partners must equal your total number of partners. We will now ask you about these partners again." skip to M2.

If M4 is equal to 0 or M4 is equal to "Refuse to Answer", then skip to instruction before M5.

M4a.   Of this/these [Response to M4] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

— — —

998   Refuse to Answer

If M4a is greater than M4 then The number of partners you told cannot be greater than your number of partners." skip to M4a.

167

M5.   Were you in a primary relationship with at least **one** female sex partner during the **last 3 months**? This would be someone you have lived with or seen a lot, and to whom you have felt a special emotional commitment.

1	Yes
0	No
8	Refuse to Answer

If M5 is equal to 0, then skip to instruction before M6.

M5a.   How many primary partners have you had in the last 3 months? (Choose one)

0	1
1	More than 1
8	Refuse to Answer

If M5a is equal to 1, then skip to instruction before M5d.

M5b.   What is your primary partner's HIV status? (Choose one)

00	Positive
01	Negative
88	Not Sure
98	Refuse to Answer

M5c.   Did your primary partner know that you were HIV-positive because you told her that you were positive?

1	Yes
0	No
8	Refuse to Answer

If M5a is equal to 0, then skip to instruction before M6.

M5d.   How many primary partners have you had in the last 3 months?__ __ __

998	Refuse to Answer

If M5d is greater than M1a then The number of your primary partners cannot be greater than your total number of sex partners." skip to M5d.

M5e.   How many of your [Response to M5d] primary partners were HIV-positive?

          — — —

998	Refuse to Answer

If M5e is greater than M5d then The number of HIV-positive primary partners cannot be greater than the number of primary partners" skip to M5e.

If M5e is greater than M2 then The number of HIV-positive primary partners cannot be greater than the number of your HIV-positive partners" skip to M5e.

If M5e is equal to 0 or M5e is equal to "Refuse to Answer", then skip to instruction before M5f.

M5e1.   Of this/these [Response to M5e] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

          — — —

998	Refuse to Answer

If M5e1 is greater than M5e then the number of partners you told cannot be greater than your number of partners." Skip to M5e.

M5f.　　How many of your [Response to M5d] primary partners were HIV-negative?

_ _ _
998　　　Refuse to
Answer

If M5f is greater than M5d then the number of HIV-negative primary partners cannot be greater than the number of primary partners." Skip to M5f.

If M5f is greater than M3 then the number of HIV-negative primary partners cannot be greater than the number of your HIV-negative partners" Skip to M5f.

If M5f is equal to 0 or M5f is equal to "Refuse to Answer", then skip to instruction before M5g.

　　　M5f1.　　Of this/these [Response to M5f] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

_ _ _
998　　　Refuse to
Answer

If M5f1 is greater than M5f then the number of partners you told cannot be greater than your number of partners." Skip to M5f.

　　　M5g.　　How many of your [Response to M5d] primary partners' HIV status were you unsure of?

_ _ _
998　　　Refuse to
Answer

If M5g is greater than M5d then the number of primary partners whose HIV status you are unsure of cannot be greater than the number of primary partners." Skip to M5g.

If M5g is greater than M4 then the number of primary partners whose HIV status you are unsure of cannot be greater than the number of your unknown HIV-status partners." Skip to M5g.

If M5g is equal to 0 or M5g is equal to "Refuse to Answer", then skip to instruction before M6.

　　　M5g1.　　Of this/these [Response to M5g] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

_ _ _
998　　　Refuse to
Answer

If M5g1 is greater than M5g then The number of partners you told cannot be greater than your number of partners." skip to M5g.

If M5e + M5f + M5g is not equal to M5d then The sum of the number of HIV-positive, HIV-negative, and unknown HIV status primary partners must equal your total number of primary partners" skip to M5e.

If M1a is equal to 1 and M1b is not equal to 0 or M1a is greater than 1 and M2 is equal to 0, then skip to instruction before M9.

HIV-POSITIVE PARTNERS (the yellow sheet)

The next group of questions asks about the sexual contacts you have had in the last 3 months with your **HIV-positive** female partner(s).

Some of the next questions are about sexual behaviors where you or your partner may or may not have used a male or a female condom. When we ask about sex with a condom, we mean that a condom was put on or inserted **before** penetration and used **throughout** sex. For example, when we ask how many times a condom was used during intercourse, do not include times when penetration occurred without a condom, then a condom was put on and sex continued. Include those occasions when we ask you about intercourse without condoms.

M6.   **In the last 3 months**:
         How many times did you ejaculate or cum in this/these HIV-positive partner(s)' mouth(s) without a condom?

                                                                          __ __ __
                                                                          998   Refuse to
Answer

M7.   How many times did you have vaginal sex with this/these HIV-positive partner(s)? This would be with or without a condom and whether or not you ejaculated.

                                                                          __ __ __
                                                                          998   Refuse to
Answer

If M7 is equal to 0 or M7 is equal to "Refuse to Answer", then skip to instruction before M8.

         M7a.   How many of these times was a condom used?   __ __ __
                                                                          998   Refuse to
Answer

If M7a is greater than M7 then the number of times you used a condom cannot be greater than the number of times having sex." Skip to M7.

M8.   How many times did you have anal sex with your HIV-positive partner(s)? This would be with or without a condom and whether or not you ejaculated.

                                                                          __ __ __
                                                                          998   Refuse to
Answer

If M8 is equal to 0 or M8 is equal to "Refuse to Answer", then skip to instruction before M9.

         M8a.   How many of these times was a condom used?   __ __ __
                                                                          998   Refuse to
Answer

If M8a is greater than M8 then the number of times you used a condom cannot be greater than the number of times having sex." Skip to M8.

If M1a is equal to 1 and M1b is not equal to 1 or M1a is greater than 1 and M3 is equal to 0, then skip to instruction before M12.

HIV-NEGATIVE PARTNERS (the green sheet)

The next group of questions asks about the sexual contacts you have had in the last 3 months with your **HIV-negative** female partner(s).

Some of the next questions are about sexual behaviors where you or your partner may or may not have used a male or a female condom. When we ask about sex with a condom, we mean that a condom was put on or inserted **before** penetration and used **throughout** sex. For example, when we ask how many times a condom was used during intercourse, do not include times when penetration occurred without a condom, then a condom was put on and sex continued. Include those occasions when we ask you about intercourse without condoms.

M9. **In the last 3 months**:
How many times did you ejaculate or cum in this/these HIV-negative partner(s)' mouth(s) without a condom?

— — —
998   Refuse to Answer

M10. How many times did you have vaginal sex with this/these HIV-negative partner(s)? This would be with or without a condom and whether or not you ejaculated.

— — —
998   Refuse to Answer

If M10 is equal to 0 or M10 is equal to "Refuse to Answer", then skip to instruction before M11.

    M10a. How many of these times was a condom used?   — — —
998   Refuse to Answer

If M10a is greater than M10 then The number of times you used a condom cannot be greater than the number of times having sex." skip to M10.

M11. How many times did you have anal sex with your HIV-negative partner(s)? This would be with or without a condom and whether or not you ejaculated.

— — —
998   Refuse to Answer

If M11 is equal to 0 or M11 is equal to "Refuse to Answer", then skip to instruction before M12.

    M11a. How many of these times was a condom used?   — — —
998   Refuse to Answer

If M11a is greater than M11 then the number of times you used a condom cannot be greater than the number of times having sex." Skip to M11.

If M1a is equal to 1 and M1b is not equal to 88 or M1a is greater than 1 and M4 is equal to 0, then skip to instruction before M15.

PARTNERS OF UNCERTAIN HIV-STATUS (the blue sheet)

The next group of questions asks about the sexual contacts you have had in the last 3 months with your female partner(s) whose **HIV status you were not sure of.**

Some of the next questions are about sexual behaviors where you or your partner may or may not have used a male or a female condom. When we ask about sex with a condom, we mean that a condom was put on or inserted **before** penetration and used **throughout** sex. For example, when we ask how many times a condom was used during intercourse, do not include times when penetration occurred without a condom, then a condom was put on and sex continued. Include those occasions when we ask you about intercourse without condoms.

M12. **In the last 3 months**:
How many times did you ejaculate or cum in this/these partner(s)' mouth(s) without a condom?

__ __ __
998   Refuse to
Answer

M13. How many times did you have vaginal sex with this/these partner(s) whose status you were not sure of? This would be with or without a condom and whether or not you ejaculated. __ __ __
998   Refuse to
Answer

If M13 is equal to 0 or M13 is equal to "Refuse to Answer", then skip to instruction before M14.

M13a. How many of these times was a condom used?   __ __ __
998   Refuse to
Answer

If M13a is greater than M13 then The number of times you used a condom cannot be greater than the number of times having sex." skip to M13.

M14. How many times did you have anal sex with your partner(s) whose status you were not sure of? This would be with or without a condom and whether or not you ejaculated.__ __ __
998   Refuse to
Answer

If M14 is equal to 0 or M14 is equal to "Refuse to Answer", then skip to instruction before M15.

M14a. How many of these times was a condom used?   __ __ __
998   Refuse to
Answer

If M14a is greater than M14 then the number of times you used a condom cannot be greater than the number of times having sex." Skip to M14.

SEXUAL RISK ASSESSMENT FOR MEN- Sexual Behavior with Men

The following questions ask about your sexual behavior with partners who are HIV-positive and HIV-negative, as well as partners whose HIV status you were not sure of. Again, these questions refer to the **last 3 months**.

M15.　　Have you had any male sex partners in the **last 3 months**? By male sex partners, we mean men with whom you had anal or oral sex, with or without ejaculation.

1	Yes
0	No
8	Refuse to

Answer

If M15 is equal to 0, then skip to instruction before SUQ1.

　　　　M15a.　　How many male sexual partners have you had in the last 3 months?

　　　　　　　　　　　　　　　　　　　　　　　　　　__ __ __

998	Refuse to

Answer

If M15a is greater than 1, then skip to instruction before M16.

　　　　M15b.　　What is this partner's HIV status? (Choose one)

0	Positive
1	Negative
88	Not Sure
998	Refuse to

Answer

　　　　M15c.　　Were you in a primary relationship with this sex partner? This would be someone you have lived with or seen a lot, and to whom you have felt a special emotional commitment.

1	Yes
0	No
8	Refuse to

Answer

　　　　M15d.　　Did this partner know that you were HIV-positive because you told him that you were positive? (Choose one)

0	No
1	Yes
88	Not Sure
998	Refuse to

Answer

If M15b is equal to 0, then skip to instruction before M20a.

If M15b is equal to 1, then skip to instruction before M23a.

If M15b is equal to 88, then skip to instruction before M26a.

The next questions ask about the HIV-status of the sexual partners we asked about in the last question. When we say **HIV status,** we mean whether you know, for certain, whether your partners are **either** HIV positive, HIV negative, or not sure. First, we will ask you about your **HIV-positive** sexual partner(s).   Then we will ask you about your **HIV-negative** sexual partner(s). Lastly, we will ask you about sex partner(s) whose **HIV status you are not sure of**. For these next questions, please keep in mind that the number of HIV-positive sexual partners, HIV-negative sexual partners, and partners whose HIV status you are not sure of **MUST EQUAL** the **total** number of partners that you entered in the last question. If you want to, write your number of partners down on the sheet of scratch paper provided to help you answer the next questions.

M16.   **In the last three months...** How many of your [Response to M15a] male sex partners were **HIV-positive**?

                         — — —
                         998   Refuse to
Answer

If M16 is greater than M15a then the number of your HIV-positive sex partners cannot be greater than your total number of sex partners." Skip to M16.

If M16 is equal to 0 or M16 is equal to "Refuse to Answer", then skip to instruction before M17.

      M16a.   Of this/these [Response to M16] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

                         — — —
                         998   Refuse to
Answer

If M16a is greater than M16 then the number of partners you told cannot be greater than your number of partners." Skip to M16.

M17.   **In the last three months...** How many of your [Response to M15a] male sex partners were **HIV-negative**?

                         — — —
                         998   Refuse to
Answer

If M17 is greater than M15a then the number of your HIV-negative sex partners cannot be greater than your total number of sex partners." Skip to M17.

If M17 is equal to 0 or M17 is equal to "Refuse to Answer", then skip to instruction before M18.

      M17a.   Of this/these [Response to M17] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

                         — — —
                         998   Refuse to
Answer

If M17a is greater than M17 then the number of partners you told cannot be greater than your number of partners." Skip to M17.

M18.   **In the last three months...** How many of your [Response to M15a] male partners' HIV status were you unsure of?

                         — — —
                         998   Refuse to
Answer

If M18 is greater than M15a then the number of your partners whose HIV status you were not sure of cannot be greater than your total number of sex partners." Skip to M18.

If M16 + M17 + M18 is not equal to M15a and M16 is not equal to "Refuse to Answer" and M17 is not equal to "Refuse to Answer" and M18 is not equal to "Refuse to Answer" then The number of HIV+, HIV-, and unknown HIV status partners must equal your total number of partners. We will now ask you about these partners again." skip to M16.

If M18 is equal to 0 or M18 is equal to "Refuse to Answer", then skip to M19.

M18a. Of this/these [Response to M18] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

__ __ __

998 Refuse to Answer

If M18a is greater than M18 then the number of partners you told cannot be greater than your number of partners." Skip to instruction before M18a.

M19. Were you in a primary relationship with at least **one** male sex partner during the **last 3 months**? This would be someone you have lived with or seen a lot, and to whom you have felt a special emotional commitment.

1 Yes
0 No
8 Refuse to Answer

If M19 is equal to 0, then skip to instruction before M20a.

M19a. How many primary partners have you had in the last 3 months? (Choose one)

0 1
1 More than 1
8 Refuse to Answer

If M19a is equal to 1, then skip to instruction before M19d.

M19b. What is your primary partner's HIV status? (Choose one)

00 Positive
01 Negative
88 Not Sure
98 Refuse to Answer

M19c. Did your primary partner know that you were HIV-positive because you told him that you were positive?

1 Yes
0 No
8 Refuse to Answer

If M19a is equal to 0, then skip to instruction before M20a.

M19d. How many primary partners have you had in the last 3 months?__ __ __

998 Refuse to Answer

If M19d is greater than M15a then the number of your primary partners cannot be greater than your total number of sex partners" Skip to M19d.

M19e. How many of your [Response to M19d] primary partners were HIV-positive?

__ __ __

998 Refuse to Answer

175

If M19e is greater than M19d then the number of HIV-positive primary partners cannot be greater than the number of primary partners." Skip to M19e.

If M19e is greater than M16 then the number of HIV-positive primary partners cannot be greater than the number of your HIV-positive partners." Skip to M19e.

If M19e is equal to 0 or M19e is equal to "Refuse to Answer", then skip to instruction before M19f.

M19e1.   Of this/these [Response to M19e] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

— — —
998   Refuse to

Answer

If M19e1 is greater than M19e then the number of partners you told cannot be greater than your number of partners." Skip to M19e.

M19f.   How many of your [Response to M19d] primary partners were HIV-negative?

— — —
998   Refuse to

Answer

If M19f is greater than M19d then the number of HIV-negative primary partners cannot be greater than the number of primary partners." Skip to M19f.

If M19f is greater than M17 then the number of HIV-negative primary partners cannot be greater than the number of your HIV-negative partners." Skip to M19f.

If M19f is equal to 0 or M19f is equal to "Refuse to Answer", then skip to instruction before M19g.

M19f1.   Of this/these [Response to M19f] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

— — —
998   Refuse to

Answer

If M19f1 is greater than M19f then the number of partners you told cannot be greater than your number of partners." Skip to Mf.

M19g.   How many of your [Response to M19d] primary partners' HIV status were you unsure of?

— — —
998   Refuse to

Answer

If M19g is greater than M19d then the number of primary partners whose HIV status you were unsure of cannot be greater than the number of primary partners." Skip to M19g.

If M19g is greater than M18 then the number of primary partners whose HIV status you are unsure of cannot be greater than the number of your unknown HIV-status partners." Skip to M19g.

If M19g is equal to 0 or M19g is equal to "Refuse to Answer", then skip to instruction before M20a.

M19g1.   Of this/these [Response to M19g] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

— — —
998   Refuse to

Answer

If M19g1 is greater than M19g then the number of partners you told cannot be greater than your number of partners." Skip to M19g.

If M19e + M19f + M19g is not equal to M19d then The sum of the number of HIV-positive, HIV- negative and unknown HIV status primary partners must equal your total number of primary partners" skip to M19e.

If M15a is equal to 1 and M15b is not equal to 0 or M15a is greater than 1 and M16 is equal to 0, then skip to instruction before M23a.

HIV-POSITIVE PARTNERS (the yellow sheet)

The next group of questions asks about the sexual contacts you have had in the last 3 months with your **HIV-positive** male partner(s).

Some of the next questions are about sexual behaviors where you or your partner may or may not have used a male or a female condom. When we ask about sex with a condom, we mean that a condom was put on or inserted **before** penetration and used **throughout** sex. For example, when we ask how many times a condom was used during intercourse, do not include times when penetration occurred without a condom, then a condom was put on and sex continued. Include those occasions when we ask you about intercourse without condoms.

M20a. **In the last 3 months:**
How many times did you have oral sex without a condom when your HIV-positive partner(s) ejaculated or came in your mouth?

_ _ _

998 Refuse to Answer

M20b. **In the last 3 months:**
How many times did you ejaculate or cum in this/these HIV-positive partner(s)' mouth(s) without a condom?

_ _ _

998 Refuse to Answer

M21. How many times did you have anal sex with this/these HIV-positive partner(s) when his/their penis was in your rectum? This would be with or without a condom and whether or not he/they ejaculated.

_ _ _

998 Refuse to Answer

If M21 is equal to 0, then skip to instruction before M22.

M21a. How many of these times was a condom used? _ _ _

998 Refuse to Answer

If M21a is greater than M21 then the number of times you used a condom cannot be greater than the number of times having sex." Skip to M21.

M22. How many times did you have anal sex with your HIV-positive partner(s) when your penis was in his/their rectum? This would be with or without a condom and whether or not you ejaculated.

_ _ _

998 Refuse to Answer

If M22 is equal to 0, then skip to instruction before M23a.

M22a. How many of these times was a condom used? _ _ _

998 Refuse to Answer

If M22a is greater than M22 then the number of times you used a condom cannot be greater than the number of times having sex." Skip to M22.

177

If M15a is equal to 1 and M15b is not equal to 1 or M15a is greater than 1 and M17 is equal to 0, then skip to instruction before M26a.

HIV-NEGATIVE PARTNERS (the green sheet)

The next group of questions asks about the sexual contacts you have had in the last 3 months with your **HIV-negative** male partner(s).

Some of the next questions are about sexual behaviors where you or your partner may or may not have used a male or a female condom. When we ask about sex with a condom, we mean that a condom was put on or inserted **before** penetration and used **throughout** sex. For example, when we ask how many times a condom was used during intercourse, do not include times when penetration occurred without a condom, then a condom was put on and sex continued. Include those occasions when we ask you about intercourse without condoms.

M23a. **In the last 3 months:**
How many times did you have oral sex without a condom when your HIV-negative partner(s) ejaculated or came in your mouth?

— — —
998   Refuse to Answer

M23b. **In the last 3 months:**
How many times did you ejaculate or cum in this/these HIV-negative partner(s)' mouth(s) without a condom?

— — —
998   Refuse to Answer

M24. How many times did you have anal sex with this/these HIV-negative partner(s) when his/their penis was in your rectum? This would be with or without a condom and whether or not he/they ejaculated.

— — —
998   Refuse to Answer

If M24 is equal to 0, then skip to instruction before M25.

M24a. How many of these times was a condom used?   — — —
998   Refuse to Answer

If M24a is greater than M24 then the number of times you used a condom cannot be greater than the number of times having sex." Skip to M24.

M25. How many times did you have anal sex with your HIV-negative partner(s) when your penis was in his/their rectum? This would be with or without a condom and whether or not you ejaculated.

— — —
998   Refuse to Answer

If M25 is equal to 0, then skip to instruction before M26a.

M25a. How many of these times was a condom used?   — — —
998   Refuse to Answer

If M25a is greater than M25 then the number of times you used a condom cannot be greater than the number of times having sex." Skip to M25.

If M15a is equal to 1 and M15b is not equal to 88 or M15a is greater than 1 and M18 is equal to 0, then skip to instruction before SUQ1.

The next group of questions asks about the sexual contacts you have had in the last 3 months with your male partner(s) whose **HIV status you were not sure of**.

Some of the next questions are about sexual behaviors where you or your partner may or may not have used a male or a female condom. When we ask about sex with a condom, we mean that a condom was put on or inserted **before** penetration and used **throughout** sex. For example, when we ask how many times a condom was used during intercourse, do not include times when penetration occurred without a condom, then a condom was put on and continued. Include those occasions when we ask you about intercourse without condoms.

M26a. **In the last 3 months:**
How many times did you have oral sex without a condom when your partner(s) whose HIV status you were not sure of ejaculated or came in your mouth?

— — —
998   Refuse to
Answer

M26b. How many times did you ejaculate or cum in this/these partner(s)' mouth(s) without a condom?

— — —
998   Refuse to
Answer

M27. How many times did you have anal sex with your partner(s) whose HIV status was unknown when his/their penis was in your rectum? This would be with or without a condom and whether or not he/they ejaculated.

— — —
998   Refuse to
Answer

If M27 is equal to 0, then skip to instruction before M28.

M27a. How many of these times was a condom used?   — — —
998   Refuse to
Answer

If M27a is greater than M27 then the number of times you used a condom cannot be greater than the number of times having sex." Skip to M27.

M28. How many times did you have anal sex with your partner(s) whose HIV status was unknown when your penis was in his/their rectum? This would be with or without a condom and whether or not you ejaculated.

— — —
998   Refuse to
Answer

If M28 is equal to 0, then skip to instruction before SUQ1.

M28a. How many of these times was a condom used?   — — —
998   Refuse to
Answer

If M28a is greater than M28 then the number of times you used a condom cannot be greater than the number of times having sex." Skip to M28.

Skip to instruction before SUQ1.

SEXUAL RISK ASSESSMENT FOR WOMEN- Sexual Behavior with Men

These next questions are about the sexual relationships you might have had in the **last 3 months.** Again, please remember that all data are strictly confidential and your responses are protected by law and cannot be disclosed to any outside organization or agency not involved with this study.

The following questions ask about your sexual behavior with partners who are HIV-positive and HIV-negative, as well as partners whose HIV status you were not sure of. Again, these questions refer to the **last 3 months**.

W1.   Have you had any male sex partners in the **last 3 months**? By male sex partner, we mean men with whom you had vaginal, anal or oral sex, with or without ejaculation.

1	Yes
0	No
8	Refuse to

Answer

If W1 is equal to 0, then skip to instruction before SUQ1.

W1a.   How many male sexual partners have you had in the **last 3 months**?

— — —

998	Refuse to

Answer

If W1a is greater than 1, then skip to instruction before W2.

W1b.   What is this partner's HIV status? (Choose one)

0	Positive
1	Negative
88	Not Sure
998	Refuse to

Answer

W1c.   Were you in a primary relationship with this sex partner? This would be someone you have lived with or seen a lot, and to whom you have felt a special emotional commitment.

1	Yes
0	No
8	Refuse to

Answer

W1d.   Did this partner know that you were HIV-positive because you told him that you were positive? (Choose one)

0	No
1	Yes
88	Not Sure
998	Refuse to

Answer

If W1b is equal to 0, then skip to instruction before W6.

If W1b is equal to 1, then skip to instruction before W9.

If W1b is equal to 88, then skip to instruction before W12.

The next questions ask about the HIV-status of the sexual partners we asked about in the last question. When we say **HIV status,** we mean whether you know, for certain, whether your partners are **either** HIV positive, HIV negative, or not sure. First, we will ask you about your **HIV-positive** sexual partner(s). Then we will ask you about your **HIV-negative** sexual partner(s). Lastly, we will ask you about sex partner(s) whose **HIV status you are not sure of**. For these next questions, please keep in mind that the number of HIV-positive sexual partners, HIV-negative sexual partners, and partners whose HIV status you are not sure of **MUST EQUAL** the **total** number of partners that you entered in the last question. If you want to, write your number of partners down on the sheet of scratch paper provided to help you answer the next questions.

W2.   **In the last three months...** How many of your [Response to W1a] male sex partners were **HIV-positive**?

                                                                              — — —
                                                                              998   Refuse to
Answer

If W2 is greater than W1a then the number of your HIV-positive sex partners cannot be greater than your total number of sex partners." Skip to W2.

If W2 is equal to 0 or W2 is equal to "Refuse to Answer", then skip to instruction before W3.

          W2a.   Of this/these [Response to W2] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

                                                                              — — —
                                                                              998   Refuse to
Answer

If W2a is greater than W2 then the number of partners you told cannot be greater than your number of partners." Skip to W2.

W3.   **In the last three months...** How many of your [Response to W1a] male sex partners were **HIV-negative**?

                                                                              — — —
                                                                              998   Refuse to
Answer

If W3 is greater than W1a then the number of your HIV-negative sex partners cannot be greater than your total number of sex partners." Skip to W3.

If W3 is equal to 0 or W3 is equal to "Refuse to Answer", then skip to instruction before W4.

          W3a.   Of this/these [Response to W3] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

                                                                              — — —
                                                                              998   Refuse to
Answer

If W3a is greater than W3 then the number of partners you told cannot be greater than your number of partners." Skip to W3.

W4.   **In the last three months...** How many of your [Response to W1a] male partners' HIV status were you unsure of?

                                                                              — — —
                                                                              998   Refuse to
Answer

If W4 is greater than W1a then the number of your partners whose HIV status you are not sure of cannot be greater than your total number of sex partners." Skip to W4.

If W2 + W3 + W4 is not equal to W1a and W2 is not equal to "Refuse to Answer" and W3 is not equal to "Refuse to Answer" and W4 is not equal to "Refuse to Answer" then The number of HIV+, HIV-, and unknown HIV status partners must equal your total number of partners. We will now ask you about these partners again." Skip to W2.

If W4 is equal to 0 or W4 is equal to "Refuse to Answer", then skip to W5.

W4a. Of this/these [Response to W4] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

__ __ __

998   Refuse to
Answer

If W4a is greater than W4 then the number of partners you told cannot be greater than your number of partners." Skip to instruction before W4a.

W5. Were you in a primary relationship with at least **one** male sex partner during the **last 3 months**? This would be someone you have lived with or seen a lot, and to whom you have felt a special emotional commitment.

1   Yes
0   No
8   Refuse to
Answer

If W5 is equal to 0, then skip to instruction before W6.

W5a. How many primary partners have you had in the last 3 months? (Choose one)

0   1
1   More than
1
8   Refuse to
Answer

If W5a is equal to 1, then skip to instruction before W5d.

W5b. What is your primary partner's HIV status? (Choose one)   00   Positive
01   Negative
88   Not Sure
98   Refuse to
Answer

W5c. Did your primary partner know that you were HIV-positive because you told him that you were positive?

1   Yes
0   No
8   Refuse to
Answer

If W5a is equal to 0, then skip to instruction before W6.

W5d. How many primary partners have you had in the last 3 months?__ __ __

998   Refuse to
Answer

If W5d is greater than W1a then the number of your primary partners cannot be greater than your total number of sex partners." Skip to W5d.

W5e. How many of your [Response to W5d] primary partners were HIV-positive?

__ __ __

998   Refuse to
Answer

If W5e is greater than W5d then the number of HIV-positive primary partners cannot be greater than the number of primary partners." Skip to W5e.

If W5e is greater than W2 then the number of HIV-positive primary partners cannot be greater than the number of your HIV-positive partners." Skip to W5e.

If W5e is equal to 0 or W5e is equal to "Refuse to Answer", then skip to instruction before W5f.

W5e1.   Of this/these [Response to W5e] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

— — —
998   Refuse to Answer

If W5e1 is greater than W5e then the number of partners you told cannot be greater than your number of partners." Skip to W5e.

W5f.   How many of your [Response to W5d] primary partners were HIV-negative?

— — —
998   Refuse to Answer

If W5f is greater than W5d then the number of HIV-negative primary partners cannot be greater than the number of primary partners." Skip to W5f.

If W5f is greater than W3 then the number of HIV-negative primary partners cannot be greater than the number of your HIV-negative partners." Skip to W5f.

If W5f is equal to 0 or W5f is equal to "Refuse to Answer", then skip to instruction before W5g.

W5f1.   Of this/these [Response to W5f] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

— — —
998   Refuse to Answer

If W5f1 is greater than W5f then the number of partners you told cannot be greater than your number of partners." Skip to W5f.

W5g.   How many of your [Response to W5d] primary partners' HIV status were you unsure of?

— — —
998   Refuse to Answer

If W5g is greater than W5d then the number of primary partners whose HIV status you were unsure of cannot be greater than the number of primary partners." Skip to W5g.

If W5g is greater than W4 then The number of primary partners whose HIV status you are unsure of cannot be greater than the number of your unknown HIV-status partners." Skip to W5g.

If W5g is equal to 0 or W5g is equal to "Refuse to Answer", then skip to instruction before W6.

W5g1.   Of this/these [Response to W5g] partner(s), how many knew that you were HIV-positive because you told them that you were positive?

— — —
998   Refuse to Answer

If W5g1 is greater than W5g then the number of partners you told cannot be greater than your number of partners." Skip to W5g.

If W5e + W5f + W5g is not equal to W5d then The sum of the number of HIV-positive, HIV-negative, and unknown HIV status primary partners must equal your total number of primary partners." Skip to W5e.

184

HIV-POSITIVE PARTNERS (the yellow sheet)

The next group of questions asks about the sexual contacts you have had in the last 3 months with your **HIV-positive** male partner(s).

Some of the next questions are about sexual behaviors where you or your partner may or may not have used a male or a female condom. When we ask about sex with a condom, we mean that a condom was put on or inserted **before** penetration and used **throughout** sex. For example, when we ask how many times a condom was used during intercourse, do not include times when penetration occurred without a condom, then a condom was put on and sex continued. Include those occasions when we ask you about intercourse without condoms.

W6. **In the last 3 months:**
How many times did you have oral sex without a condom when your HIV-positive partner(s) ejaculated or came in your mouth?

— — —
998   Refuse to Answer

W7.   How many times did you have vaginal sex with your HIV-positive partner(s)? This would be with or without a condom and whether or not he/they ejaculated.

— — —
998   Refuse to Answer

If W7 is equal to 0 or W7 is equal to "Refuse to Answer", then skip to instruction before W8.

W7a.   How many of these times was a condom used?   — — —
998   Refuse to Answer

If W7a is greater than W7 then the number of times using a condom cannot be greater than the number of times having sex." Skip to W7.

W8.   How many times did you have anal sex with your HIV-positive partner(s)? This would be with or without a condom and whether or not he/they ejaculated.

— — —
998   Refuse to Answer

If W8 is equal to 0 or W8 is equal to "Refuse to Answer", then skip to instruction before W9.

W8a.   How many of these times was a condom used?   — — —
998   Refuse to Answer

If W8a is greater than W8 then the number of times using a condom cannot be greater than the number of times having sex." Skip to W8.

The next group of questions asks about the sexual contacts you have had in the last 3 months with your **HIV-negative** male partner(s).

Some of the next questions are about sexual behaviors where you or your partner may or may not have used a male or a female condom. When we ask about sex with a condom, we mean that a condom was put on or inserted **before** penetration and used **throughout** sex. For example, when we ask how many times a condom was used during intercourse, do not include times when penetration occurred without a condom, then a condom was put on and sex continued. Include those occasions when we ask you about intercourse without condoms.

W9. **In the last 3 months:**
How many times did you have oral sex without a condom when your HIV-negative partner(s) ejaculated or came in your mouth?

— — —
998   Refuse to
Answer

W10.   How many times did you have vaginal sex with your HIV-negative partner(s)? This would be with or without a condom and whether or not he/they ejaculated.

— — —
998   Refuse to
Answer

If W10 is equal to 0 or W10 is equal to "Refuse to Answer", then skip to instruction before W11.

W10a.   How many of these times was a condom used?   — — —
998   Refuse to
Answer

If W10a is greater than W10 then the number of times using a condom cannot be greater than the number of times having sex." Skip to W10.

W11.   How many times did you have anal sex with your HIV-negative partner(s)? This would be with or without a condom and whether or not he/they ejaculated.

— — —
998   Refuse to
Answer

If W11 is equal to 0 or W11 is equal to "Refuse to Answer", then skip to instruction before W12.

W11a.   How many of these times was a condom used?   — — —
998   Refuse to
Answer

If W11a is greater than W11 then the number of times using a condom cannot be greater than the number of times having sex." Skip to W11.

If W1a is equal to 1 and W1b is not equal to 88 or W1a is greater than 1 and W4 is equal to 0, then skip to instruction before SUQ1.

WW1. Have you had any female sex partners in the last 3 months? By female sex partner, we mean women with whom you had oral sex.

0=No, 1=yes, 8=RTA.   If NO or RTA, skip to S9Q1.   If YES, go to WW2.

[like M15]

WW2. How many female sexual partners have you had in the last 3 months?

0-996=range, 998=RTA. If 0 or RTA, skip to S9Q1. If answer is 1 or greater, then go to WW3.

WW3. In the last 3 months, how many times did you have oral sex without a barrier, such as a female condom or dental dam?

PARTNERS OF UNCERTAIN HIV-STATUS (the green sheet)

The next group of questions asks about the sexual contacts you have had in the last 3 months with your male partner(s) whose **HIV status you were not sure of**.

Some of the next questions are about sexual behaviors where you or your partner may or may not have used a male or a female condom. When we ask about sex with a condom, we mean that a condom was put on or inserted **before** penetration and used **throughout** sex. For example, when we ask how many times a condom was used during intercourse, do not include times when penetration occurred without a condom, then a condom was put on and sex continued. Include those occasions when we ask you about intercourse without condoms.

W12.   **In the last 3 months:**
How many times did you have oral sex without a condom when your partner(s) whose HIV status you were not sure of ejaculated or came in your mouth?

__ __ __

998   Refuse to

Answer

W13.   How many times did you have vaginal sex with this/these partner(s) with uncertain HIV status? This would be with or without a condom and whether or not he/they ejaculated.__ __ __

998   Refuse to

Answer

If W13 is equal to 0 or W13 is equal to "Refuse to Answer", then skip to instruction before W14.

W13a.   How many of these times was a condom used?   __ __ __

998   Refuse to

Answer

If W13a is greater than W13 then the number of times using a condom cannot be greater than the number of times having sex." Skip to W13.

W14.   How many times did you have anal sex with partner(s) whose HIV status you were not sure of when his/their penis was in your rectum? This would be with or without a condom and whether or not he/they ejaculated.   __ __ __

998   Refuse to

Answer

If W14 is equal to 0 or W14 is equal to "Refuse to Answer", then skip to instruction before SUQ1.

W14a.   How many of these times was a condom used?   __ __ __

998   Refuse to

Answer

If W14a is greater than W14 then the number of times using a condom cannot be greater than the number of times having sex."

Skip to W14a.

WW1. Have you had any female sex partners in the last 3 months? By female sex partner, we mean women with whom you had oral sex.

0=No, 1=yes, 8=RTA.   If NO or RTA, skip to S9Q1.   If YES, go to WW2.

[like M15]

WW2. How many female sexual partners have you had in the last 3 months?

0-996=range, 998=RTA. If 0 or RTA, skip to S9Q1. If answer is 1 or greater, then go to WW3.

188

WW3. In the last 3 months, how many times did you have oral sex without a barrier, such as a female condom or dental dam?

IX. Healthy Habits: Substance Use and Physical Activity

The following questions ask about some personal habits. Some questions are about your alcohol and drug use and others are about your physical activity. All of the questions ask about your behavior over the **last three months**. Please answer the questions as honestly as possible. Remember, nothing you tell us as part of this survey will ever been seen by anyone not part of this study nor will it ever be reported in any way that connects your name with what you answer.

BS9Q1. Pick the answer that best tells how often you drank alcohol in the **last 3 months**. By alcohol we mean wine, beer, or any kind of liquor. In the **last 3 months**, did you drink alcohol: (Choose one)

1	Every day
2	2 to 6 times a week
3	Once a week
4	1 to 3 times a month
5	Less than once a month
6	Never->SKIP TO BS9Q3
8	Refuse to Answer->SKIP TO BS9Q3

BS9Q2. If you are a **male**, how often did you drink **five or more drinks** of alcohol in a single day **in the last three months?** If you are a **female**, how often did you drink **four or more drinks** of alcohol in a single day **in the last three months**? (Choose one)

1	Every day
2	2 to 6 times a week
3	Once a week
4	1 to 3 times a month
5	Less than once a month
6	Never
8	Refuse to Answer

BS9Q3. From the list below, pick **up to 3** forms of physical activity that you have done the most **in the past three months**.

01	Jogging or running
02	Brisk walking
03	Biking
04	Yoga or Pilates
05	Basketball
06	Swimming
07	Aerobics
08	Dancing
09	Rowing
10	Yard work
11	Soccer

12	Weight lifting
13	Other: _____
14	Have not exercised->SKIP TO BS9Q4
98	Refuse to Answer-.SKIP TO BS9Q4

For up to three items selected above

BS9Q3a. <u>In the **last 30 days**</u> how many <u>days</u> did you do <*above type of physical activity*>?

    __   days (acceptable range 0 -30 days)

    98   Refused to Answer

BS9Q4. Please check the box next to all those drugs that you sniffed, snorted, smoked, swallowed, or injected **in the last 3 months**. (Select all that apply)

| a | __ | Marijuana or hashish |
| 8 | | Refused to Answer |

| b | __ | Crack, freebase cocaine, or rock cocaine |
| 8 | | Refused to Answer |

| c | __ | Powder cocaine (by itself) |
| 8 | | Refused to Answer |

| d | __ | Heroin (by itself) |
| 8 | | Refused to Answer |

e   __   Methamphetamine like Speed or Crystal Meth

8   Refused to Answer

f   __   PCP or Angel Dust

8   Refused to Answer

g   __   Opiates like Vicodin, Oxycontin, Dilaudid, Percocet, or Darvocet **not prescribed** by your doctor

8   Refused to Answer

h   __   Street Methadone

8   Refused to Answer

i   __   Tranquilizers or Barbiturates like Valium, Xanax, Librium, or Seconal

8   Refused to Answer

j   __   Club drugs like Ecstasy, Roophies (Rohypnol), Special K/Vitamin K (Ketamine), or GHB

8   Refused to Answer

k   __   Hallucinogens like LSD, Mushrooms, Peyote, or Mescaline

8   Refused to Answer

l   __   Inhalants like glue, poppers, nitrous oxide (NO2)

8   Refused to Answer

m   __   Viagra

8   Refused to Answer

n   __   None**->SKIP TO BS10Q1**

8   Refused to Answer

o   __   Other: _____

8   Refused to Answer

For each item answered "yes"→

BS9Q4a. In the **last 30 days** how many <u>days</u> did you use <*substance*>?

           __ __ days (acceptable range 0 -30 days) *If 0 ⇒ Skip to Question SUQ3b*

           98 Refused to Answer

BS9Q4b. How about in the 30 days before that? How many <u>days</u> did you use <*substance*>?
           __ __ days (acceptable range 0 -30 days)

           98 Refused to Answer

BS9Q4c. In the **last 30 days** about how many <u>times per day</u> did you use <*substance*>?
           __ __ times per day

           98 Refused to Answer

X. Emotional Well-Being (SF-36)

You are getting there. Just three more short sections and you'll be done.

The next questions will ask you about how you have been feeling and how things have been **during the past 30 days.** As you read each statement, please give me the one answer that fits best with the way you have been feeling. Your choices are: All of the time, Most of the time, Some of the time, A little of the time, or None of the time?

BS10Q1. How much of the time **during the past 30 days** have you been a very nervous person?

1	All of the time
2	Most of the time
3	Some of the time
4	A little of the time
5	None of the time
8	Refused to Answer

BS10Q2. did you have a lot of energy?

1	All of the time
2	Most of the time
3	Some of the time
4	A little of the time
5	None of the time
8	Refused to Answer

BS10Q3. How much of the time **during the past 30 days** have you felt depressed?

1	All of the time
2	Most of the time
3	Some of the time
4	A little of the time
5	None of the time
8	Refused to Answer

BS10Q4. felt so down in the dumps that nothing could cheer you up?

1	All of the time
2	Most of the time
3	Some of the time
4	A little of the time
5	None of the time
8	Refused to Answer

BS10Q5. How much of the time **during the past 30 days** have you been a happy person?

1	All of the time
2	Most of the time
3	Some of the time
4	A little of the time
5	None of the time
8	Refused to Answer

BS10Q6. felt downhearted and blue?

1	All of the time
2	Most of the time
3	Some of the time
4	A little of the time
5	None of the time
8	Refused to Answer

BS10Q7. How much of the time **during the past 30 days** have you felt calm and peaceful?

1	All of the time
2	Most of the time
3	Some of the time
4	A little of the time
5	None of the time
8	Refused to Answer

XI. SUBJECTIVE NORMS

The next section <u>will ask</u> about what **three different groups of people** think about whether or not people living with HIV should use condoms and tell their HIV status to partners. We will ask you about three different groups of people–your friends, your close family members, and your sex partners.

BS11Q1<u>R</u>.

<u>First we'll ask about your friends.</u>

How much do you agree or disagree with this statement **[slight pause]**:

Most of your friends think that people living with HIV should always wear a condom when having vaginal or anal sex.

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot
8	Refuse to Answer

BS11Q2R

How much do you agree or disagree <u>that</u>:

Most of your friends think that people living with HIV should always tell their sex partner their HIV status before having vaginal or anal sex with them.

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot
8	Refuse to Answer

BS11Q3R.

How about your family members?

How much do you agree or disagree that:

Most of your close family members think that people living with HIV should always wear a condom when having vaginal or anal sex.

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot
8	Refuse to Answer

BS11Q4R
How much do you agree or disagree that:

Most of your close family members think that people living with HIV should always tell their sex partner their HIV status before having vaginal or anal sex with them.

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot
8	Refuse to Answer

BS11Q5R
How about your sex partners?

How much do you agree or disagree that:

Most of your sex partner(s) think that people living with HIV should always wear a condom when having vaginal or anal sex.

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot
8	Refuse to Answer

BS11Q6R
How much do you agree or disagree that:

Most of your sex partner(s) think that people living with HIV should always tell their sex partner their HIV status before having vaginal or anal sex with them.

1	Agree A Lot
2	Agree A Little
3	Disagree A Little
4	Disagree A Lot
8	Refuse to Answer

F1S11Q7. In general, how important or unimportant is it to you what other people think you should do? Is it:

1	Not at all important
2	Somewhat important
3	Very important
4	Extremely important
8	Refused to Answer

XII. Demographics

We are just about at the end of our questions. The last few questions will help us better understand some of the other information you've already told us.

AGE

BS12Q1. How old are you?   — — —

998 Refuse to Answer

ETHNICITY

BS12Q2. What is your **primary** race or ethnic identification? (Choose one)

1	Black/African American
2	Hispanic/Latino
3	White, not of Hispanic origin
4	Asian/Pacific Islander
5	American Indian/Alaskan Native
6	Another Race/Ethnicity
7	Mixed Race
8	Refused to Answer

EMPLOYMENT STATUS

BS12Q3a. At this time, are you:

1	Working full-time->**SKIP TO BS12Q5**
2	Working part-time-> **SKIP TO BS12Q5**
3	Not working
8	Refused to Answer-> **SKIP TO BS12Q5**

BS12Q3b. Are you:

1	Retired
2	Laid off from a job temporarily
3	Unemployed with disability
4	Unemployed but don't have disability
5	Working in the home without pay
8	Refused to Answer

HEALTH INSURANCE

BS12Q4. What kind of health insurance do you have now? (Check all that apply)

__	Medicaid
__	Medicare
__	Veteran's Administration
__	Private insurance or HMO (Blue Cross and Blue Shield, Kaiser, etc.)
__	None
__	Other
__	Refused to Answer

LIVING ARRANGEMENT

BS12Q5a. **Who** do you live with now? (Check all those that apply)

1	Alone
2	Spouse or partner
3	Children
4	Parent(s)
5	Sibling(s)
6	Other adult relatives (grandparents, cousins)
7	Friends or roommates
8	Refused to Answer

BS12Q5b. **Where** do you live at this point in time? (Choose one)

1	In a house or apartment that you rent
2	In a house or apartment that you own
3	In a family member's house or apartment
4	In another person's house or apartment (who is not a family member)
5	Halfway house or treatment center
6	Homeless shelter
7	Motel, hotel, or boarding house
8	Other: _____
98	Refused to Answer

BS12Q5c. **How long** have you lived there? Is it:

1	More than 2 years-> **SKIP TO BS12Q7**
2	More than 1 year but less than 2 years **SKIP to BS12Q7**
3	More than 6 months but less than 1 year
4	A few months, but not more than 6
5	Less than 1 month
8	Refused to Answer

BS12Q5d. **In the past year,** how many times have you moved from one place to another place?

1	Moved 1 time
2	Moved 2 times
3	Moved 3-4 times
4	Moved 5 or more times
8	Refused to Answer

RELATIONSHIP STATUS

BS12Q6. How would you describe your relationship status **at this point in time**?

1	Single, not living with a partner
2	Single, living with a partner
3	Married
4	Separated
5	Divorced
6	Widowed
7	Other: _____
8	Refused to Answer

SEXUAL IDENTITY

BS12Q7. Do you now identify as: (Choose one)

1	Straight/Heterosexual
2	Gay/Homosexual
3	Bisexual
4	Other
5	Not sure
8	Refused to Answer

EDUCATION

BS12Q8. What is the **highest level** of education you have completed?   (Choose one)

1	No formal education
2	Did not graduate from high school
3	High school graduate or GED
4	Some college/AA degree/technical school training
5	College graduate (BA/BS)
6	Some graduate school
7	Master's degree
8	Doctorate/Medical degree/Law degree
98	Refused to Answer

INCOME

BS12Q9a. **During the last 12 months**, what was your **total income** from all sources? (Choose one)

1	$10,000 or less
2	$10,001 to $20,000
3	$20,001 to $40,000
4	$40,001 to $60,000
5	$60,001 to $80,000
6	Over $80,000
8	Refused to Answer

INCOME SOURCE

BS12Q9b. **During the last 12 months**, where did you **mainly** get your income? (Check all the **MAIN** sources of your income that apply)

__	A job
__	Unemployment
__	Welfare, food stamps, AFDC
__	VA Benefits
__	Disability or SSI
__	Spouse or sexual partner
__	Other family
__	Friends
__	Alimony or child support
__	Sex work
__	Selling drugs

___ Hustling (petty theft, shoplifting, panhandling, scams, etc.)

___ Other: _____

___ Refuse to Answer

Thank you so much for your time!

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