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Social capital variables as predictors of HIV risk-taking behaviors among sub-Saharan African immigrants in the United States

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ABSTRACT

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D.V.M., University of Ibadan, Ibadan, Nigeria 1978
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Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
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ABSTRACT

Vulnerable populations, including immigrants, are often at risk for human immunodeficiency virus (HIV) infection because of their risk-taking behaviors. This study investigated risk-taking behavior for HIV infection among Sub-Saharan African (SSA) immigrants in United States. Using social capital as a theoretical foundation, the study aimed to address the question, is there any association between social capital assets of educational opportunity, employment, and eligibility for social assistance and HIV risk-taking behavior, defined as condom use before sex (CUBS) among SSA immigrant in the U.S? Potential participants were recruited through religious and social organizations in a southwestern US state. The survey generated 167 responses. The majority of the participants were Nigerians, single females, and Christians, with monthly income of more than $500.00. Analysis using Chi square statistic and unconditional logistic regression model showed that those without education opportunity were more likely to use condom but no significant association existed between social assistance opportunity and CUBS. Employed participants were 83 times more likely than those who were unemployed to use a condom before sex. Being employed was the strongest indicator of HIV risk-taking avoidance behavior among SSA immigrants in the U.S. This study provides insight into risk-taking behaviors among SSA immigrants. This information can be used by providers of services to immigrants and other vulnerable populations in the U.S., policy makers, and social advocacy groups that target HIV prevention. Implications for social change included the recognition of employment as a deterrent to HIV risk-taking behaviors among vulnerable populations.

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DEDICATION

This dissertation is dedicated to my father, Joseph Ogundare Ogungbade of glorious memory. I owe it all to his fatherly sacrifices, encouragement, discipline, Christian upbringing, and support. Baba, you were truly a Blessing from God. Till we meet at JESUS' feet.

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CHAPTER 1: INTRODUCTION TO THE STUDY

Risk behavior, according to Durand (2002), involves making behavioral choices that may place one in imminent dangers to oneself or others. Furby and Beyth-Marom (1992) and Latkin (1998) asserted that risk-taking behaviors with implications for health included indulgence in unsafe sex, substance use, violence, and other unsafe and potentially destructive practices. Generally, members of the immigrant community are aware of HIV and acquired immune deficiency syndrome (AIDS); however, not all of them recognize their own HIV risk behaviors. Beyene (2000) affirmed that factors that predisposed immigrants to HIV risk behaviors included not using condoms, multiple sexual partnership, racism, stigma, denial, drug use, extended separation from family and low self-efficacy.

Likewise, Sanchez et al., (2004) confirmed that economic needs forced some immigrants to exchange sex for money or food. Sanchez et al (2004) further reported that some immigrant women were unenthusiastic to talk about condom use because of the dread of emotional and/or physical maltreatment or the deprivation of economic support, even if they suspected their spouses were at risk for HIV infection. Xiang et al., (2007) and Wilson and Yoshikawa (2004) reported that experiences of social discrimination and responses to discrimination impacted immigrants' HIV risk-taking behaviors. Gee (2008) agreed that individual and institutional measures of social discrimination correlated with health risk-taking behaviors of minority group members that included the immigrant subpopulation after controlling for acculturation, sex, age, social support, income, health insurance, employment status, education, neighborhood poverty, and housing value.

Fear of deportation because of undocumented status, broad social and economic circumstances that intensify poverty or undermine autonomous protections result in dire consequences for immigrants' health. Consequently, a wide range of antecedents relate to HIV risk-taking behaviors of immigrants (Li et al., 2009; Ramirez-Valles, 2002). Management of immigrants' risk-taking behaviors requires particular consideration of injury-control programs (Casalino et al., L., 2003; Srinivasan, O'Fallon, and Dearry, 2003).

Risk behaviors have manifold implications in given multifaceted personal and sociocultural context that embrace a shortfall of awareness, impetus, or ability. Multiple expressions of poverty have a large impact on HIV risk-taking behavior of immigrants together with low economic status, education, and employment. Irwin and Millstein (1991) indicated that risk-taking behaviors co-occurred, taking place in a variety of domains. Most troublesome are risks taken in conjunction with other risks, such as consuming alcohol and operating a motor vehicle or sexual activity without protection and drug use/abuse. Miller (1986) substantiated the fact that early and risky sexual activity co-occurred with substance use and abuse. Similarly, Lerner (1994) acknowledged that risk or destructive behaviors resulted in physical, social, emotional, educational, and economic consequences. Such risky behaviors may manifest in the lives of immigrants.

Epidemiological studies of risk behaviors addressed cognitive factors (risk perception), biological factors (hormonal effects), personality factors (sensation seeking tendency) and environmental factors/influences (parents and peer groups). Udry (1994)

and Resnick et al. (1997) observed these risk behaviors within developmental contexts in an effort to appreciate and thwart risk-taking and its potential for unpleasant end results. Some other models assessed the interaction of these factors.

According to Werner (1989), the study of risk/protective factors and resiliency resulted in a more acute perception of how individual and contextual factors unite either to put the risk-takers at risk or to avoid the outcome of risk. The main threats to immigrants' health are the risk behaviors they choose. How their social context shapes their behaviors is poorly understood.

Jarvis (2007) and Kolbe (1988) advanced knowledge in the subfield of social demography where they identified social characteristics and psychosocial risk factors are associated with patterns of disease within and across populations. Additionally, they connect behavioral and social epidemiology that contributed to the understanding of the etiology of disease and provide information on differences in morbidity and mortality by gender, age, socioeconomic status (SES), and ethnicity. There is a need to combine behavioral epidemiology, which targets lifestyle factors, such as risk-taking and other health-related behaviors. According to Call et al., (2002), immigrants' interactions with their social environments were important in determining whether they would engage in health-compromising or health-enhancing behaviors.

Epidemiological data are scarce on HIV/AIDS risk behaviors of SSA immigrants in the U.S. The only available study of SSA immigrants in Houston was conducted by Rosenthal et al., (2003) who investigated HIV/AIDS knowledge, risk behaviors and perceptions, and access to services. Akinsete et al., (2007) and Beyene (2000) found

association between immigration dynamics and HIV infection among African-born SSA immigrants in California and Minnesota. These populations have comparable sociocultural and socioeconomic contexts in common with those in Houston, Texas (Johnston and Conly, 2008). The poor socioeconomic conditions faced by many SSA immigrants during their initial settlement phase places them at continued risk for certain infectious illnesses, such as HIV and Tuberculosis (TB) (López-Vélez, Huerga, and Turrientes, 2003; Scotto et al., 2005). The studies, although novel in this population, were merely descriptive, thus restricted their capacity to generalize beyond the group studied.

The inadequacies in these previous studies of SSA immigrants as well as the fact that no study used inferential methodology to assess the association between employment status and HIV risk taking-behavior motivated the current study. This present study, therefore, aimed to investigate the social capital: the social, structural, and cultural variables that influence behavioral patterns of SSA immigrants in Houston in relation to HIV risk-taking behaviors. The study addressed the plausibility of association between HIV risk-taking behaviors of SSA immigrants in Houston, TX and their education, employment, and social assistance opportunities.

Background of the Study

The most common behavioral contributors to mortality or death in 1990 included the use of alcohol, tobacco, sexual behavior, and illicit use of drugs (McGinnis and Foege, 1993). Behavioral factors play a role in each of the twelve leading causes of death, including chronic diseases such as HIV/AIDS, heart disease, cancer, and stroke (Yach, Hawkes, Gould, and Hofman, 2004). Subpopulations may experience differences in

disease course, but a large number of persons infected with HIV experience brain, cognitive, emotional, and behavioral changes (Thomason, Bachanas, and Campos, 1996).

Health-related behavior has become an important component of people's health and well-being (Green and Kreuter, 1999). Changes in individuals' behaviors can reduce the social and economic costs related to these behaviors. The improvement of health-related behaviors is, therefore, central to public health activities. Developing targeted responses to risk behavior requires behavior specific investigation rather than race or gender modification implying the larger environmental context defines and shapes the behavior (Glanz, Lewis, and Rimer, 1997).

Over the past 20 years, the United States has experienced one of the largest immigration waves in its history. This has significant implications for the management and control of infectious diseases, as new immigrants' knowledge of diseases and how to protect themselves against infection were inadequate for their safety (Carta, Bernal, Hardoy, Haro-Abad: Report on the Mental Health in Europe Working Group, 2005).

In Houston, Harris County, Texas, an area of concentration for SSA immigrants, the Bureau of Epidemiology, Houston Department of Health and Human Services, reported in 2007 that, although African Americans represented 18.5% of Harris County's population, they were disproportionately the vast majority of the HIV/AIDS cases in the county (74% women and 45.7% men). The Centers for Disease Control and Prevention (CDC, 2005), HIV/AIDS Surveillance data showed AIDS as the leading cause of mortality for African American women of the child-bearing age; as well as for African American men and that African American women represented the fastest growing

segment of incident of AIDS cases in Houston community. Heterosexual behavior was the most prevalent mode of transmission (CDC, HIV/AIDS Surveillance, 2005). These data probably included the SSA immigrants in Houston as they all belong to the current classification of Americans of African descent.

The immigration, acculturation, and identity processes are critical in assessing the conventional racial/ethnic categorization commonly used for interpretation of risks and behaviors among various population groups in the United States. Nevertheless, there is increasing risks for SSA immigrants in Houston when various compounding and compelling situations such as marginalization, unsafe sexual practices and drug use behaviors are present (Gorman and Carroll, 2000). According to Belgrave, Brome, and Hampton (2000) and Dukes and Martinez (1994), assessment of risks must take a culturally appropriate approach, which assumes that ethnic identity is a protective factor for problem behaviors.

The risk factors that predispose to HIV infection are several, most of which are associated with individual behaviors and lifestyle variables. Risk behaviors associated with HIV include drug use and unprotected sex (Beatty, Wheeler, and Gaiter, 2004; Gorman and Carroll, 2000). Low SES, including poverty itself, low levels of education, high levels of unemployment, and commercial sex work that are HIV risk factors, characterizes SSA immigrants in Houston.

Hawkins, Catalano, and Miller (1992) contended that the risk and protective factors paradigm was one of the most widely accepted frameworks for conceptualizing the determinants of drug/alcohol use and unsafe sex. Pantin, Prado, Schwartz, and

Sullivan (2005) and Wetherill and Fromme (2007) identified the risk and protective factors that related to immigrants as: (a) contextual or eco-developmental variables (acculturation, education, social assistance, and employment dynamics), (b) intrapersonal or social cognitive variables (risk perception, attitudes, beliefs, and intentions) about drug use and unsafe sex, and (c) one's sense of personal invincibility. The authors argued that drug and alcohol use increased the likelihood for unsafe sexual activity and that sexual risks started from: (a) personal factors, such as perceived vulnerability and protective behaviors, (b) interpersonal factors, such as relationship type and a partner's risk profile, (c) social factors, such as gender roles and sexual mixing patterns among and between networks, and (d) community-level factors, such as access to preventive methods and the prevalence of a sexually transmitted pathogen within a network.

Injecting drug users are especially vulnerable to HIV infection. Latka (2003) indicated that multiple sources of risk plus concurrent drug use during sex disproportionately elevated the risk of HIV infection for female drug users. Factors that influence involvement in risky behaviors are not well understood. Researchers among immigrant populations have focused primarily on specific risk behaviors and on the individual at risk (Deren, Shedlin, Decena, and Mino, 2005; Reed, Westfall, Bublitz, Battaglia, and Fickenscher, 2005). Relatively little attention has been given to the structural, contextual, situational, or temporal variability in these behaviors.

The notion of risk underlying the concept of vulnerability implies that everyone is potentially vulnerable (or at risk), that is, there is always a chance of developing health problems. Aday (1994) confirmed that the risk was greater for those with the least social

status, social capital and human capital resources to either prevent or ameliorate the origins and consequences of poor physical, psychological, or social health. Nevertheless, being an immigrant is not a risk factor for HIV and sexually transmitted infections (STIs). The activities undertaken and the situations encountered during the settlement process may expose immigrants to risk factors (Carta, Bernal, Hardoy, Haro-Abad, and Report on the Mental Health in Europe Working Group, 2005). Immigrants from particular regions have to deal with stigma and discrimination associated with STIs (Anderson et al., 2008). Consequently, they delay to seek treatment, which exacerbate their shoddier health effects.

International Organization on Migration (IOM) confirmed that many adult immigrants travelled alone, regardless of marital or family status resulting in loneliness and depression in the receiving country. The loneliness and depression caused them to take risks they would have avoided in their home countries (Carballo and Nerukar, 2000; Lê and Lê, 2004). In addition, the pressure to fit in led to increased sexual and drug use risk taking. Exploitation of the low SES and poor housing condition force immigrants into prostitution and unsafe sexual practices and drug use for survival at their destination (Lendman, 2009).

Furthermore, an individual's ethnic background or cultural heritage exerts a strong influence on their health belief systems and ultimately health-related behaviors. Persons' health beliefs often have an impact on their risk-taking and health-seeking behaviors. Many immigrants do not access health services unless they have symptoms of an illness (Derald, 2001).

Marginalized groups generally are at an increased vulnerability to HIV, whether the individuals concerned are illegal immigrants, drug users, sex workers or men who have sex with men (Amowitz et al., 2002; Auvert et al., 2001; Boerma, Gregson, Nyamukapa, and Urassa, 2003). An often neglected aspect of the HIV/AIDS is the fact that immigrants belong to the most vulnerable populations (UNAIDS, 2001). Healthcare providers must assess the vulnerability of each group in terms of exposure, SES, culture, acculturation, and access to health care.

Problem Statement

According to Sorensen, Lopez, and Anderson (2001), HIV infected immigrant and those at highest risk for infection demonstrated strikingly different patterns of risk behaviors and origins, which complicated the already complex acculturation process impacting their lives. However, no one had conducted research specifically on social capital variables among SSA immigrants in any part of the U.S. Sub-Saharan African immigrants in the United States may have the social status classification that encourage behavioral characteristics, which put them at risk for HIV infection (Beyene, 2000; El-Sadr, Mayer, and Hodder, 2010). Recognition that social, economic, political, and environmental factors directly affect HIV risk and vulnerability, this study considered education, employment, and social assistance opportunities as social-structural or social capital markers of HIV risk-taking behaviors, which have not been fully assessed in this vulnerable SSA immigrant population in the U.S.

Purpose of the Study

This study aimed to investigate how social capital resources, as defined by education, employment, social assistance opportunities, and cultural knowledge, might influence risk behaviors, especially risk factors that could lead to HIV infection. This study assessed the personal and social resources variables that influence HIV risk-taking behaviors of SSA immigrants in Houston, Texas.

Nature of the Study

Self-reported questionnaire and cross-sectional approach were used to assess the possible association of social capital and cultural variables with risk-taking behaviors and HIV infection among SSA immigrants in Houston. The specific aims were to determine whether employment, educational, and governmental/private social assistance opportunities associated with HIV risk-taking behaviors among SSA immigrants in Houston.

Theoretical Framework

This study used the concept social capital as developed by Coleman (1992), Bourdieu (1983), Putnam (2000) and Maslow (1943) as theoretical framework to identify and explore human needs and available social resources that may contribute to and influence how those needs were satisfied. The concept of social capital originated in the work of Durkheim (1951) on suicide, which showed the importance of community to regulate social life and provide individuals' sense of well-being. Durkheim demonstrated that suicide rate in a community related to the degree to which individuals were

integrated into community. This raised the issue of integration of SSA immigrants in Houston and their access to social capital resources of the community.

The current theorists' conceptualization of social capital is in keeping with Durkheim's idea that individual well-being depends on the ease of being integrated into the community. However, the individual actor has goals independently arrived at, acts independently and is wholly self-interested. Its principle of action is to maximize utility.

Coleman (1992) perceived social context as the arena in which actors were socialized and social norms, rules and obligations governed actions. Thus, social context shapes, constrains and directs actions. Coleman (1994) defined social capital as "a variety of different entities that have characteristics of social structure and facilitate certain actions of individuals who are within the structure" (p. 302).

Bourdieu (1983) conceived, social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (p. 249). Putnam (2000) argued that, **"**Whereas physical capital refers to physical objects and human capital refers to the properties of individuals, social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them" (p. 19). These theorists described social capital as sociostructural characteristics in terms of resourceful and reciprocal interpersonal trust and norms, information channels and mutual aid.

Coleman (1992) viewed social capital as a necessary precondition for the promotion of civil communities, human capital development, and educational

achievement. Putnam (1995) conceived social capital as an apparatus to smooth the progress of harmonization, assistance, civic commitment, and a community's competence to deal with social and economic predicaments such as unemployment, poverty, educational nonparticipation, and crime for mutual benefit. People with insufficient social capital are ineffective in their quest for the same attractive outcomes their counterparts enjoy.

Bourdieu's (1983) conjecture on social capital ensured equal educational achievement, which has strong sociocultural implications. Specifically, his theory explained why under-represented groups stay behind disqualified from the educational process. He analyzed cultural obstacles to involvement and related subsequent investigations to actors' own lived experiences.

According to Maslow (1943), people have a basic (deficiency) needs for security, which they have to meet before they can give attention to the "higher order" of needs. While situations motivate a person to fulfill the basal desires, they continue to move toward growth, and eventually self-actualization. The satisfaction of needs is quite healthy; while preventing needs gratification makes us ill or act instinctively without a reality principle or logic.

Self-actualization, in the context of this study, lends credence to the ability of the SSA immigrants to individually access the available social capital in Houston, Texas in the form of educational, employment and social assistance opportunities to realize their personal potential and achieve their American dream. This is the point where a SSA immigrant perceives himself as a productive individual capable of maintaining a

relationship with the social structure and assume other social roles such as maintaining a job and earn meaningful income. Social capital, therefore, reinforces human capital and fosters self-actualization through this symbiotic relationship. Social exclusion in any form is consequential for HIV risk behaviors and HIV/STI transmission.

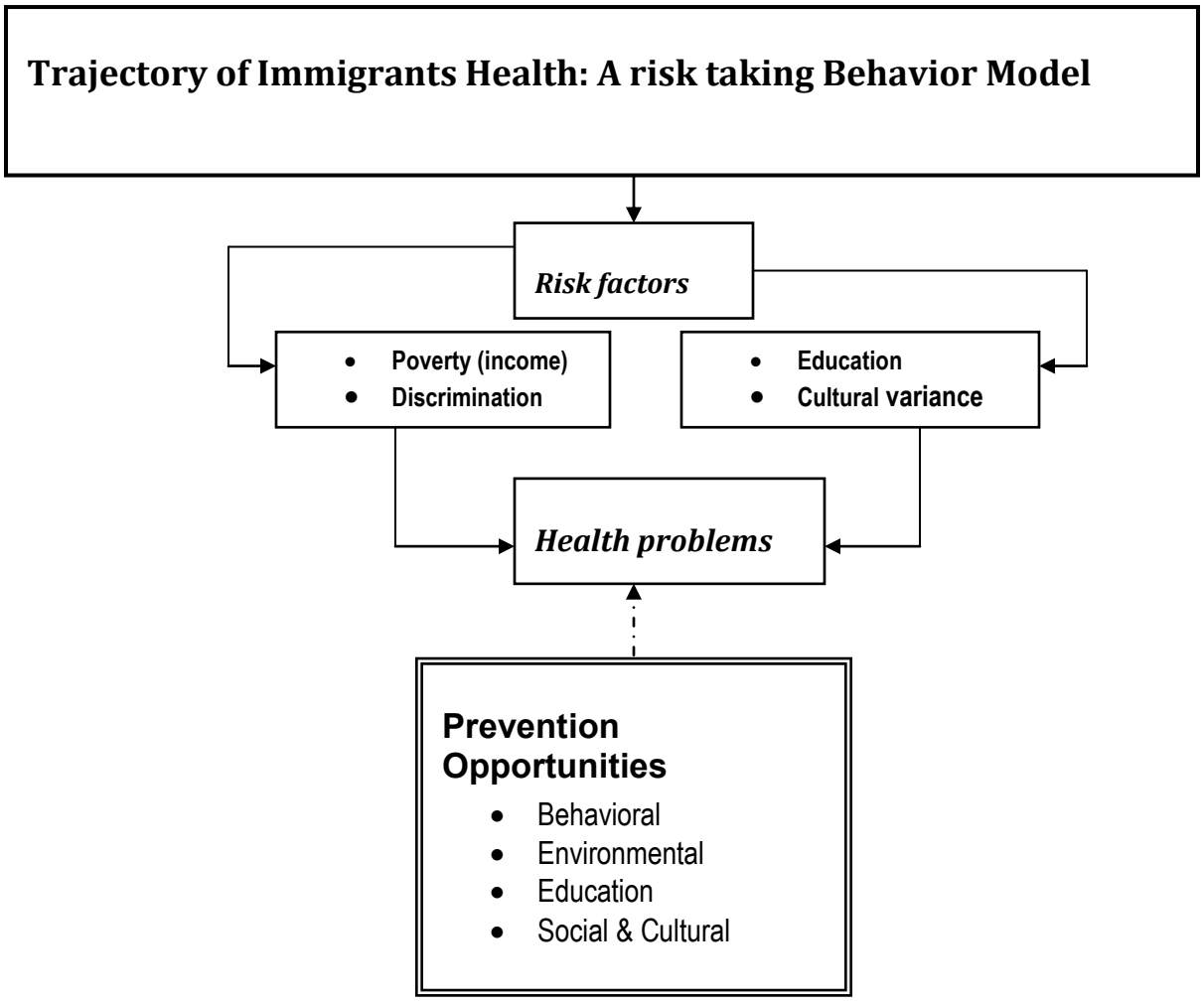

Figure 1. Conceptual Framework for the Study

There exist multiple pathways through which physical, social, and cultural characteristics of the immigrants' environment influence their HIV risk-taking behavior.

Immigrants who live in neighborhoods characterized by homophobia, discrimination, and racism tend to have unprotected sex with HIV discordant and/or drug-using partners to enhance self-identity and ease access to social capital in a bid to cope with the psychological distress caused by identity challenges they chronically face.

There is need for research, such as this one, to understand not just the relationship between individual characteristics and rates of HIV risk-taking behaviors of SSA immigrants in Houston, but also the associations with social capital, sociocultural, sociostructural, and socioeconomic status variables. The impression that immigrants in the United States typically develop their sense of self in sociocultural, sociostructural, and socioeconomic environments marked by immigrant status, gave impetus to this study. The theories of Maslow (1943) and Putman (2000) provided the opportunity to make an impact on reducing health disparities by addressing the behavioral and environmental factors.

Study Design

A semi-structured, anonymous, self-reported, questionnaire-based cross-sectional study design to quantitatively assess the relation between HIV risk-taking behaviors of SSA immigrants (outcome variable) and education, employment and social assistance opportunities (social capital variables) was used for this study. The data for this study were collected from 167 non-institutionalized first generation SSA immigrant sample in Houston, Texas.

Assumptions

I assumed that increasing risks for SSA immigrants in Houston included various compounding and compelling situations, such as marginalization, unsafe sexual practices, and drug use behaviors. Community factors tend to characterize risk and resilience continuums. A lack of financially viable opportunity is a risk factor, whereas the presence of living wage jobs and loans represents a resilience factor.

The effects of risk and resilience factors on health and safety are interactive and cumulative. Not everyone exposed to risk factors will be impacted but those who are exposed to multiple risk factors are at greater risk. The combination, frequency, and severity of risks influence whether or not problems develop.

An accumulation of risk without a compensatory accumulation of resilience factors generally accounted for deprived health and safety outcomes within a community. The stress associated with social exclusion increase psychological distress-reducing behaviors, like alcohol, unprotected sex, and drug use. On the other hand, a strong social cohesion is protective for color racial/ethnic immigrant affiliation and more strongly predict safe sex behaviors and self-efficacy.

Research Question

Is there any association between education, employment and social assistance opportunities and HIV risk behaviors of sub-Saharan African immigrants in Houston, Texas?

Hypotheses

Hypothesis 1

H_0: There is no association between employment and HIV risk-taking behaviors of SSA immigrants in Houston.

H_a: There is association between employment and HIV risk-taking behaviors of SSA immigrants in Houston.

Hypothesis 2

H_0: There is no association between educational opportunity and HIV risk-taking behaviors of SSA immigrants in Houston.

H_a: There is association between educational opportunity and HIV risk-taking behaviors of SSA immigrants in Houston.

Hypothesis 3

H_0: There is no association between governmental social assistance and HIV risk-taking behaviors of SSA immigrants in Houston.

H_a: There is association between governmental social assistance and HIV risk-taking behaviors of SSA immigrants in Houston.

Definition of Terms

Risk: "The appraised likelihood of a negative outcome for behavior" (Zuckerman, 1994, p. 124). Beck (1992) acknowledged that risks are phenomena mediated by people's dependence on social institutions. "Risk always depends on decisions – that is, they presuppose decisions. They arise from the transformation of uncertainty and hazards into

decisions and compel the making of decisions, which in turn produce risk" (Beck, 1999, p.75).

Risk factors: Any attribute, characteristic or exposure of an individual, which increase the likelihood of developing a disease or injury.

HIV Risk: The risk of encountering an infected person, modified by the risk associated with any sexual contact with that person whose HIV status is not concordant with the participant's (Bajos, 1997). HIV Risk for this study was any cognitive, emotional, physical, lifestyle or unprotected anal and/or vaginal sexual intercourse behaviors that predisposed to HIV infection without adequate preparation for the potential consequences of HIV infection.

Health-related behavior refers to the actions of individuals, groups, and organizations, as well as the determinants, correlates, and consequences, of these actions, which include social change, policy development and implementation, improved coping skills, enhanced quality of life, personal attributes, such as beliefs, expectations, motives, values, perceptions, and other cognitive elements, personality characteristics, including affective and emotional states and traits, and overt behavior patterns, actions, and habits that relate to health maintenance, to health restoration, and to health improvement.

Documented Immigrants: Those immigrants whose stay in the USA is legal and whose immigration status is up to date (Badger, Ericksen, and Yale-Loehr, 2000)

Undocumented immigrants: Foreign nationals who: 1) entered the United States without inspection or with fraudulent documents, or 2) entered legally as a nonimmigrant but then violated the terms of his or her status, remained in the United States without

authorization, and/or have remained in the country on expired visas, as well as a small percentage of those who only have legal authorization to be in the United States, such as those with temporary protected status and those seeking asylum (Badger, Ericksen, and Yale-Loehr, 2000)

Resilience factors: The qualities that foster successful adaptation and transformation processes despite risk and adversity; self-efficacy factors.

Health: A state of complete physical, mental and social well-being, and does not consist only of the absence of disease or infirmity (WHO, 1948). Health, defined negatively, is the absence of illness; functionally is the ability to cope with everyday activities, or positively, is fitness and well being (Blaxter, 1983).

Integration is a "gradual process by which new residents become active participants in the economic, social, civic, cultural, and spiritual affairs of a new homeland. It is a dynamic process in which values are enriched through mutual acquaintance, accommodation, and understanding. It is a process in which both the migrants and their compatriots find an opportunity to make their own distinctive contributions" (Kage, 1962, p.165).

Social capital: A resource that exists because of and arises out of social relationships among actors (individuals, groups and/or organizations) that create a capacity to act for mutual benefit or a common purpose. Social capital is generally referred to as the set of trust, institutions, social norms, social networks, and organizations that shape the interactions of actors within a society and are an asset for the individual and collective production of well-being.

Limitations and Delimitations

The study was limited to SSA immigrants in Houston, a heterogeneous population. Conclusions on the nonrandom sample are representative of those who completed the survey and not the SSA immigrants in Houston as a whole. The respondents likely gave the socially acceptable answers and incomplete responses, considering the sensitive questionnaire and perceived socioeconomic position.

As a cross-sectional analysis, the study is short of temporal sequence; incapable of estimating any causal association. Additionally, the findings may be subject to potential selection bias as women and men who refused to participate in the survey may have differed from respondents with respect to HIV risk-taking behaviors. The accuracy of the study depended on the authenticity of the responses given by the participants. This research lacked generalizability due to the variation in immigrants' experiences and community resources across the U.S.

In spite of these limitations, this research had strength, including (a) the use of accurate point estimate (prevalence odds ratio) to examine the association between the independent and dependent variables which does not inflate the effect size compared with odds ratio, and (b) the ability to identify HIV risk determinants/factors in the SSA immigrants sample, which have not been studied to our knowledge.

The cross-sectional survey research method is appropriate for generating prevalent odds ratio (POR) point estimate in a population that is devoid of concrete information. In addition, this study had enough statistical power to test the hypotheses given the plans for reasonable sample size.

Significance of the Study

HIV/AIDS is a major public health issue worldwide. This epidemic currently has no cure, and a single most effective intervention modality is risk factor prevention (Aldeen and Mantell, 2002; CDC, 2002). This research contributed to information on HIV prevention in the targeted population, thus recommended the baseline assessment of variables and items that may measure economic, education and social assistance opportunities.

The prevalence data and model thus generated incorporated ecological and human health risk variables for the vulnerable SSA immigrants in Houston that hitherto made it difficult to assess the potential determinants of HIV/AIDS in this population. The variables thus elicited uncovered probable predictors of HIV risk-taking behaviors that would be eventually used to inform, motivate, and build skills to reduce HIV transmission among the targeted population. The significance of this research lies in its potentials to identify the nexus between having and not having education, employment and/or social assistance opportunities and HIV risk determinants.

This dissertation described the development of HIV risk-taking behaviors from root conditions of contextual/environmental factors. The paper assessed the socioeconomic conditions that held the most promise for reducing HIV risk-taking behaviors of marginalized SSA immigrants in Houston, Texas.

Summary and Transition

Chapter 1 covered the introduction to the study and the background, the problem, purpose, and nature of the study, research question and the hypotheses, theoretical

framework, the assumptions, limitations and delimitations of the study, definition of key terms in the study and the significance of the study. Chapter 2 reviewed the literature on conceptual relevance of the dependent variable, independent variables, and the associated information on immigration dynamics. Chapter 3 focused on the methodology, Chapter 4 presented the results, while Chapter 5 discussed the findings.

CHAPTER 2: LITERATURE REVIEW

Introduction

To make sound health care decisions, policy makers, healthcare providers, and researchers need access to relevant research findings. Research into the impacts of social capital on HIV/AIDS is crucial in guiding current and future policies and intervention strategies intended to absorb the impacts. According to Kennedy, Peersman, and Rutherford (2002), reviews that provide reliable information on which to base decisions must use explicit systematic methods to limit bias and reduce errors.

This literature review covered current works related to issues of HIV risk-taking behaviors of SSA immigrants in Houston, Texas. The resources included topics such as social capital, health, sociostructural, sociocultural, socioeconomic elements and research methodology that elucidated the manipulative effects of immigration dynamics on HIV risk-taking behaviors. In effect, the review of literature in this segment educed items that might modulate or confound the predictive value of the independent variables (educational, employment and social assistance opportunities) on the dependent variable (HIV risk-taking behaviors) in this study.

Method of the Literature Review

Keyword search was performed on PubMed/Medline and AltaVista electronic academic search engines for current (2004 – 2009) peer-reviewed journal articles and government documents to open up the literature review variety of the dependent and independent variables in this study, the study conceptual perspectives, research designs

and methods used in similar social systems and organization research. The keywords used in various combinations included:

1. *immigration status and HIV risk-taking,*
2. *education social assistance employment and HIV risk-taking behaviors,*
3. *HIV risk-taking behaviors and African immigrants in U.S.,*
4. *acculturation dynamics and HIV risk-taking behaviors in U.S.,*
5. *social capital and HIV risk-taking behaviors,*
6. *social capital and Sub-Saharan African immigrants HIV risk-taking behaviors,*
7. *immigration status and HIV risk-taking in U.S.,*
8. *HIV/AIDS Prevention Research: scope methods and study, and*
9. *methodology of HIV risk-taking behaviors*

Results of Literature Search

Table 1

Distribution of Current Methodologies of HIV Risk-Taking Behavioral Studies

Qualitative Methods				Quantitative Methods						Mixed Methods	
Total		%		Total		%				Total	%
54		35.1		97		63.0				3	1.9
Distribution				Distribution						Distribution	
Interview & Focus group		Reviews		Cohort & Longitudinal Studies		Case study & Case-Control		Cross-sectional		Not Applicable	
No	%	No	%	No	%	No	%	No	%		
23	42.6	31	57.4	21	21.7	7	7.2	69	71.1		

Out of the 154 peer-reviewed articles that met the criteria set for this literature review, 63% were quantitative methods, 35.1% were qualitative methods, and 1.9% were

mixed methods. Cross-sectional design was a method of choice in investigating the kind of research for this study.

Social epidemiology made an influential case that individual-level factors such as hereditary, access to therapeutic services, cost-cutting measures, and/or standards of living established health. However, integrative causation and intervention research illuminate the methods through which social structures essentially manipulate health (Roux, 2006).

Durkheim (1951) hypothesized that the structure of society had a strong bearing on psychological health. Putnam (1996) conceived social capital as features of social life, networks, norms, and trust that enable participants to act together more effectively to pursue shared objectives. Subsequently, a strong tradition of research and innovation in relation to the effects of social context on health and the theoretical development of suitable epidemiological approaches to its investigation evolved.

Scientists characterized social capital as the bond that holds societies together (Narayan, 1999). The theory of social capital describes the forces that shape the quality and quantity of social interactions and social institutions. Researchers linked social capital to public health benefits, particularly as an explanation for the relationship between economic inequalities and health. Stephens (2008) indicated social capital would be better understood in a broader social context which included competition for resources between deprived and nondeprived groups, and the practices of all citizens across neighborhoods.

Researchers have embraced social capital as a plausible rationalization concept for health disproportions observed between places or groups of people. There have been a number of methodological advances that applied multilevel modeling statistical techniques to research on causal associations of social capital variables with specific health outcomes (Narayan, 1999). Pickett and Pearl (2001) and Acheson (1998) related observed evidence for inequalities in morbidity and mortality by occupational social class and material standard of living to the effects of social context.

Social Capital

Social capital is a composite and multifaceted concept. Different aspects of the structure are suitable for special purposes (Narayan, 1999). There are intricate connections between the dimensions that constitute social capital and other resources, such as human qualities or physical infrastructure (Koka and Prescott, 2002).

Social capital relates to the resources available within communities in networks of mutual support, reciprocity, and trust that contribute to community strength. Social capital involves friendships and connections between people which have advantages for the participants, develop trust and cooperation, and contribute to the vitality of communities (Narayan, 1999). Resource mobilization theory connects the potential of social networks to produce resources such as information and support (Burt, 1984; Lin, 2001a; Portes, 1998). Similarly and regardless of the context, scientists have used the concept of social capital productively in many areas of research.

Investigators have shown that different aspects of social capital and intensities of relationships relate to different outcomes (OECD 2001; Woolcock, 2001). Low levels of

trust result from experience of social exclusion, or from seeing a lack of trustworthiness in certain areas.

Communities in the Social Environment

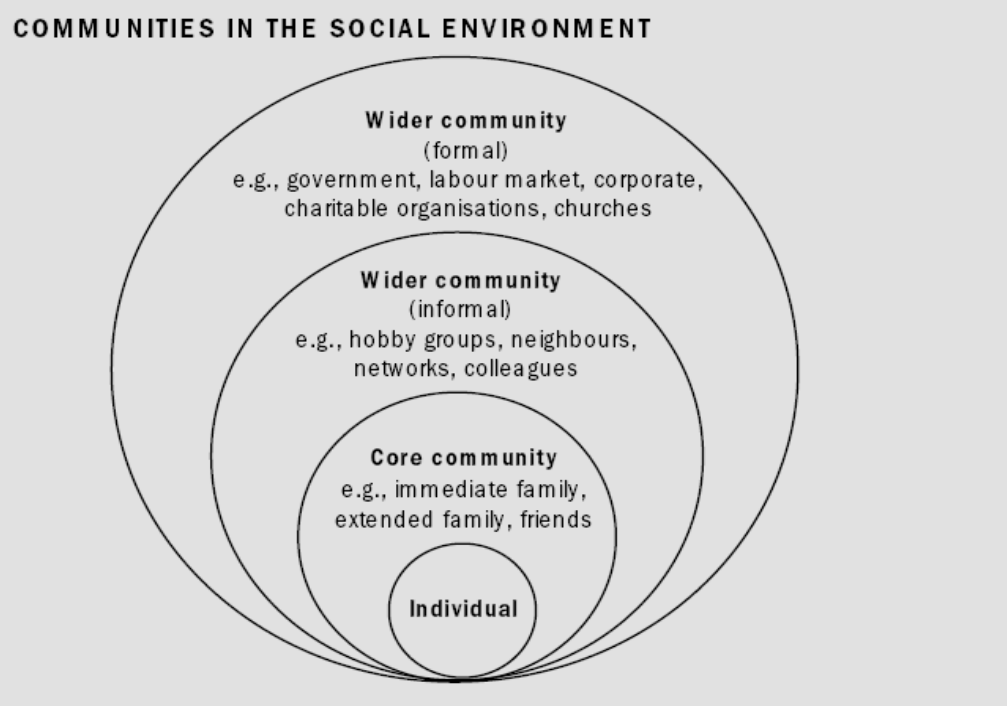

Figure 2. Source: Australian Bureau of Statistics, 2002a, p. 7

Researchers studied the elements of social capital, its causes and effects at various levels of detail, and described the dimensions of social capital and their connections to other resources in a statistical framework. The Australian Bureau of Statistics (ABS) Social Capital Framework conceptualized social capital as a resource that drew on and fed back into other types of resources and interacted in a context of cultural, political, institutional and legal conditions, and contribute to wellbeing outcomes (ABS, 2002a).

Capacity for analysis of correlations exists between indicators of social capital and other demographic, social, and economic variables in a study. One identifies items

that represent a desired outcome measure like HIV risk-taking behaviors based on the strength and stability of these relationships (Fishbein et al., 1991; Hays, Kbgei-es, and Coates, 1990). Putnam (2000) observed strong correlations between social capital and education, child welfare, lower crime, neighborhood vitality, health, happiness, and democratic government.

Table 2

Framework for the Measurement of Social Capital Concepts

Population Group	Attitudes/Value	Participation in Social Networks
Sex	Identity/belonging	*a. Formal Institutions*
Age	Belief systems	Courts
Ethnicity	Value and goals	Parliament
Birthplace	Fears	Local government
Family	Attitudes	Education
Health status	History	Church
Education	Confidence	Market place
Labor force	Trust	Unions
Income	Satisfaction with life	Communities & organizations
Occupation	Expectations	Iwi
Industry		Clubs & societies
Region		Networks of neighbors, friends & acquaintances
		Families
		b. Informal Groups

Source: Spellerberg, & The Social Capital Program Team, 2001, p. 32

Measures of social capital have the potential to provide additional explanatory variables for social outcomes that the current range of socioeconomic and demographic indicators may not fully or adequately explain. Social capital variables provide insights into social functioning, and how one utilizes networks and links to contribute to positive

outcomes for the individual, group, and community (ABS, 2002b). Thus, the measurement of social capital variables broadens understanding of how individuals in a community work cooperatively to achieve shared goals and to deal with difficulties.

People accumulate social capital when they interact with each other in families, workplaces, neighborhoods, local associations, interest groups, government, and a range of informal and formal meeting places. Putnam (2000) presented social capital resources as attributes of networks organized as network qualities, structure, transactions, and broad types (bonding, bridging and linking). Woolcock (2001) explained that bonding referred to relationships between similar kinds of people or groups (inward-looking); bridging to connections where members have less in common, or even differences (outward-looking); and linking to vertical relationships with sources of influence or authority which assist with access to financial and other resources.

Network qualities embrace norms, such as trust, reciprocity, and inclusiveness, and common purposes, such as social, civic, and economic participation. Structure refers to size, frequency of interaction, density and openness, power relationships and humanity (Cornwell, Schumm, Laumann, and Graber, 2009). Network transactions are those interactions which people invest in, use to maintain relationships, and draw resources from, such as sharing knowledge and support (Rindova and Fombrun, 1999).

Positive effects of social capital include network development, identity and sense of belonging, increased knowledge/understanding, and increased confidence in community capacity to achieve goals. Other positive effects are community resilience, satisfactory locus of control, lowering of transaction costs, and conflict resolution

(Damonte, 2007; Rhodes, 1985). Adam, Husbands, Murray, and Maxwell (2008) and Barnett and Weston (2008) emphasized that many of the published social indicators provided information that quantify outcomes in the range of social concerns, such as educational attainment, rates of employment/unemployment, income distribution, equality, morbidity, and mortality. Complementary social indicators, such as health risk factors, and measures of participation in education, along with indicators of socioeconomic advantage and/or disadvantage provide valuable information about the factors that in part drive these outcomes (ABS, 2002b). A community with high accumulations of social capital is able to manage difficulties, while one with low levels of social capital manages less well due to collective action that involves the use of norms and networks in situations where individuals are reluctant to be cooperative or socially engaged (Cox, 2000).

Begg et al. (2001) emphasized that social deprivation diminished the capacity of individuals or groups of people to participate fully in the early life opportunities. Children who grew up in disadvantaged areas were unlikely to realize their positive potential without compensating interventions. Other forms of social deprivation include (a) imprisonment, particularly where this is not on an equitable basis; and (b) institutional or cultural systematic barriers to participation, such as discouraging particular groups from completing their education or joining the labor force.

Where trust and social networks flourish, individuals, firms, neighborhoods, and even nations prosper economically. Social capital helps to mitigate the threatening effects of socioeconomic disadvantage. Haidt (2006), Offer (2006), Cohen and Prusak (2001),

and Putnam (2000) confirmed that a strong relationship existed between the possession of social capital and better health. Subsequent studies around happiness and well-being have highlighted many of these findings. Schools are more effective when parents and local citizens are actively involved. The World Bank (1999) acknowledged that in those communities where teachers were more committed and parents and citizens took an active interest in children's educational well-being, students achieved higher test scores and made better use of school facilities.

Social capital is a collective resource rather than one accruing to an individual. Narayan (1999) and Lang and Hornburg, (1998) argued that access to greater or less stocks of the community social capital depends on individual or household circumstances. Policy-makers should endeavor to expand features and measures of bonding and bridging social capital to improve health outcomes. Introduction of perceptible individuals' overall range of social relationships is central to shaping well-beings, particularly in unfortunate communities.

Social Capital: Education, Employment, and Immigrants' Health

The World Health Organization (WHO, 1948) defined health as a state of complete physical, mental, and social well being and not merely the absence of disease. According to Oxman-Martinez et al (2004), the very definitions of health, whether good or bad, are socially and culturally constructed. Health, social well-being, and the determinants of health are exceedingly complex as a result of the intersection between wide varieties of factors. The result of the intersection between a wide variety of factors widely accepted among researchers and policymakers includes income and social status,

social support networks, employment/working conditions, education and literacy, social environments, personal health practices and coping skills, healthy child development, health services, gender, and culture.

Other indispensable factors are immigration course and immigrants' geographical and psychosocial journey as they make their way from country of origin to country of destination. These include the countries visited, how they travel, what happens to them along the way, the context leading to the initial departure and the context into which the person arrives. According to Airhihenbuwa (1995), Morris (1998) and Cohen, Scribner and Farley (2000), health and well being are functions of biological and social factors. Ratcliff (2002) stated that socioeconomic factors such as education, employment, and income were “robust and persistent predictors of health status” (p. 3).

Lyon (1990) considered health as a subjective phenomenon culturally defined and practiced. Bronfenbrenner (1999) and Super and Harkness (2002) argued that various aspects of the sociocultural context determine individuals' beliefs, values and practices. Gibbs and Lurie (2007) emphasized that health was the product of both the environment in which we lived and the social fabric of various cultures.

Xu, Borders, and Arif (2004) and Blackwell et al. (2006) showed that disadvantage in social roles and coping resources affected the nature and meaning of stressors and ultimately their effect on health. Locher et al. (2005) emphasized that accessibility, affordability, availability, and adaptability were factors that influenced health outcomes. Disease must be treated as a condition that has its origins within the political and economic realities of the social structure within which it exists.

Access to government income security programs is important to well-being and health of ethno-racial minority and immigrant groups, given their higher poverty levels. For certain categories of immigrants such access is problematic (Lipman, 2008). In the case of last-resort welfare assistance, those with temporary visas are denied access altogether and sponsored immigrants accumulate family debt if they are forced to turn to welfare (McCabe and Meissner, 2010).

Lantz et al (2001) and Krieger, Williams, and Moss (1997) identified and described existing differentials in population health by SES, gender, age, education, occupation, and income. Researchers have shown significant association between lower educational attainments of immigrants, their concentration in particular occupations and industries, above-average unemployment rate, and immigrants' above-average morbidity rate. Lantz et al (2001) stated that immigrants exhibited different patterns of diseases than natives.

Two of the most crucial social issues facing today's world are HIV/AIDS and the international immigration of millions of people from resource deprived countries. According to Soskolne and Shtarkshall, (2002), immigration was one of the social capital structural factors associated with risky sexual behavior and HIV transmission/infections. However the forces and multifaceted role of migrant situations as determinants of HIV-related vulnerability is still a major issue for social science research.

While being an immigrant in and of itself is not a risk factor, certain activities and conditions that are present throughout the process of migration substantially increase vulnerability to HIV/AIDS. Moreover, efforts to assess the specific structural and

contextual risk factors inherent in this association are limited and many researchers do not take into account the social capital components. Addressing these conditions must represent an essential component of a comprehensive and global strategy for HIV/AIDS.

In the country of destination immigrants experience cultural, social as well as language barriers. Poor living and work conditions, exclusion from the official job market, and the need to belong to a group or to a community increase their vulnerability to HIV/AIDS and many other health conditions because of a higher potential of risky health behaviors.

In addition, immigrants' access to prevention and health care services, including voluntary counseling and testing services may be limited due to cultural and socioeconomic barriers. There is inadequate health or social services that take immigrants' sociocultural, religious and linguistic background into account and information campaigns are not culturally sensitive.

Dunn and Dyck (2000) and Shragge et al. (2004) stated that emerging sociodemographic factors that posed significant differential risk outcomes to immigrants' health and well-being included their illegal status; the existence of discriminatory and/or xenophobic practices in all areas of social life; employment and working conditions; housing conditions, language skills, education, income and social exclusion. Shields (2003) and Walters (2004) confirmed that immigrants particularly face social differentials related to employment and occupation.

Khanlou (2004) and Newbold and Danforth (2003) explained that gender, income, social support networks interrupted health, social and economic outcomes. Shookner and

Chin-Yee (2003) viewed health inequalities within the context of inclusion, segregation, and inequality. According to Risman (2004) and Okazawa-Rey (2002), different forms of inclusion and exclusion influence people's lives depending on the ways in which the blow of subjugation and disadvantages cross path with access to health and well-being.

Lamba (2003) found that high educational attainment of immigrants did not automatically transform into superior wages and social status. Studies by Carey (2000) and Torczyner (1997) have documented race as an important variable in that people of color typically had lower earnings than their white counterparts, even when they have higher levels of education.

Evidence suggested that social network size or connectedness was inversely related to risk-related behaviors. Trieber et al. (1991) reported that social support was related to physical exercise. Murray, Johnston, Dolce, Lee, and O'Hara (1995) and Hanson, Isaccsson, Janzon, and Lindell (1990) illustrated that social support was associated with smoking cessation, especially among men. Seeman et al. (1993) demonstrated that relative risks were reduced about 20% when certain health behaviors were introduced into multivariate models. The addition of assessments of other mechanisms including social influence and social engagement strengthened the explanatory power of such models.

States in the U.S. experienced increasing quantity of undocumented immigrant high school graduates. Many states have been assessing and revising policies related to access and affordability of higher education for undocumented students. The policy brief focused on five states: Florida, New Mexico, North Carolina, Texas, and Virginia, which

have large or rapidly growing immigrant populations. In 1996, federal law on illegal immigration included a provision for state residency requirements for in-state tuition rates. Students without legal immigrant status continue to be ineligible for federal financial aid (Badger, 2002; Badger, Yale-Loehr, Vernon, and Schoonmaker, 2010).

Policy makers have the potential to influence outcomes in social policy areas including, health, education, employment and family. Governments and societies are increasingly concerned about how various groups in society (a) share in economic progress; (b) experience segregation or scarcity; and (c) achieve quality of life and health of children; the elderly, women, men. Considering all the bottle-necks on the pathway of immigrants to achieve their 'American dream,' the questions are: (a) what options are left for them? (b) What are the health implications of the option they take to? These and more questions gave the hunch to this study.

Social Capital, Human Capital, and Health Outcomes

Acquired knowledge, skills and capabilities that make individuals able to act in new ways create human capitals. Social capital facilitates action results in changes that exists in interpersonal relations. Social and human capitals facilitate productive activities. A group with wide-ranging dependability, reliance and reciprocity is able to bring about much more than a comparable group without honesty, confidence and reciprocity. Individual or group obligations to and expectations of social capital depend on credibility of the social environment, information flow capability of the social structure and norms.

Studies have correlated social capital with various outcomes where individuals utilize social connections to improve status attainment. Lin (2001b) in his definition of

social capital as "investment in social relations by individuals through which they gain access to embedded resources to enhance expected returns of instrumental or expressive actions" indicated a more accurate move toward research on social capital (p. 17). Lin's definition makes pragmatic analysis possible because access to social capital resources elucidates the processes that individuals follow to claim returns of some sort, including HIV risk behaviors avoidance and other health-seeking behaviors.

According to Wandersman and Nation (1998), Buka (1999) and Wilkenson (1999), strong social networks and connections correlates significantly with increases in physical and mental health, academic achievement, and local economic development, as well as lower rates of homicide, suicide, and alcohol and drug abuse. Willingness to support each other or act on behalf of the common good is important predictor of and contributor to healthy behaviors.

In studying morbidity or risk factors, scientists usually consider population health as the collection of the individual characteristics in the population or as binary associations between one (or more) factors and individual health. Social capital helps to understand the interaction between factors and connected groups of individuals. Empirically, it is advantageous to speak about individual measures of outcomes that are plausibly associated with access to social capital. Portes (1998) and Behrman, Hans-Peter, and Watkins (2002) underscored the importance of social networks as a key mechanism of social change through access to health-related information and so influence health risk prevention.

In periods of difficulty, networks provide the social resources necessary to seek expensive medical treatments or implement practitioners' advice. Participation in voluntary community associations provides families with social support, economic and education benefits (Barber, Pearce, Chaudhury, and Gurung, 2002).

The contextual impact of social capital on health becomes obvious as differences in the right to use to resources, disparity, or social support set of connections depending on the geographic scale at which it is measured; neighborhood level versus state. Whereas increasing financial disparities wear down citizens' sense of social justice and inclusion, the proximal effects of social capital on health are consequences of influence on (a) health-related behaviors and (b) access to services, amenities, and psychosocial processes. Distal effects manifest as delicate nervousness and compromised life expectancies. Further, a move toward political economy sees the primary determinant of deficiency needs as the socially and politically mediated segregation from material resources.

Health influences human and financially viable productivity. Health is a key input to human efficiency. Consequently, investing in health allows participation in activities important for social and economic growth. Lindau, Laumann, Levinson, and Waite (2003), Morenoff (2003), and Kunitz (2004) provided evidence of links between social capital, human capital, health and neighborhood measures of reciprocated exchange among community members and voluntary participation in local groups.

Burris et al. (2004) confirmed that immigration was one of the structural factors associated with HIV infections, such as lower SES, limited power in the new society,

limited social capital, and bi-directional interaction of cultural norms. The framework related immigration with individual-level factors, depleted psychosocial resources, loss of cultural beliefs, and low use of health services, all of which impinge on risky sexual behavior and transmission of HIV.

The dynamic and complex role of immigrant situations as determinants of HIV-related vulnerability must be assessed as ecological models. Using these models to assess and address the risk environment for immigrants' HIV risk-taking behaviors in research and practice has been challenging. Notwithstanding, this dissertation is poised to seize every opportunity to apply individual, social capital, and sociostructural thinking to HIV risk-taking behaviors among the vulnerable SSA immigrant population in the U.S.

Several aspects of social capital and social structures in the U.S. play roles in the creation of human capital in the various individuals, families, communities, states, and the nation evidenced in Maslow's self-actualization, public goods, and social wellbeing. Maslow (1941) explained self-actualization through the stages of development that motivated humans as individuals to have their innate needs met. The safety needs of the second stage included removal of environmental threats, assurance of order, and predictability in the environment.

Bhattacharya (2005) and Lin, Simoni, and Zemon (2005) confirmed that social capital offered a robust, empirical, evidence-base aspect of community causally associated with specific health outcomes. Consequently, social capital provides robust statistics to aid government, business, and the community in their decision-making. It allows for effective debate of public issues in a bid to make cost-effective and enduring

social change, particularly concerning the wellbeing of individual, families, groups, and communities and the desire to identify factors that lead to improvements in wellbeing. At the family, peer, and community levels, social capital reduce acculturative stress and HIV risks for fresh immigrants.

Self-actualization, in the context of this study, refers to the ability of the SSA immigrants to individually access the available social capital in Houston, Texas in the form of educational, employment, and social assistance opportunities at all cost to build human capital and consequently to realize their personal potential and achieve their American dream. This is the point where a SSA immigrant perceives himself as a productive individual capable of maintaining a relationship with the social structure and assume other social roles such as maintaining a job and earn meaningful income. Social capital, therefore, reinforces human capital and fosters self-actualization through this symbiotic relationship.

This study presented a heuristic multilevel framework that (a) included education, employment, and social assistance opportunities as social factors, (b) analyzed the links between immigration and HIV risk-taking behaviors, and (c) underscored how policymakers could make significant social change in HIV risk behaviors with social capital

Social Capital and Immigrants' HIV Risk-taking Behaviors

Sexual risk behaviors that include unprotected sex and exchanging sex for drug and/or money constitute a major HIV transmission mode (CDC, 2002; Booth, Kwiatkowski, and Chitwood, 2000). The association between HIV infection and sex

highlights the psychological and sociocultural complexities of human sexuality (Landau-Stanton and Clements, 1993). Pulerwitz, Amaro, De Jong, Gortmaker, and Rudd (2002) attributed inconsistent condom use to low sexual relationship power.

Studies have shown that separation from family and sociocultural norms, isolation/loneliness make immigrants adopt high-risk behavior such as alcohol and drug-use and unprotected sex with the person of unknown sexual history and HIV discordance, which make them vulnerable groups for HIV infection. Moreover, immigrants create their own social networks and relationship, which are often non-familial and of short duration, particularly among single immigrants. This kind of social networking and relationships make them more vulnerable to peer group pressures and acts. Poverty, inaccessibility to health care, as well as inadequate information about health care facilities at the place of destination worsen the problem (Hyman, 2001; Meadows, Thurston, and Melton, 2001, UNAIDS and IOM, 1998).

Social Assistance

Social assistance is the cash or in-kind rescue programs and other forms of non-state assistance or services and relieves that the state (national or local), charity organizations, and religious institutions provide to support and improve the living standards of the underprivileged and most at risk individuals, households, communities, and groups. Social assistance system embraces financial support for low-income families, child support enforcement, improving maternal and infant health, head Start, preventing child abuse and domestic violence, substance abuse treatment and prevention, and services for older Americans. The assistance also includes housing, energy, food supply,

education and health, labor and employment, scholarships, health maintenance schemes, and income generating activities. The programs use all forms of public action, government and non-government, to transfer resources to eligible persons whose vulnerability necessitates some form of right.

Nations have used social assistance programs to achieve social objectives, such as the provision of free school meals to encourage poor families to keep their children in education (especially girls) as well as provide basic nutritional needs to meet health objectives. Targeted program design and cost-effective delivery worked together to achieve the primary goals of poverty reduction and provide access to opportunities.

Social assistance programs in the U.S. have provided community-based family support services for poor households and people with disabilities and helped people cope with difficulties and sudden crises or shocks. An effective labor market program, which includes unemployment insurance, vocational training, and employment opportunities for vulnerable groups, reduces the need for cash allowances to be paid. Focused social assistance programs on the prevention and reduction of health risk factors and on increasing the capabilities of vulnerable groups to manage future adverse effects unaided are more cost-effective in the long-term.

Family-based health coverage, housing, and employment as part of the total social assistance program package is more attractive to vulnerable poor households who are unable to afford risk prevention measures. Food and small cash benefits as incentive tied together to attendance at vocational training courses or participation in public works

programs are part of a total integrated program for an unemployed youth suffering from HIV/AIDS.

Education ensures better skills in the labor market and a reduced likelihood of falling back into poverty. The best interventions to keep orphans and disabled children, as well as the children of ethnic minorities, immigrants and refugees, poor families and single mothers in school and healthy increase the chances of escaping poverty and actively participating in the labor market in the future. Family allowances, education vouchers, or scholarships, improve the quality of the labor force and enable children to continue education. Access to temporary unemployment benefits, food vouchers, or public works programs help poor families to maintain nutrition and consumption levels during economic crises, temporary periods of unemployment or poverty.

Social assistance helps to create a cohesive and secure society less prone to civil unrest and more supportive of transitions. The need for social assistance depends on the characteristics of vulnerable groups, the range of social protection programs available, and the categories of beneficiaries able to access these programs. Depending on immigration status, length of time in the U.S., and income, an immigrant may be eligible for some federal benefit programs.

Access to social assistance programs is essential for the well-being and health of ethno-racial minority immigrants and their families in the U.S. because of their low socioeconomic condition. For them, such access to and eligibility for key services is challenging, more especially for those with temporary visas who are denied access absolutely (Li and Browne, 2000; Oxman-Martinez, et al., 2004). The system in the U.S.

has eliminated undocumented immigrants from schooling, employment, emergency healthcare, and other essential services, except State Children Health Insurance Program (SCHIP, formally CHIP) for their children (USCIR, 1997). The only benefits federally available to undocumented immigrants are emergency medical care, subject to financial and category eligibility, and elementary and secondary public education. Many undocumented immigrants will not even access these few critical government services because of their ever-present fear of government officials and deportation.

Immigration Policies in the USA

The United States is a nation of immigrants, a fact that favors a more open and sympathetic debate on immigration and mirrors the structure of its immigration rules. All rules concerning legal immigration is a centralized function controlled by the Immigration and Nationality Act (INA). The Immigration and Naturalization Service (INS) implements all functions in the law exclusively.

From the 1980 and 1990 U.S. censuses (5% Public Use Microdata Samples), the population of SSA immigrants in the U.S. increased substantially (Takyi, 2002). They are more heavily concentrated in New York, California, and Texas (Djamba, 1999). In 1992, the Immigration Act of 1990 (IMMACT 90) increased both temporary and permanent legal immigration flows. IMMACT 90 also amplified annual numbers for employment-based immigration for skilled workers, from 54,000 to 140,000 and made provision for the Diversity Immigrant Program, which authorized the issuance of 55,000 additional immigrant visas since 1995.

The INS estimated that between 4.6 and 5.4 million undocumented immigrants resided in the U.S. in October 1996. The Illegal Immigration Reform and Immigrant Responsibility Act of 1996 was a legislative effort intended to control illegal immigration to the U.S. Categorization and the characterization of immigrants in the U.S. influenced the design of policies aimed at the groups. Policy formulation and implementation that place aliens at direct or implicit risk for HIV affect not only the immigrant communities but also the entire US population.

There are large numbers of ineligible immigrants, including SSA immigrants who flee persecution, war or harsh economic conditions and immigrated into the U.S., at least for some time, where they hope for aid, employment, and a better future for their children. Others look for the opportunity to participate in the Western culture, education, and wealth, which communication media publicize worldwide as the American Dream. The receiving states developed rules and procedures to discourage unlawful immigrant resident measures and enforce their immigration laws, built up bureaucracies and police units to prevent unwanted immigration. Consequently, the U.S. migration control policies form one element of all comprehensive migration policies (Monar, 1997).

Some aspects of immigration policy are criticized for tending to inhibit the integration of newcomers. By becoming citizens, newcomers become the legal equals of the national-born, enjoying the same rights, including the right to vote, to serve in the government and to seek elected office. The degree of involvement of the provincial government in immigration issues varies from province to province, but many have

significant programs and policies geared towards assisting in the integration of newcomers individually and as communities.

Immigrants in the USA

Over the past 20 years, the U.S. has experienced one of the largest waves of immigration in its history (Kandula, Kersey, and Lurie, 2004). The United States INS (USINS) (2001) indicated that out of the 34.7 million foreign-born persons in the U.S., about 7 million were undocumented most of which were in California, New York, Florida, Texas, New Jersey, and Illinois (Schmidley, 2001). Many of these immigrants who ran away from poverty found themselves in similar situations and have to deal with risks of exploitation, alienation, poor housing, and lack of food, which are far more pressing than poor sexual health. These factors thrust them further into risky situations or behaviors, such as commercial sex work. Any policies or reforms that discourage and prevent people from studying and working force them to go into the shadow or do just anything for survival and complicate the already complex acculturation process that impact the lives of the immigrants.

As immigrants adopt traditional American health behaviors over time, their health status begins to characterize that of the general U.S. population (Rubia, Marcos, and Muennig, 2002; Singh and Siahpush, 2002). Studies on how acculturation affects health are often difficult to interpret because of scanty validated and consistent measures of acculturation and uncertain impact of selection biases (Kasl and Berkman, 1983). Researchers showed that undocumented immigrants experienced poorer health outcomes than documented immigrants (Buchmueller, Lo Sasso, Lurie, and Dolfin, 2007; Hyman

and Guruge, 2002; Jackson and Smith, 2002; Kazemipur and Halli, 2003; Newbold, et al., 2003; Vissandjee, Desmeules, Cao, Abdool, and Kawanjian, 2004). Apart from the individual choices that the undocumented immigrants make, such as a reluctance to access medical care in a timely fashion, remain engaged with medical care, or comply with treatment, they are often subject to social inequalities, social exclusion, and social instability (Beiner, 1995; Breton, Reitz and Valentine 1980; Brubaker, 1992; 1989).

Acculturation and HIV Risk-Taking Behaviors of Immigrants in the USA

Health is not the object of living but a resource for everyday life; a positive concept that emphasize social and personal resources as well as physical capabilities. Using the WHO definition of health, one classifies 70 – 95% of immigrant populations in their new environments as unhealthy. This is particularly the case with the SSA immigrants in the U.S. According to Zwi and Cabral (1991) and Brindis, Wolfe, McCarter, Ball, and Starbuck-Morales (1995), immigrant populations were at a higher risk than the overall population for poor health in general and HIV infection in particular.

Immigration is a self-motivated, time-dependent process of changeover, where an individual moves from a familiar world to an unknown, confusing, stressful, but sometimes worthwhile life in a new environment (Sabatier, 1996). Immigration involves a loss of the cultural environment of the home country and an endeavor to integrate sociocultural constructs and values of the new host country (Chng and Geliga, 2000; Haour-Knipe and Rector, 1996). Being an immigrant per se is not a risk factor for HIV. The circumstances encountered and the activities undertaken during the immigration process constitute the risk factors. The immigration path transform the original

prevailing cultural norms, beliefs, and practices of sexual mores, sexual attitudes, sexual behavior, and drug use, which for some segments may include severe trauma and the endurance of prolonged hardships. This constitutes the experience of SSA immigrants as they try to adjust to life in the USA.

Behavioral and social scientists evaluate xenophobia and stigmatization of immigrants, impact of legislation on access to prevention and mental health services, and perceptions of stigma/shame related to HIV risks. According to Wong, Crepaz, Campsmith, and Nakamura (2004) and Takeuchi and Young (1994), the acculturation processes to life in the U.S., which include significant changes in social status, challenges to traditional gender roles, and the effects of coping with racism and homophobia, create significant stressors, regardless of migration experiences. Investigators hypothesized that immigrants were more likely to engage in high-risk sexual practices while in the receiving country, which consequently increased their risk of HIV infection. They ascribed (a) a need to seek companionship, (b) exposure to previously unknown or unacceptable sexual behaviors and practices, and (c) unstable economic circumstances that compel immigrants to exchange sexual services for food, lodging, or money to acceptance of new sexual practices.

The machinery behind increased risk of HIV infection embrace low levels of knowledge relating to the mechanisms of infection and prevention, multiple partners, low condom use, and increased alcohol and drug use. Limited access to medical care and HIV testing while in the receiving country results in delayed diagnosis and treatment of HIV-infected immigrants and creates a higher probability of HIV transmission. The concerns

that immigrants have over legal, housing, and employment are far more pressing than a seemingly distant threat of AIDS. Sabatier (1996) expressed the opinion that health might not be a priority to immigrants. Scientists then have to widen the scope to make an effective HIV intervention acceptable to this population.

Many illegal immigrants shun HIV testing or medical care, with the fear that a positive HIV result would mess up any chance they had to gain legal residency. Undocumented HIV-positive immigrants often feared deportation to their native countries where potentially life-saving therapies were rare and where they were more likely to face discrimination. Instead, they risked deportation by going underground or take illogical actions to legalize their stay in the U.S. Immigrants without marketable skills resorted to trading sex for goods, services, and cash in a bid to escape extreme poverty, especially when they did not have the means to acquire better education to enhance their employability. According to Yoshikawa, Chin, Kim, Hsueh, and Rossman (1999), language, culture, and power disparities make immigrants unaccustomed to initiating sexual discussions or negotiate safety with their partners, particularly for the newly arrived.

Research Methodologies

Diversity in methodological design, which often is a result of practical considerations and resource constraints rather than of poor design, is the norm. Studies that assess the dynamics of clients' HIV risk-taking perceptions and behavior are necessary to better understand the epidemic. Predominant among the studies reviewed were observational studies, which consist of cohort, cross-sectional, case-control and

nested case-control studies. These methods remain important because they help in answering many questions efficiently and are often the only practicable method to study various problems, such as studies of etiology, instances where a randomized controlled trial might be unethical, or if the condition of interest is rare.

Researchers use cohort studies to learn about incidence, causes and prognosis and to distinguish between cause and effect because cohort studies measure events in chronological order. Scientists employ cross-sectional studies to determine prevalence because cross-sectional studies are relatively quick and easy but do not permit distinction between cause and effect. Case-control studies involve comparison of groups retrospectively and seek to identify possible predictors of outcome and are useful for studying rare diseases or outcomes and to generate hypotheses for further studies via prospective cohort or other studies. Investigators use cross sectional studies primarily to determine prevalence, infer or predict causation and make all the measurements on each person are made at one point in time. Prevalence is important to the clinician because it influences considerably the likelihood of any particular diagnosis and the predictive value of any investigation.

The most important advantage of cross sectional studies is that in general they are quick, cheap and used to study multiple outcomes; as there is no follow up. Cross sectional studies are the best way to determine prevalence and are useful at identifying associations that can then be more rigorously studied using a cohort study or randomized controlled study. The most important problem with cross sectional studies is differentiating cause and effect from simple association. Cross sectional studies do not

provide an explanation for their findings. The principal summary statistic (point estimate) of cross sectional studies is the odds ratio.

Advantages and Disadvantages of Methodologies

The choice of whether to use quantitative or qualitative approaches depends heavily on one's research questions, as well as time and resources. In general, good quantitative data is predictive, while good qualitative data is descriptive. Therefore, when the research questions relate to the processes of a program, qualitative evaluation is often preferable. On the other hand, when research questions relate to specific program outcomes, a quantitative approach is preferable (Kohn, 2009).

Quantitative data express program outcomes in precise numerical terms. Overall, quantitative methods are best for answering specific questions about the relationship of program inputs and activities to outcomes. However, a combination of both quantitative and qualitative data provides the most complete picture of a program and its outcomes when resources permit. Quantitative methodology will be used in the collection of data for this study.

Yin (1984) posits that quantitative data allows evaluators to draw precise conclusions on policy-relevant questions with a certain degree of confidence and make very valid statements about the effects of the program; as long as the study has been carefully designed. If the sample has been carefully selected, one can also generalize results to similar populations. A variety of statistical techniques also allow the evaluator to closely examine relationships from different angles to answer complex research questions.

According to Powell (2006), quantitative data collection methods yield more objective data than qualitative methods because the evaluator is somewhat removed from the program and participants. Investigators design quantitative evaluations beforehand, and do not necessarily develop or change as the process unfolds. However, quantitative studies have their own set of biases. An evaluator decides where to focus, which data to collect, and how to interpret the findings.

While some people may view quantitative data as more authoritative and unbiased, it is important to note that a good qualitative study is carefully planned and methodical as well. A good evaluator gathers information and compares it against other sources, such as information from other stakeholders and program records, before accepting it. When a qualitative evaluator sees a pattern in the data, she gathers additional data to determine whether there is anything that may counter the explanation. In this sense, qualitative evaluations develop in part as they go along. This also allows an evaluator to follow up and investigate further as needed.

One advantage of qualitative evaluation is that if one has an ongoing program with relatively few participants, it may make more sense to conduct interviews to gather information about participants' experiences and the efficacy of the program; thus the data is richer. Furthermore, qualitative studies convey detailed information about real individuals and illustrate the true meaning of a program.

Researchers use qualitative methods to complement the current reliance on survey-based methods of data collection. The major drawback of qualitative data is that data collection is time-consuming and analysis is an overwhelming task. Kohn (2009)

emphasized the fact that funders and other stakeholders are more interested in and convinced by quantitative data.

Broad Social Capital Framework for Analysis

The distinction between the constituents, such as trust and collective efficacy as an outcome or vice versa of social capital often has been unclear. However, they are mutually dependent. This leads to difficulties in measuring and ascribing the cause and effect. According to Sampson, Raudenbush, and Earls (1997) and Lochner, Kawachi, and Kennedy, (1999), studies have employed indirect measures of collective efficacy that may be the sine qua non of social capital.

Secondary data analyses of social capital empirical research resulted in lack of depth of investigation. Theory-driven, a priori hypothesis testing, exposure and outcome variables investigations that are more specific, sophisticated and complex update knowledge and information on the association between social capital and health issues. The most commonly studied aspects of social capital in studies of health outcomes, have been perceptions of the trustworthiness of others and participation in voluntary associations. Other components of social capital that have been featured are the psychological sense of community, neighborhood cohesion and community competence. Lochner et al (1999) argued that each of these headings could be broken down further into a number of dimensions.

Obtainable research emphasized fruitful intra- and inter-group aspects of social capital associations. Nevertheless, there is a need to develop interest in dimensional models of social capital in which researchers report various aspects of the social structure,

organization and institutions rather than linear models, which lead to a tendency to label communities simply as high or low in social capital. Research into the effects of social capital on health requires more rigorous conceptual clarity, operational definitions and validated contextual measures that are not based exclusively on the aggregated characteristics of individual members. Assessment of social capital in health has intrinsic value and helps to address some important, unresolved ecological, clinical and epidemiological questions.

Keating (2000) indicated that specific pragmatic research that connected social capital to health outcomes via a social support mechanism prosper. Portes (1998) particularly noted that the implications for health and welfare of issues such as trust and reciprocity are strongly context-dependent and equally function in both a socially exclusive and an inclusive way; having positive welfare effects for some and negative for others. Kunitz (2001) provided a valuable account of how social capital was both a part of the problem and solution to local health problems. Strong interdisciplinary research that involved epidemiologists, geographers, sociologists, anthropologists and psychiatrists enhanced elucidation of the relationship between social capital variables and health. Development of social capital measures that do not rely exclusively on individual perceptions is essential.

The cross-sectional nature of most studies makes it difficult to distinguish findings that are due to bias, reverse causality or confounding from those that are truly causal. However, according to Jones and Duncan (1995) and Rice and Leyland (1996), the advent of multi-level modeling techniques makes it possible to study the effects of

potential risk factors for a given outcome at more than one level simultaneously, and to quantify (and therefore compare) the variance in a given outcome at different spatial levels. Kawachi and Kennedy (1997), Kawachi, Kennedy, Lochner, and Prothrow-Stith (1997) and Sampson et al, (1997) found that studies that employed multilevel techniques found that self-reported health, mortality and crime were all associated with social capital (based on aggregated perceptions of social trust), after adjusting for individual income level. Although high levels of social capital were beneficial to community members, minorities who, whether defined by ethnicity, religious beliefs, sexuality, or ill-health, experienced marginalization, exclusion, or persecution, felt the impact differently.

More fully suitable substantiation and methodologies, such as multilevel modeling and randomized experiments are still rare in the literature. However, the contributions of Subramanian, Kim, and Kawachi (2002), Subramanian, Blakely, and Kawachi (2003) and Subramanian, Lochner, and Kawachi (2003) represented an important advance in this respect. Investigators hypothesized that social capital within a given minority group diminished as it became a smaller proportion of the population. Conversely, members of any minority group felt excluded and stigmatized in areas where there was a high degree of cohesion among the majority group. In testing these and other hypotheses it was important to exclude confounding by individual-level factors, such as socioeconomic status and social support and the cognitive and social skills required to benefit from community resources.

Soskolne and Shtarkshall (2002) presented a multilevel framework for analysis of the links between immigration and HIV, which included the association of immigration

with (a) structural macro factors, such as lower socioeconomic status and limited power in the new society, (b) intermediate structural factors, such as limited social capital and bi-directional interaction of cultural norms, and (c) individual-level factors, such as stressors unique to the immigration context, depleted psychosocial resources, loss of cultural beliefs and low use of health services. All these factors affect risky sexual behavior and transmission of HIV. Soskolne et al (2002) further utilized those elements of the framework that were relevant to the specific needs of immigrant populations to demonstrate their application to integrated, multilevel HIV prevention interventions and proposed several special principles for development of immigration-related HIV prevention programs.

Ecob and MacIntyre (2000) and Pickett et al. (2001) observed that most research on the geographies of health were based on studies of the aggregated characteristics of people living in particular areas rather than the contextual characteristics of the places where people live. Further, Sampson et al (1997) did not perceive the certain accuracy of measures of aggregated responses to survey questions across administratively determined social environment geographical boundaries. Kunitz (2004) affirmed that social capital was a relevant concept in environments that lacked well-developed infrastructure and access to education, such as rural areas, poorer communities, and developing countries. Very little work has examined the link between social capital and health in resource-poor settings.

The setting for this study was the SSA immigrant population in the U.S. Following one strand of the literature, the study conceptualized social capital as a

collective property embedded in networks, but one that individual member of the collectivity access differentially depending on the extent to which they participate in community organizations. Intuitively, a positive, causal relationship between the SSA immigrants' community participation and health arose through several mechanisms.

Scientists showed that faith-based segregation was a multi-dimensional and most valid construct that encompassed five distinct dimensions of spatial variation: evenness, exposure, clustering, concentration and centralization in the U.S. metropolitan areas, such as Houston (Massey, White, and Phua, 1996; Massey and Hajnal, 1995). In particular, faith-based organization (FBO) remained the single most powerful source for Black segregation in the U.S. Consequently, recruitment in this study utilized the faith-based organizations (Churches and Mosques) that SSA immigrant nationals in Houston met for worship and social activities to have a representative sample of the targeted population.

Summary and Transition

This chapter described a series of theoretical models of how neighborhoods and community settings were associated with various aspects of human welfare and reviewed evidence of associations of contexts with health, psychological distress, risky behaviors, psychological attitudes, and HIV risk-taking behaviors of immigrants. It suggested that many psychological processes played out differently in different contexts and contextual factors interacted with sociocultural characteristics of individuals in predicting outcomes. Cross-sectional studies allowed for examination of both exposure and outcome variables and provided opportunity to test the various specific hypotheses simultaneously. Chapter

3 elaborated on the methodology of this dissertation research project. Chapter 4 presented the results, while Chapter 5 discussed the findings.

CHAPTER 3: RESEARCH METHOD

This study assessed the personal, social resources, and other environmental factors that sway HIV risk-taking behaviors among SSA immigrants in Houston, Texas. Chapter 3 covers the research methodology, study population/sample, the research design: research instruments, hypotheses, data collection procedure, data analysis, and the ethical issues related to human subject research.

Research Design and Approach

This was a quantitative study, characterized as a cross-sectional method as Coggon, Barker, and Rose (2003) and Trochim and Donnelly (2006) suggested.. Cross-sectional studies (surveys) are a useful way to gather information on important health-related aspects of people's knowledge, attitudes, and practices. A cross-sectional study is characterized as a snapshot descriptive or observational epidemiology conducted on representative samples of a population to provide information about the point prevalence estimation of health-related states and conditions to demonstrate associations. Importantly, because such a study does not look at time trends; it cannot establish what causes what (temporal sequence).

A cross-sectional research method was chosen because the study aimed to describe the characteristics of a population and relationship between a health-related state and other factors of interest as they existed in the specified population at a particular time, without regard for what may have preceded or precipitated the health status found at the time of the study. The knowledge about the HIV risk-taking behavior of the target group (SSA immigrants) was based on the overall finding on the views or behaviors of

the convenient sample from the targeted group, assuming them to be typical of the whole group. The study elucidated the relationship between the dependent and independent variables.

It was impossible either to establish causal relationships or to get reliable perspectives on the natural history of the disease from the study. A cross-sectional study is most adequate in assessing association between exposure and outcome in a population, such as SSA immigrants in Houston, Texas where there are no established or documented HIV risk factors.

Instrumentation and Materials

The semi-structured self-addressed hard copy survey questionnaire was distributed to eligible SSA immigrant participant in Houston, Texas. The tool, classified into (a) data items on HIV knowledge, attitudes, beliefs, risk perception and risk behaviors and (b) data items on social capital, enquired the participants about such concepts as HIV risk-taking behaviors, knowledge of HIV/AIDS/STDs transmission, condom use attitude and self-efficacy, sexual assertiveness, access to educational opportunities, social assistance, employment, proxies of immigration status and other sociodemographic characteristics.

The tool was adapted from Chicago Area General Population Survey on AIDS of the University of Illinois Survey Laboratory (Aday, 1996, p. 406); Averts HIV AIDS Quiz and Sowadsky. Using STATA statistical software, the investigator ensured that the reliability of the tool was greater than 0.7. Internal consistency reliability Cronbach's alpha was used to analyze and select the most appropriate items for the dependent and

independent constructs in the questionnaire. Cronbach's alpha is the most common form of reliability coefficient (Carmines and Zeller, 1979). By convention, alpha should be .70 or higher to retain an item in a scale (Carmines and Zeller, 1979; Warmbrod, 2001).

Setting and Sample

The participants sample was drawn from the heterogeneous city of Houston, the county seat of Harris County, Texas (estimated population of 3,400,578). Houston is the fourth-largest city in the United States of America; trailing only New York, Los Angeles, and Chicago and the largest city within the state of Texas (HFF, 2010). As of the 2006 U.S. Census estimate, the city has a population of 2.2 million of which Sub-Saharan African immigrants constituted 1% (NAC, 2008). The population under study was immigrants from SSA that resided in Houston, Texas. The SSA immigrants were concentrated in Southwest Houston.

The Sampling Method and Sampling Frame Used

As a cross-sectional study, a nonprobability sample of the SSA immigrant participants was employed to meet the estimated sample size. Therefore, the quantitative findings of this study were based on information collected from 167 SSA immigrants in Houston, Texas. Sub-Saharan African immigrants in Houston, Texas constituted the sampling frame. There was no previous study of HIV risk-taking behaviors among the SSA immigrants in Houston to make reference to. Using STATA statistical software, an estimated sample size of 93 each of condom users before sex and noncondom users before sex during the past 3 months among eligible SSA immigrant participants in

Houston who completed the questionnaire gave a statistical power of 80% and detected HIV risk-taking proportional difference of 0.1 at type 1 error of 0.05 (Appendix A).

The Eligibility Criteria

1. Sampling element: First generation SSA immigrants in Houston for this study were selected from among non-institutionalized SSA immigrants residing in Houston for at least 12 months prior to the conduct of this study. To be eligible, study participants must be 18 years or older, male or female, and able to read and understand English language.

2. Exclusion criteria: SSA immigrants less than 18 years or who identified themselves as second generation SSA immigrants and African Americans were excluded from the study.

Hypotheses

The specific aims were to determine whether employment, educational and governmental/private social assistance opportunities were associated with the HIV risk-taking behaviors, CUBS among SSA immigrants in Houston.

Hypothesis 1

H_0: There is no association between employment and HIV risk-taking behaviors of SSA immigrants in Houston.

H_a: There is association between employment and HIV risk-taking behaviors of SSA immigrants in Houston.

Hypothesis 2

H_0: There is no association between educational opportunity and HIV risk-taking behaviors of SSA immigrants in Houston.

H_a: There is association between educational opportunity and HIV risk-taking behaviors of SSA immigrants in Houston.

Hypothesis 3

H_0: There is no association between governmental social assistance and HIV risk-taking behaviors of SSA immigrants in Houston.

H_a: There is association between governmental social assistance and HIV risk-taking behaviors of SSA immigrants in Houston.

Study Design

A semi-structured, anonymous, self-reported, questionnaire-based cross-sectional study design to quantitatively assess the relation between HIV risk-taking behaviors of SSA immigrants as dependent variable and education, employment and social assistance opportunities as social capital independent variables were used for this study. The data for this study were collected from 167 SSA immigrant sample in Houston, Texas.

Study Population: Sub-Sahara African (SSA) immigrants residing in Houston, Texas who were potentially at risk for HIV infection.

Independent variable: Education, employment and social assistance opportunities

Dependent variables: HIV risk-taking behaviors (CUBS)

Confounders: Religious preference, country of origin, age, gender, sexual preference, and all other variables besides the dependent and independent variables in the instrument.

Data Collection Procedures

Recruitment of potential participants for this study was done primarily at faith-based organizations (FBO), such as churches and mosques where SSA immigrants in Houston met for worship and social activities. Saving Lives through Alternate Options (SLAO), a 501(C) non-government organization (NGO) based in Houston, has a proven record and experience in community-based health and social services. The CEO of SLAO introduced the investigator to the leaders of the organizations (pastors and imams) prior to being introduced to the members of the congregations. This introduction validated the investigator and provided the opportunity to intimate the leaders with the purpose and the significance of the study and requested the help of the leaders in getting their membership to participate in the study.

Flyers that informed potential participants about the study were prepared for the introductory visit to the SSA FBO. The PI requested that the organization leaders announce the study and distribute the fliers to their congregations and also ask the members to share the information in their communities. On the day of meeting with the potential participants, the pastors and imams gave the investigator a few minutes to intimate the participants with the study and announce the procedure for collection of the data. The investigator then explained the study, including the conditions for participating, as well as privacy and confidentiality for data collection while minimizing participant coercion or pressure and requested their participation.

One week after contact was established, the investigator returned to the organizations locations on the day of the survey administration 1 hour before the worship service commenced. The investigator gave the implied informed consent (Appendix B) and questionnaire to eligible and willing participant (male and female; 18+ years) as they enter for service.

The investigator returned to the same places where the implied informed consent and questionnaire were distributed to the participants to collect directly from the participants within 2 weeks period (December 27, 2009 – January 10, 2010). The investigator discarded all questionnaires with self identified origin that was not SSA immigrant. The PI stored the completed questionnaire under lock and key in the PI's closet prior to entering the data into the database. The PI entered the data into Microsoft Excel in a secured and safe Laptop with identification and password protection to secure the safety of the laptop and the data.

Principal Investigator's Experience During the Data Collection

The participants, including the FBO leaders, were impressed about the study, which promised to look into the welfare of the SSA immigrant community in Houston and conducted by a member of the SSA immigrant community in Houston. Everyone was willing to participate fully in the study and give information that would make the study evidence-based.

In addition, the community members requested the PI to return and give them the outcome of his findings; and also educate them on necessary preventive measures, as they

hinted that HIV risk-taking behavior was a known problem among the SSA immigrant community in Houston. The PI promised to live up to their expectation.

Ethical Issues Associated With Data Collection in This Study

HIV/AIDS profoundly affects most aspects of people's lives. Social, economic, and cultural issues relating to human rights, ethics, and law are broached, with discrimination, intolerance, and prejudice being commonly experienced by HIV/AIDS sufferers (Aggleton and Warwick, 1999; Altman, 1994; Blendon and Donelan, 1988; Parker and Aggleton, 2002). The ethical issues in conducting research on preventing HIV infection are among the most complex of any area of human subject research (Des Jarlais, Gaist, and Friedman, 1995). Because of the stigma and human rights issues around HIV/AIDS, study participants may experience psychological, social, physical, or economic harm, even when precautions are taken (Singh and Banerjee, 2004; Mirken, 2002; ICMR, 2001). Data collection protocols or procedures in this study included an explicit description of the measures taken to protect the participants involved. The investigator upheld the highest ethical standards when behavioral or biological data were collected on the sensitive sexually transmitted infections (STIs), HIV, or AIDS.

The four pillars of medical ethics are autonomy, nonmaleficience, beneficience, and justice (Grady, 1977). Ethical issues related to HIV/AIDS research included confidentiality, informed consent, research design, conflict of interest, and vulnerable populations. Three principles in American bioethics that apply to both clinical and research ethics were respect for persons, beneficence, and justice (CIOMS, 1993; NCPHSBBR, 2000; WMDH, 1964)

Conducting HIV-related studies poses particular ethical challenges given the urgency to find effective ways for preventing and mitigating the epidemic, and the stigma associated with being HIV-positive that can result in discrimination or harm (Aggleton and Parker, 2002; Burchardt, Le Grand, and Piachaud, 2002; Chan, Stoové, and Reidpath, 2008; Reidpath and Chan, 2005). The need to document effectiveness in data collection must be balanced with every effort to ensure the safety and protection of all participants in data collection activities (DHHS/AHRQ/COE, 2009).

Data Analysis

The purpose of this study was to test the association of educational opportunity, social assistance, and employment with HIV risk-taking behaviors (CUBS) of SSA immigrants in Houston, Texas. Cross-sectional survey design was effective in isolating the predictive factors hypothesized to influence the outcome variable, HIV/AIDS risk taking behavior of the SSA immigrants. All survey data were coded and entered for computer analysis using a Microsoft Excel spreadsheet and eventually transferred to STATA statistical software (version 9.0). Prior to the analysis, the data was cleaned by eliminating unknown, not ascertained, refused, and missing responses from the data set.

Pre-analysis data screening was performed prior to the specific aims/hypotheses-driven analysis. This screening was performed to examine the dataset for the accuracy of the data entry, which include assessment for missing data and outliers. Frequency distribution was used to examine and describe the categorical variables for prevalence proportion (number and percentages) and missing values of study characteristics such as gender; while the measure of central tendency (mean, standard deviation and 95%

Confidence Interval) was used to describe the continuous variables, such as age. Next, where necessary and deemed appropriate based on either scientific or clinical criteria, continuous data was transformed into categories to simplify the comparability of findings across studies. Data transformation was performed prior to analysis. Where necessary, items were recoded to ensure that lower categories remained a reference group for logistic regression modeling.

Pearson Chi square statistic was used to examine the associations between the covariates and the dependent/response variables, HIV risk taking behavior (CUBS during the past 3 months). Fisher's exact was used to compensate for small expected cells count. This statistic generated the Chi square value, degrees of freedom, and at the *p*-value 0.05 significance level for the group differences. Mantel-Haenszel statistic for odds ratio was used to estimate the prevalence odds of having the HIV risks variable (CUBS during the past 3 months) given exposure to independent variables (education opportunity, employment status, and social assistance).

Unconditional univariable logistic regression was performed for the POR in the association between each independent variable (educational opportunity, social assistance, and employment status) and the dependent variable (CUBS during the past 3 months). In the model-building, if a variable was statistically significant at 0.25 (25% type 1 error tolerance) or biologically and clinical relevant, such as age and gender, it was loaded into the multivariable model. The association between other study covariates and CUBS was assessed for possible confounding effects prior to

entry into the multivariable logistic regression model. This model generated an unadjusted POR, 95% CI and the *p*-value.

To adjust for multiple predictors, confounding effects and determine the factual or nonconfounding association between social assistance, education opportunity, and employment status and CUBS and other sociodemographic variable simultaneously, unconditional multivariable logistic regression analysis was performed. Stepwise methods, using both forward loading and backward elimination procedures, were used to determine the final model. All statistical tests were two tailed with a significance level of $p<0.05$. STATA software version 9.0 (STATA Corporations, College Station, Texas) was used to perform all the analyses.

Rationale for the Data Analysis Approach in this Study

Research is all about measurement. This study was conducted to find out whether or not an association existed between the outcome and predictor variables. The analyses were in three stages: (a) test of association, (b) univariate logistic regression and (c) multivariate logistic regression. All analyses were at $p = 0.05$. The data analysis in this study involved recent modeling strategies. Information garnered from Hosmer and Lemeshow (2000) guided the data analysis.

The test of association showed association between education, employment and social assistance opportunities. However, only education opportunity showed statistically significant association at $p = 0.05$, with $p<0.001$ (Appendix C). Nevertheless, because of incomplete data one could not talk of negative findings with absolute certainty especially with behavioral studies. Therefore, there is always need for further studies.

An association of any type involving especially behavioral variables must be handled with caution since behavioral variables interact a great deal in influencing the outcome. The implication of this statement is that one should avoid making statement in behavioral sciences unless one has been able to extricate possible potential confounding in the association.

Since the *p*-value interpretation of the association does not consider the role of confounding and systematic errors, it is meaningless to depend on random error alone as the sole criterion of association. On this vein, model-building was required to allow for alternative explanation of the findings.

Therefore, using these criteria, even where there was no crude association, model-building to simultaneously adjust for confounders was performed; the rationale being that without disentangling influence of other covariates on the association tested, there will always remain an alternative explanation for the lack or presence of association.

The result of the study may have any of the following explanations:

1. Factual
2. Confounding
3. Driven by systematic errors (bias) or
4. As a result of random variation (sampling variability).

The findings in the study might have been driven by biological relevance and/or the behavioral factors of the participants some of which were measured by the large pertinent items in the tool. Each of the variables in the tool has equal chance of influencing the outcome of the study. The univariate logistic regression analysis was not

feasible for education opportunity but was feasible for employment and social assistance (Appendix D). On the basis of this result, there was no further multivariate analysis for education opportunity. Therefore, further multivariate regression analysis was carried out to adjust for these two predictor variables.

Model-building in modern statistical approach recommends forward-loading and backward elimination. This approach implies that whether or not variables show significance, they should be loaded into the model and the variables that are not significant at $p = 0.05$ should be removed from the model. In that sense, one may even load all variables/items in the tool into the model, which may be too cumbersome.

Rather than load all variables in the model, the analysis of this study data tested each variable at the univariate level first with the predictor variable then with the outcome variable. The variables that showed Pearson Chi Square p-value less than .25 simultaneously for both the predictor and CUBS (highlighted red) were loaded in the model building (Appendix E). Following model stipulations in the analysis plan each covariate was tested for possible confounding effects at a significance level of 0.25 as well as their biologic/clinical relevance. Therefore, using these criteria, even where there was no crude association, model-building was performed to simultaneously adjust for confounders (Appendix F).

Summary and Transition

Chapter 3 presented the research methodology, study population, study sample, the research design, research instruments, data collection procedure, data analysis, the ethical issues related to human subject research and the rationale for the data analysis

techniques. Chapter 4 covered the results of the study while chapter 5 discussed the outcome of the study as seen in the study results.

CHAPTER 4: RESULTS

This study aimed to investigate how social capital resources, as defined by employment, education, social assistance opportunities, and cultural knowledge, might influence risk behaviors, especially risk factors that could lead to HIV infection. The study assessed the personal and social resources variables that influenced HIV risk-taking behaviors of SSA immigrants in Houston, Texas.

The overall research question was, Is there any association between education, employment and social assistance opportunities and HIV risk behaviors of sub-Saharan African immigrants in Houston, Texas? ′This chapter presents the results of a cross-sectional and observational epidemiologic study designed that determined if there was association between the dependent variable HIV risk-taking behavior (measured as CUBS) and independent social capital variables (a) education opportunity measured as financial aid, (b) social assistance, and (c) employment opportunity. A total of 194 surveys were distributed and 167 individuals completed and returned the survey, which gave 86.1% response rate for the study. The sample of SSA immigrants consisted of: Nigerians (68.4%); followed by Kenyans (7.0%); Tanzanians (3.8%); Malians (3.8%) and others made up 17.0%.

Table 3

Demographic Distributions of the Participants

Covariates	Number	Percentage	Covariates	Number	Percentage
Country of Origin			**Marital Status**		
Kenya	11	6.96	Single	58	34.73
Nigeria	108	68.35	Legally Married	90	53.89
Togo	4	2.53	Cohabit	2	1.20
Niger	4	2.53	Separated	4	2.40
Ghana	2	1.27	Divorced	8	4.79
Tanzania	6	3.80	Widowed	5	2.99
Gabon	2	1.27	**Total**	**167**	**100**
Mali	6	3.80	**Stay in Houston**		
D. Rep. of Congo	2	1.27	0 – 1	29	17.68
Cameroon	5	3.16	2 – 5	51	31.10
Ivory Coast	2	1.27	6 – 10	36	21.95
Sierra Leone	4	2.53	>10	48	29.27
South Africa	2	1.27	**Total**	**164**	**100**
Total	**158**	**100**	**Inc La' 30 days**		
Age			Job	101	63.92
16 – 20	6	3.66	Welfare	5	3.16
21 – 25	22	13.41	Child Support	2	1.27
26 – 30	12	7.32	Sex Partner	8	5.06
31 – 35	17	10.37	Friends	16	10.12
36 – 40	20	12.20	No Income	26	16.46
>40	48	29.27	**Total**	**158**	**100**
No Answer	39	23.78	**Religious Pre'ce**		
Total	**164**	**100**	Christian	115	85.45
Educational Level			Muslim	18	10.91
<High School	4	2.40	Others	6	3.64
High School	25	14.97	**Total**	**165**	**100**
Some College	38	22.75	**Gender**		
College Graduate	66	39.52	Male	75	46.88
Masters	30	17.96	Female	81	50.63
PhD	4	2.40	Transgender	4	2.50
Total	**167**	**100**	**Total**	**160**	**100**
Empl'ent Status					
Unemployed	43	26.06			
Employed	122	73.94			
Total	**165**	**100**			

Note: Inc La' 30 days = Income last 30 days, Religious Pre'ce = Religious preference, Empl'ent Status = Employment status

Of the 167 participants, 50.6% were female, 46.9% were male and 2.5% were transgender. The majority of the participants were in the age group 40 years and above (46.5%). There were 39 (23.8%) participants who did not provide information about their age. Most of the participants (n = 104; 62.3%) had a college degree. Other educational subcategories were ≤ High School (n = 29; 17.4%) and Post College (34; 20.3%). The majority of the participants (56.1%) were single.

With respect to the duration of stay majority of the participants (51.3%) self-reported haven been in the U.S. for more than 6 years. Those who reported haven been in the USA for 0–1 year made up 17.7%. The unemployed in this group was 26.1%. The current monthly income was used to assess the majority of the participants (56%) who reported a monthly income greater than $500. The religious affiliation of the participants was assessed with the majority (85.5%) self-identified as Christians and 10.9% as Muslims (Table 3). The following section presents the results of the specific study hypotheses in this dissertation research.

Education Opportunity

The hypothesis tested to address the association between education opportunity and CUBS was:

H_0: There is no association between educational opportunity and HIV risk-taking behaviors of SSA immigrants in Houston.

H_a: There is association between educational opportunity and HIV risk-taking behaviors of SSA immigrants in Houston.

Table 4

The Association between Education Opportunity and HIV Risk Behavior

Covariate	Self reporting no Condom use before sex past 3 months		Self reporting Condom use before sex past three months		χ^2 (df)	*p*- value
	Number	%	Number	%		
Qualify for Financial Aid					12.8(1)	<0.001
No	53	84.1	10	15.9		
Yes	75	100	0	0.0		

Notes and Abbreviation: df = degree of freedom, χ^2 = Chi Square, p = Significance level less than 0.05

Table 4 presents the results of the association between education opportunity, measured as being qualified for financial aid and CUBS. The result indicated a crude statistically significant difference between the participants who were with and those who were without education opportunity and CUBS, $\chi^2 = 12.83(3)$, Fischer's exact *p*-value = 0.001. However, the analysis to predict CUBS during the past 3 months based on education opportunity was not feasible.

Social Assistance

Study hypothesis tested to address the association between social assistance and CUBS was:

H_0: There is no association between governmental social assistance and HIV risk-taking behaviors of SSA immigrants in Houston.

H_a: There is association between governmental social assistance and HIV risk-taking behaviors of SSA immigrants in Houston.

Table 5

The Association between Social Assistance and HIV Risk-Taking Behavior

Covariate	Self reporting no Condom use before sex past 3 months		Self reporting Condom use before sex past three months		χ^2 (df)	*p*- value
	Number	%	Number	%		
Social Assistance					0.001(1)	0.94
No	82	93.2	6	6.8		
Yes	52	92.9	4	7.1		

Notes and Abbreviation: df = degree of freedom, χ^2 = Chi Square, p = Significance level less than 0.05

There was no statistically significant difference between the participants who qualified for social assistance and those who did not qualify for social assistance and CUBS, $\lambda^2 = 0.001(1)$, $p = 0.94$. However, on the basis of social assistance opportunity,

more participants reported no condom use than those who reported condom use (7.9% versus 6.8% respectively).

Table 6

Univariable and Multivariable Unconditional Logistic Regression Models of the Association between HIV Risk-Taking Behavior and Social Assistance

Variable	Univariable Model			Multivariable Model		
	POR	95% CI	p-value	APOR*	95% CI	p-value
Social Assistance						
No	1.00	Referent	Referent	1.00	Referent	Referent
Yes	0.95	0.26 – 3.35	0.94	6.18	0.55 – 69.60	0.14

Notes and Abbreviation**:** CI = Confidence Interval, POR = Prevalence Odds Ratio, p = Significance level less than 0.05, * = Adjusted for marital status, country of origin, immigration status and sex

Using the Mantel-Haenszel test statistics to predict condom use, based on social assistance opportunity, there was no statistically significant difference in the chance of using condom within past 3 months given social assistance opportunity. Compared to those who were unqualified for social assistance, those who did qualify were 5% less likely to use condom before sex during the past 3 months, POR = 0.95, 95% Confidence Intervals (CI) = 0.26 – 3.55, $p = 0.94$).

In the univariable unconditional logistic regression model, though statistically insignificant, the participants who self-reported having social assistance were 5% less likely to use condom during the past 3 months, POR = 0.95, 95% CI = 0.26 – 3.53. In the

multivariable logistic regression model, which was built through forward loading and backward elimination after intensive assessment of factors that were statistically significantly associated with CUBS in the first place and social assistance in the second place, the confounding variables were controlled for to determine the unconfounded effects of social assistance on CUBS of the SSA immigrants in the USA. After controlling for marital status, country of origin, immigration status and gender, there was no statistically significant association between CUBS and having social assistance. (Table 6)

Employment Status

Study hypothesis tested to address the association between employment and CUBS was:

H_0: There is no association between employment and HIV risk-taking behaviors of SSA immigrants in Houston.

H_a: There is association between employment and HIV risk-taking behaviors of SSA immigrants in Houston.

Table 7

The Association between Employment Status and HIV Risk-Taking Behavior

Covariate	Self reporting no Condom use before sex past 3 months		Self reporting Condom use before sex past three months		χ^2 (df)	*P*- value
	Number	%	Number	%		
Employment Status					0.48(1)	0.49
No	31	93.9	2	6.1		
Yes	108	90.0	12	10.0		

Notes and Abbreviation: df = degree of freedom, χ^2 = Chi Square, p = Significance level less than 0.05

Table 7 presents the result of the association between employment and CUBS. The resulting Chi square (λ^2) statistic showed no statistically significant difference between participants who self-reported that they were employed and those that self-reported that they were unemployed with respect to CUBS, $\lambda^2 = 0.48(1)$, p = 0.49.

Table 8

Univariable and Multivariable Unconditional Logistic Regression Models of the Association between Employment Status and HIV Risk-Taking Behavior

Variable	Univariable Model			Multivariable Model		
	POR	95% CI	p-value	APOR*	95% CI	p-value
Employment						
No	1.00	Referent	Referent	1.00	Referent	Referent
Yes	1.72	0.37 – 8.11	0.49	83.17	3.38 – 2048.24	0.007

Notes and Abbreviation: CI = Confidence Interval, POR = Prevalence Odds Ratio, p = Significance level less than 0.05. APOR* = POR adjusted for Country of origin, marital status, immigration status and sex

The Mantel-Haenszel test statistics was used to determine the direction of condom use with respect to employment. There was no statistically significant difference in the prevalence odds of using condom within past 3 months given employment situation. Among the unemployed, 6.1% used condom before sex during the past 3 months, whereas among the employed, 10% used condom before sex during the past 3 months.

Compared to those who were unemployed, those who were employed were 72% more likely to use condom before sex during the past 3 months, POR = 1.72, 95% CI = 0.36 – 8.11, $p = 0.49$. Likewise, the test for homogeneity of the odds and the trend test were not significant ($p = 0.49$). Similarly, in the univariable logistic regression model, there was a statistically insignificant (72%) increase in the use of condom among participants who were employed relative to those who were unemployed; (POR = 1.72, 95% CI = 0.36 – 8.11, $p = 0.49$).

To present the unconfounded association between employment and HIV risk-taking behavior, a multivariable logistic regression model was built through forward loading and backward elimination after intensive assessment of factors that were statistically significantly associated with the outcome variable in the first place and also the predictor variable in the second place. This allowed for simultaneous control for the factors that statistically significantly associated with HIV risk-taking behavior (CUBS) in the first place and employment in the final place.

After adjusting for marital status, country of origin, immigration status and length of stay in the USA, there was a statistically significant association between employment and HIV risk-taking behavior. Compared with those who were unemployed, those who were employed in the sample were 83 times as likely to use condom before sex during the past 3 months, APOR = 83.17, 95% CI = 3.38 – 2048. 2, p = 0.007 (Table 8).

Summary and Transition

This chapter presented the results of the hypotheses tested in this dissertation research. The results indicated that a significant association existed between education opportunity and HIV risk-taking behavior of SSA immigrant in Houston (CUBS). This association was not adjusted for factors that might influence education opportunity as well as CUBS. The other hypotheses tested did not show any statistical significant association with CUBS, which may be due to the small number in this study (randomness or random variability). Chapter 5 will present the detailed discussion of the findings to indicate whether or not these findings were factual, confounded, biased or influenced by precision (random error).

CHAPTER 5: SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary

The purpose of this study was to investigate how social capital resources, as defined by education, employment, social assistance opportunities, and cultural knowledge might influence condom use before sex during the past 3 months (CUBS) as HIV risk behavior of Sub-Saharan African (SSA) immigrants in Houston, Texas. The study hypothesized that HIV risk-taking behavior of the SSA immigrants in the USA might be associated with the social capital variables: employment, social assistance and education opportunities. This chapter presents the interpretation of findings; implications for social change; recommendations for action; and recommendations for further study.

Researchers have studied HIV risk factors in association with several social, economic, psychological and biological factors as well as in different populations. However, the determinants of these risk factors have not been studied among the SSA immigrants in the USA. This study used the concept social capital as developed by Coleman (1992); Bourdieu (1983) and Putnam (2000) and Maslow (1943) as theoretical framework to identify and explore human needs and available social resources that may contribute to and influence how those needs were satisfied. The concept of social capital originated in the work of Durkheim (1951) on suicide, which showed the importance of community to regulate social life and provide individuals' sense of well-being. Durkheim demonstrated that suicide rate in a community related to the degree to which individuals were integrated into community.

Coleman (1992) perceived social context as the arena in which actors were socialized and social norms, rules and obligations governed actions. Thus, social context shapes, constrains and directs actions. Coleman (1994) defined social capital as "a variety of different entities that have characteristics of social structure and facilitate certain actions of individuals who are within the structure"(p. 302). Bourdieu (1983) conceived, social capital as the "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition"(p. 249) and argued that access to social capital has strong socio-cultural implications. For Putnam (2000), social capital refers to connections among individuals such as demonstrated by social networks. These theorists see social capital as community resources available to individuals, which, according to Maslow (1943), promote healthy behaviors in satisfying basic needs.

The research methodology employed was cross-sectional research method, chosen because the study aimed to acquire knowledge about HIV risk-taking behavior of the target group, SSA immigrants, based on the overall finding on the views or behaviors of the convenient sample from the targeted group, assuming them to be typical of the whole group. The study elucidated the relationship between the dependent and independent variables. The semi-structured self-administered survey questionnaire was distributed to eligible SSA immigrant participant in Houston, Texas. The tool, classified into (a) Data items on HIV knowledge, attitudes, beliefs, risk perception and risk behaviors and (b) Data items on social capital, enquired the participants about such concepts as HIV risk-taking behaviors, knowledge of HIV/AIDS/STDs transmission, condom use behavior

(CUBS) and self-efficacy, sexual assertiveness, access to educational opportunities, social assistance, employment, proxies of immigration status and other socio-demographic characteristics. The findings showed that:

1. There was a significant association between employment opportunity and HIV risk-taking behavior of SSA immigrants in the USA.
2. There was an association, though not statistically significant, between social assistance and HIV risk-taking behavior of SSA immigrants in the USA.
3. There was a crude association between education opportunity and HIV risk-taking behavior of SSA immigrants in the USA. Strikingly, those without education opportunity were more likely to use condom.

Interpretation of Findings

The data demonstrated that among SSA immigrants, employment predicted HIV risk. This corroborates findings from similar studies done in other populations (Saul et al., 2000; Heath et al., 1999), thus validating the role of employment in HIV risk-taking behavior. In the sample, likelihood of avoiding HIV risks was higher among those who were employed. In the crude and unadjusted model, the data failed to show statistically significant difference with respect to CUBS in comparison with those without employment. However, those who were employed were more likely to use condom before sex during the past 3 months compared to those who were unemployed. This finding, though not statistically significant, has important public health relevance, given

that the use of CUBS among the employed relative to the unemployed imply an economic association of risk-taking behavior.

The wide CI indicated statistical instability in the association between CUBS and employment status (CI = 0.36 – 8.17). Nonetheless, the lack of statistically significance (stability) did not necessarily mean lack of evidence of association between condom use during the past 3 months and employment status. This lack of statistical stability might be explained by other variables not adjusted for in the univariable model on the association between employment status and condom use during the past 3 months. The explanation sustained Altman and Bland's (1995) discussion on study precision where it indicated that lack of evidence does not mean absence of evidence.

There is the likelihood that the observed result was driven not by lack of evidence but by the small sample size as illustrated in the lack of power to detect the difference. Nevertheless, power analysis performed prior to the conduct of this study found a sufficient power. After adjustment for confounders, the study confirmed that among the sample of SSA immigrants in Houston, Texas who were employed, there was 83 times the likelihood of using condom before sex during the past 3 months compared with those who were unemployed. It became apparent that employment decreased the risk of HIV in this sample of SSA immigrants in Houston.

Whereas the data signified a very high magnitude or strength of association, the result was not very precise given the very wide 95% CI (3.38 – 2048.2). This finding with respect to the statistical stability was indicative of the possibility of imprecise measurement of the employment variable as well as the outcome variable (CUBS).

Therefore, more accurate measurement should be used in assessing either prospectively or a snapshot (cross-sectional) design to predict HIV risk-taking behavior in this population.

This dissertation research also demonstrated a crude statistically insignificant association between social assistance and HIV risk-taking behavior (CUBS) of SSA immigrant sample of participants in Houston, Texas. However, it is likely that the observed result was not driven by lack of evidence but by the small study size as illustrated in the lack of power to test the difference.

Since the data revealed a contrast result in the univariable model, it was essential to control for confounding at any attempt to present data on the role of social assistance in predicting HIV risk-taking behavior in this sample of SSA immigrants in Houston, Texas. The association became significant after adjusting for factors that statistically significantly associated with HIV risk-taking behavior in the first place and social assistance in the final place. However, the wide CI indicated statistical instability in the association between CUBS and social assistance opportunity (CI = 0.25 – 3.55). This explanation maintained Altman and Bland's (1995) discussion on study precision and number of subjects where it indicated that lack of evidence does not mean absence of evidence.

The data showed that the SSA immigrant in Houston who self-reported no education opportunity were more likely to use condom before sex during the past 3 months (n = 10, 15.9% versus n = 0, 0.0% for those without and with education opportunity respectively). Using the Mantel-Haenszel test statistics, the association

between CUBS and education opportunity did not generate any result due to insufficient data. The Chi square statistic indicated that there were 10 subjects out of 63 among the participants who had no education opportunity that used condom before sex during the past 3 months. Whereas, among participants with education opportunity (n = 75), none used condom before sex during the past 3 months ($\chi^2 = 12.8$, $p < 0.001$).

Among those who did not receive financial aid (n = 63), 53 self-reported that they did not use condom during the past 3 months (84.1%) while 10 (15.9%) self-reported they used condom before sex during the past three months. Whereas, among those who self-reported they qualified for financial aid (n = 75), none of them used condom before sex during the past three months ($p < 0.001$). Therefore, this result was indicative of increased likelihood of condom use among those who did not qualify for financial aid. This finding may be explained by the fact that condom use was less common among those who were married compared with those who self-reported to be single. Those who self-reported, not qualify for financial aid, were less likely to be married (42.1% Vs 57.9%) ($p = 0.07$).

Whereas the data indicated an association between employment status and HIV risk-taking behavior, it was difficult to assess whether the HIV risk-taking behavior preceded the employment or the employment preceded the HIV risk-taking behavior. Likewise, the establishment of temporal sequence was difficult in the association between social assistance and HIV risk-taking behavior, as well as education opportunity and HIV risk-taking behavior. In spite of these difficulties, one could conclude that association

existed between employment status and HIV risk-taking behavior of SSA immigrants in Houston.

Measurement bias, which has the tendency of driving the point estimate away from or towards the null, might have driven the findings. However, this is unlikely since a pretest of the instrument as well as a pilot were carried out prior to the conduct of this study. Confounding, measured and unmeasured, and residual might have manipulated the results in this study since some of these variables were recoded. The study assessed for confounders in the association between the outcome variable (CUBS) and the three independent social capital predictor variables. However, the multivariable models adjusted for these confounders. Nevertheless, there were unmeasured confounders which were not available for adjustment. Due to the nature of the data (cross-sectional), one could not perform sensitivity analysis to address the effect of these unmeasured confounders.

Regardless of how sophisticated a statistical package used in controlling for confounders, residual confounders are inherent in all epidemiologic studies, including behavioral epidemiologic studies, such as this one (Holmes, Chan, Jiang, and Du, 2007). However, due to the cross-sectional nature of the data, which does not allow for temporal sequence, caution is required in the interpretation of this result.

In this dissertation, the data demonstrated that among SSA immigrants, employment predicted HIV risk. This observation has been shown in other populations (Saul et al., 2000; Heath et al., 1999). The finding in this dissertation supported the

results in these other populations, thus validating the role of employment in HIV risk-taking behavior.

In the sample, those who were employed had increased likelihood of avoiding HIV risks. In the crude and unadjusted model, the data failed to show a statistically significant difference with respect to CUBS comparing those with and without employment. However, those who were employed were more likely to use condom before sex during the past 3 months compared to those who were unemployed. This finding, though not statistically significant, has important public health relevance, given the magnitude of CUBS among the employed relative to the unemployed, POR = 1.72 (72%).

The wide CI indicated statistical instability in the association between CUBS and employment status (CI = 0.36 – 8.17). Nonetheless, the lack of statistically significance (stability) did not necessarily mean lack of evidence of association between condom use during the past 3 months and employment status. This lack of statistical stability might be explained by other variables not adjusted for in the univariable model on the association between employment status and condom use during the past 3 months. The explanation sustained Altman and Bland's (1995) discussion on study precision where it indicated that lack of evidence does not mean absence of evidence.

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Although the data signified strength of associations, the result was not precise, given a very wide 95% CI (3.38 – 2048.2). This finding with respect to the statistical stability was indicative of the possibility of imprecise measurement of the employment variable as well as the outcome variable (CUBS). Therefore, more accurate measurement should be used in assessing either prospectively or a snapshot (cross-sectional) design to predict HIV risk-taking behavior in this population.

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Measurement bias, which has the tendency of driving the point estimate away from or towards the null, might have driven the findings. However, this is unlikely since a pretest of the instrument as well as a pilot were carried out prior to the conduct of this study. Confounding, measured and unmeasured, and residual might have manipulated the results in this study since some of these variables were recoded. The study assessed for confounders in the association between the outcome variable (CUBS) and the three independent social capital predictor variables. However, the multivariable models adjusted for these confounders. Nevertheless, there were unmeasured confounders which were not available for adjustment. Due to the nature of the data (cross-sectional), one could not perform sensitivity analysis to address the effect of these unmeasured confounders.

Regardless of how sophisticated a statistical package used in controlling for confounders, residual confounders are inherent in all epidemiologic studies, including behavioral epidemiologic studies, such as this one (Holmes, Chan, Jiang, and Du, 2007).

However, due to the cross-sectional nature of the data, which does not allow for temporal sequence, caution is required in the interpretation of this result.

Conclusion

According to Mason and Powell (1985), behavioral epidemiology contains two distinguishable concepts: (a) the epidemiologic relationship between behavior and disease and (b) the epidemiologic study of the behavior itself. A behavioral epidemiology framework specifies a systematic sequence of studies on health-related behaviors, leading to evidence-based interventions directed at populations. The phases include (a) establishment of links between behaviors and health, (b) development of measures of the behavior, (c) identification of influences on the behavior, (d) evaluation of interventions to change the behavior, and (e) translation of research into practice (Sallis, Owen, and Fotheringham, 2000).

Sociocultural, sociostructural, psychological, and behavioral factors explain why HIV/AIDS has become so prevalent among at risk populations. However, the disease is yet to be very well understood sociostructurally and psychologically. Anthropological literature on AIDS in the international arena from the 1990s showed researchers' increasing attention to linkages between local sociocultural processes that create risk of infection and the life-worlds of sufferers to the global political economy. The combined strength of (a) social capital theories of Coleman (1992), Bourdieu (1983), and Putnam (2000), (b) conjecture on deficiency needs for security of Maslow (1943), and (c) practice in the field of international research on HIV/AIDS are significant sociostructural and psychosocial contribution to anthropology in the twenty-first century.

Epidemiological studies of risk behaviors include cognitive factors (perceived self-efficacy, risk perception), biological factors (hormonal effects), personality factors (sensation-seeking tendency), and environmental factors/influences. Some models assessed the interaction of these factors. Behavior was goal-directed conceptualized in social learning terms as need potential.

There was a significant association between employment opportunity status and HIV risk-taking behavior of SSA immigrants in Houston. Among those with social assistance opportunity, there was decreased HIV risk-taking behavior. Education opportunity in terms of financial assistance may influence HIV risk-taking behavior.

Implications for Social Change

The results of this dissertation research provided insight into risk-taking behaviors among SSA immigrants in Houston, TX, based on their social capital resources. Implications for social change include the recognition of the value of employment as deterrence to risk-taking behaviors among vulnerable populations. Providers of services to immigrants and other vulnerable populations in the U.S., policy makers, and social advocacy groups that target HIV prevention will find the information from this study useful in developing programs directed at reducing HIV risk-taking behaviors.

Recommendations for Action

Education, employment, and social assistance opportunities, cultural factors, and behavioral epidemiology interpretations among SSA immigrant population in the USA bring insights that provide a broader understanding of HIV risk perception and risk-taking behavior. These insights may help clinicians, public health officials, policy-makers

and AIDS activists to enhance HIV awareness and reducing risk-taking behaviors among SSA immigrants and similar population.

Recommendations for Further Research

This study recommends the incorporation of the two determinants, employment status and social assistance as a multidimensional construct in any intervention model designed to decrease HIV epidemic in this subpopulation in the U.S. The study suggests the consideration of employment status as financial status in any intervention designed to reduce HIV risk-taking behavior in this subpopulation in the U.S. This dissertation study has only scratched the surface on the influence of social capital on the trajectory of SSA immigrants' HIV risk-taking behaviors. Further studies are recommended into the role of social capital on perceived self-efficacy and risk perception of SSA immigrants in the USA.

REFERENCES

Abraham, S., Prasad, J., Joseph, A., & Jacob, K. S. (2000). Confidentiality, partner notification, and HIV infection: Issues related to community health programmes. *The National Medical Journal of India, 13*, 207-11.

ABS, Australian Bureau of Statistics. (2002a). Measuring Wellbeing: Frameworks for Australian Social Statistics, 2001. Retrieved February 25, 2009 from http://www.abs.gov.au/Ausstats/ABS@.nsf/Latestproducts/C0F65AEF0A645C2ECA2571B70015A762?opendocument

ABS, Australian Bureau of Statistics. (2002b). Social capital and social wellbeing. Retrieved July 19, 2010 from http://www.oecd.org/dataoecd/2/30/2380806.pdf

ABS, Australian Bureau of Statistics. (2004). Measuring social capital: An Australian Framework and Indicators. Retrieved February 19, 2009 from http://www.abs.gov.au/

Acheson**,** D. (1998). *Independent inquiry into inequalities in health*. London: Stationery Office.

Adam, B. D., Husbands, W., Murray, J., & Maxwell, J. (2008 Nov). Silence, assent and HIV risk. *Culture, Health and Sex, 10*(8), 759 – 72.

Aday, L. A. **(**1994). Health status of vulnerable populations, *Annual Review of Public Health, 15,* 487-509.

Aday, L. A. (1996). *Designing and conducting health surveys: A comprehensive guide.* (2nd Ed.), San Fransisco, CA: Jossey-Bass Inc.

Aggleton, P., & Parker, R. (2002). World AIDS campaign 2002–2003 – A conceptual framework and basis for action: HIV/AIDS stigma and discrimination. Geneva: UNAIDS

Aggleton, P., & Warwick, I. (1999). *Household and community responses to HIV and AIDS in developing countries: Findings from multisite studies*: Geneva: UNAIDS.

Airhihenbuwa, C. O. (1995). *Health and culture: Beyond the western paradigm.* Newbury Park, CA: Sage Publication.

Akinsete, O. O., Sides, T., Hirigoyen, D., Cartwright, C., Boraas, C., Davey, C., et al. (2007). Demographic, clinical and virologic characteristics of African-born persons with HIV/AIDS in a Minnesota hospital. *AIDS Patient Care and STDs, 21*(5), 356-365

Aldeen, T., & Mantell, J. (2002). Atypical presentation of HIV seroconversion illness in a young woman. *International Journal of STD & AIDS, 13*(2), 131 – 132

Altman, D. (1994). *Power and community: Organizational and cultural responses to AIDS*. London: Taylor and Francis.

Altman, G. D. & Bland, J. M. (1995 19 August). Absence of evidence is not evidence of absence. *British Medical Journal, 311,* 485.

Amowitz, L. L., Reis, C., Lyons, K. H., Vann, B., Mansaray, B., Akinsulure-Smith, A. M. et al., (2002). Prevalence of war-related sexual violence and other human rights abuses among internally displaced persons in Sierra Leone. *Journal of the American Medical Association, 287*(4), 513-21.

Auvert. B., Buve, A., Ferry, B., Carael, M., Morison, L., Lagarde, E., et al. (2001). Study group on the heterogeneity of HIV epidemics in African cities: Ecological and individual level analysis of risk factors for HIV infection in four urban populations in Sub-Saharan Africa with different levels of HIV infection. *Acquired Immune Deficiency Syndrome, 15*(supple 4), S15-S30.

Avert, *HIV AIDS Quiz.* Retrieved June 25, 2009 from http://www.avert.org/hivquiz.htm

Badger, E. (2002). Myths and realities for undocumented students attending U.S. colleges and universities. *Journal of College Admission, 174,* 10-15.

Badger, E., Ericksen, B., & Yale-Loehr, S. (2000). Betwixt and between: Undocumented aliens and access to U.S. higher education. *International Educator, 9*(4), 22 – 28.

Badger, E., Yale-Loehr, S., Vernon, M., & Schoonmaker, L. (2010). Undocumented students and eligibility for enrollment at U.S. colleges and universities. Retrieved July 16, 2010 from http://www.nafsa.org/_/Document/_/admissions_wrapup_newsletter_9.pdf

Bajos, N. (1997). Social factors and the process of risk construction in HIV sexual transmission, *AIDS Care, 9*(2), 227 – 237.

Barber, J. S., Pearce, L. D., Chaudhury, I., & Gurung, S. (2002). "Voluntary associations and fertility limitation." *Social Forces, 80,* 1369 – 1401.

Barnett, T. & Weston, M. (2008). Wealth, health, HIV and the economics of hope. *AIDS, 22*(Suppl 2), S27-34

Beatty, L. A., Wheeler, D., & Gaiter, J. (2004). HIV prevention research for African Americans: Current and future directions. *Journal of Black Psychology, 30*(1), 40 – 58

Beck, U. (1992). *Risk society: Towards a new modernity*. London: Sage.

Beck, U. (1999). *World risk society*. Cambridge: Polity Press.

Begg, I., Berghman, J., Chassard, Y., Kosonen, P., Madsen, P. K., Matsaganis, M., et al. (2001). *Social exclusion and social protection in the European Union: Policy issues and proposals for the future role for the EU.* London: South Bank University

Behrman, J. R., Hans-Peter, K., & Watkins, S. C. (2002). Social networks and changes in contraceptive use over time: Evidence from a longitudinal study in rural Kenya. *Demography, 39,* 713 – 738.

Beiner, R. (1995). "Why citizenship constitutes a theoretical problem in the last decade of the Twentieth Century," In R. Beiner, (Ed.), *Theorizing citizenship*. Albany, NY: State University of New York

Belgrave, F. Z., Brome, D. R., & Hampton, C. (2000). The role of cultural, intrapersonal, peer, and family variables in the prediction of drug knowledge, attitudes, and use among African American youth, *Journal of Black Psychology, 26*(4), 386-401.

Beyene, Y. (2000). Potential HIV risk behaviors among Ethiopians and Eritreans in the Diaspora: A bird's-eye view. *Northeast African Studies, 7*(2 New Series), 119-142

Bhattacharya, G. (2005). Social capital and HIV risks among acculturating Asian Indian men in New York City. *AIDS Education Prevention, 17*(6), 555 – 67.

Blackwell, T., Yaffe, K., Ancoli-Israel, S., Schneider, J. L., Cauley, J. A., Hillier, T. A. et al. (2006). Poor sleep is associated with impaired cognitive function in older women: The study of osteoporotic fractures, *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 61,* 405-410.

Blaxter, M. (1983). The cause of disease: Women talking. *Social Science and Medicine, 17,* 59 – 69

Blendon, R.J. & Donelan, K. (1988). "Discrimination against people with AIDS," *American Journal of Public Health, 319,* 1022 – 1026.

Boerma, J. T., Gregson, S., Nyamukapa, C. & Urassa, M. (2003). Understanding the uneven spread of HIV within Africa: Comparative study of biologic, behavioral, and contextual factors in rural populations in Tanzania and Zimbabwe. *Sexually Transmitted Diseases, 30,* 779-787.

Booth, R. E., Kwiatkowski, C. F., & Chitwood, D. D. (2000). Sex-related HIV risk behaviors: Differential risks among injection drug users, crack smokers, and injection drug users who smoke crack. *Drug and Alcohol Dependence, 58,* 219-226.

Bourdieu, P. (1983). 'Forms of capital' In J. C. Richards (Ed.), *Handbook of theory and research for the sociology of education*. New York: Greenwood Press.

Breton, R., Reitz, J. & Valentine, B. (1980). *Cultural boundaries and the cohesion of Canada*. Montreal: Institute for Research on Public Policy.

Brindis, C., Wolfe, A. L., McCarter, V., Ball, S., & Starbuck-Morales, S. (1995). The associations between immigrant status and risk-behavior patterns in Latino adolescents, *Journal of Adolescent Health, 17*(2), 99-105.

Bronfenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In: S. L. Friedman, & T. D. Wachs (Eds.), *Measuring environment across the life span: Emerging methods and concepts,* Washington, DC, US: American Psychological Association

Brubaker, R. (1989). "Citizenship and Naturalization: Policies and Politics," In R. Brubaker, (Ed.), *Immigration and the politics of citizenship in Europe and North America*. Latham: University Press of America.

Brubaker, R. (1992). *Citizenship and nationhood in France and Germany*. Cambridge, MA: Harvard University Press.

Buchmueller, T. C., Lo Sasso, A. T., Lurie, I., & Dolfin, S. (2007). Immigrants and employer-sponsored health insurance. *Health Services Research, 42*(1 Pt 1), 286-310

Buka, S. (1999). *Results from the project on human development in Chicago neighborhoods.* Presented at: 13th Annual California Conference on Childhood Injury Control, October 25-27, 1999, San Diego, CA.

Burchardt, T., Le Grand, J., & Piachaud, D. (2002). Introduction. In *Understanding Social Exclusion*. (Edited by: Hills J, Le Grand J, Piachaud D. Oxford: Oxford University Press;:1-12.

Burchardt T, Le Grand J, Piachaud D. (2002). Introduction. In J. Hills, J. Le Grand, & D. Piachaud. (Ed.), (pp. 1-12). *Understanding social exclusion.* Oxford: Oxford University Press

Burris, S., Blankenship, K. M., Donoghoe, M., Sherman, S., Vernick, J. S., Case, P. et al. (2004). Addressing the risk environment for injection drug users: The mysterious case of the missing cop. *The Milbank Quarterly, 82*(1), 125 – 156

Burt, R. (1984). Network items and the general social survey. *Social networks 6,* 293 – 333.

Call, K. T., Riedel, A. A., Hein, K., McLoyd, V., Petersen, A., & Kipke, M. (2002). Adolescent health and well-being in the twenty-first century: A global perspective, *Journal of Research on Adolescent, 12,* 69–98.

Carballo, M. & Nerukar, A. (2000). Migration, Refugees, and health risks. Retrieved July 20, 2010 from http://www.cdc.gov/ncidod/eid/vol7no3_supp/carballo.htm

Carey, E. (2000). Race, income splits Toronto. Toronto Star Demographics Reporter. Retrieved May 30, 2009 from http://www.geocities.com/CapitolHill/6174/racepoor.html

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment.* Thousand Oaks, CA: Sage.

Carta, M. G., Bernal, M., Hardoy, M. C., & Haro-Abad, J. M. Report on the mental health in Europe working group. (2005). Migration and mental health in Europe (the state of the mental health in Europe working group: appendix 1). *Clinical Practice and Epidemiology in Mental Health, 1,* 13

Casalino, L., Gillies, R. R., Shortell, S. M., Schmittdiel, J. A., Bodenheimer, T., Robinson, J. C., et al. (2003) External incentives, information technology, and organized processes to improve health care quality for patients with chronic diseases. *Journal of American Medical Association, 289*, 434 – 441.

CDC, Centers for Disease Control and Prevention, (2005). *Fact sheet: HIV/AIDS Surveillance,* Retrieved December 14, 2009 from http://www.cdc.gov/hiv/datarevision.htm

CDC, Centers for Disease Control and Prevention. (2002). *HIV/AIDS Surveillance Report, 13*(2), 1 – 44. Georgia: Author.

CDC, Centers of Disease and Control and Prevention (2002). Sexually transmitted disease treatment guidelines. *Mortality Morbidity Weekly Reports, 5,* RR-6.

Chng, C. L., & Geliga, J. (2000). Ethnic identity, gay identity, sexual sensation seeking and HIV risk taking among multiethnic men who have sex with men, *AIDS Education and Prevention, 12*(4), 326-339.

CIOMS, Council for International Organizations of Medical Sciences. (1993). *International Ethical Guidelines for Biomedical Research Involving Human Subjects*. Retrieved February 1, 2009 from http://en.wikipedia.org/wiki/Council_for_International_Organizations_of_Medical_Sciences

Coggon, D., Barker, D., & Rose, G. (2003). *Epidemiology for the uninitiated (Chapter 8, "Case-control and cross-sectional studies"). (5th Ed.),* London: BMJ (British Medical Journal) Publishing.

Cohen, D. A., Scribner, R. A., & Farley, T. A. (2000). A structural model of health behavior: A pragmatic approach to explain and influence health behaviors at the population level, *Preventive Medicine, 30*(2), 146 – 154.

Cohen, D., & Prusak, L. (2001). *In good company: How social capital makes organizations work*. Boston, MA: Harvard Business School Press.

Coleman, J. C. (1994). *Foundations of social theory.* Cambridge, MA: Harvard University Press.

Coleman, J. S. (1992). The vision of foundations of social theory. *Analyse & Kritic, 14*(2), 117 – 128

Cox, E. (2000). Creating a more civil society: Community level indicators of social capital. *Just Policy: A Journal of Australian Social Policy, 19/20*, 100 – 107

Damonte, A. (2007). *Changing tools to catch the beast.* EUSA 2007 Conference Public Policy Section. Retrieved July 16, 2009 from http://www.unc.edu/euce/eusa2007/papers/damonte-a-10f.pdf

Derald, W. S. (2001). Multidimensional facets of cultural competence. *The Counseling Psychologist, 29*(6), 790 – 821

Deren, S., Shedlin, M., Decena, C. U., & Mino M. (2005). Research challenges to the study of HIV/AIDS among migrant and immigrant Hispanic populations in the United States. *Journal of Urban Health, 82*(Supplement 3), iii13 – iii25

Djamba, Y. K. (1999). *African immigrants in the United States: A sociodemographic profile in comparison to native Blacks.* Austin, TX: Population Research Center, University of Texas at Austin.

Des Jarlais, D. C., Gaist, P. A., & Friedman, S. R. (1995). Ethical issues in research on preventing HIV infection among injecting drug users. *Journal of Science and Engineering Ethics, 1*(2), 133 – 144

DHHS/AHRQ/COE, Department of Health and Human Services/Agency for Healthcare Research and Quality/Center for Outcomes and Evidence. (2009). AHRQ developing prospective practice-based comparative effectiveness research clinical registries: Orthopedic devices, drugs, and procedures (P50). Retrieved July 23, 2010 from http://grants.nih.gov/grants/guide/rfa-files/RFA-HS-10-008.html

Dukes, R., & Martinez, R. (1994). The impact of the gender on self-esteem among adolescents. *Adolescence, 29,* 105-115.

Dunn, J. R., & Dyck, I. (2000). Social determinants of health in Canada`s immigrant population: Results from the National Population Health Survey. *Social Science & Medicine, 51,* 1573 – 1593.

Durand, V. M. (2002). *Severe behavior problems: A functional communication training approach (Treatment manuals for practitioners)* (1st Ed.), New York, NY: The Guilford Press.

Durkheim, E. (1951). *Suicide: A study in sociology.* New York, NY: The Free Press.

Ecob, R. & MacIntyre, S. (2000). Small area variations in health related behaviors; do these depend on the behavior itself, its measurement, or on personal characteristics? *Health and Place*, *6,* 261 – 274.

El-Sadr, W. M., Mayer, K. H., and Hodder, SL. (2010). AIDS in America — Forgotten but not gone. *The New England Journal of Medicine, 362,* 967 – 970

Furby, L., & Beyth-Marom, R. (1992). Risk taking in adolescence: A decision making perspective, *Developmental Review, 12,* 1-44.

Gibbs, T., & Lurie, S. G. (2007). *Health-seeking behavior in ethnic populations*. Lewiston, NY: The Edwin Mellen Press.

Glanz, K., Lewis, F. M., & Rimer, B. K. (1997). *Health Behavior and Health Education: Theory, Research and Practice,* (2nd Ed.), San Francisco: Jossey-Bass.

Gorman, E. M. & Carroll, R. T. (2000). Substance abuse and HIV: Considerations with regard to methamphetamines and other recreational drugs for Nursing Practice and Research. *Journal of the Association of Nurses in AIDS care, 11*(2), 51 – 62

Grady, C. (1977). Human immunodeficiency disease: Ethical considerations for clinicians. In V. T. DeVita, Jr, S. Hellman, & S. A. Rosenberg (4th Ed.), *AIDS: etiology, diagnosis, treatment and prevention,* (pp. 633 – 642). New York, NY: Lippincort-Raven.

Green, L. W., & Kreuter, M. W. (1999). *Health Promotion Planning: An Ecological and Environmental Approach,* (3rd Ed.), Mountain View, CA: Mayfield Publishing Co.

Haidt, J. (2006). *The happiness hypothesis: Putting ancient wisdom and philosophy to the test of modern science.* London: Heinemann.

Hanson, B., Isaccsson, S., Janzon, L., & Lindell, S. (1990). Social support and quitting smoking for good: Is there an association? Results from the population study ``Men Born in 1914,'' Malino, Sweden. *Addiction and Behavior, 15,* 221 – 233.

Haour-Knipe, M., & Rector, R. (1996). *Crossing borders: Migration, ethnicity, and AIDS*. London: Taylor and Francis.

Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychology Bulletin, 112,* 64–105.

Heath, K. V., Cornelisse, P. G., Strathdee, S. A., Palepu, A., Miller, M. L., Schechter, M. T., et al. (1999). HIV-associated risk factors among young Canadian Aboriginal and non-Aboriginal men who have sex with men. *International Journal of STD AIDS, 10*(9), 582 – 587

HFF, Houston Facts and Figures. (2010) Retrieved July 20, 2010 from http://www.houstontx.gov/abouthouston/houstonfacts.html

Holmes, L., Chan, W., Jiang, Z. & Du, X. L. (2007). Effectiveness of androgen deprivation therapy in prolonging survival of older men treated for locoregional prostate cancer. *Prostate Cancer and Prostatic Diseases, 10*, 388 – 395

Honderich, T. (1993). *How Free Are You? - The determinism problem.* Oxford University Press.

Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression,* (2nd Ed.), New York, NY: John Wiley and Sons.

Hovell, M. F., Hillman, E. R., Blumberg, E., Sipan, C., Atkins, C., Hofstetter, C. F. et al. (1994). A behavioral-ecological model of adolescent sexual development: A template for AIDS prevention. *The Journal of Sex Research, 31,* 267 – 281.

Hyman, I. (2001). *Immigration and health.* Ottawa: Health Canada.

Hyman, I., & Guruge, S. (2002). A review of theory and health promotion strategies for new immigrant women. *Canadian Journal of Public Health, 93,* 183 – 7.

ICMR, Indian Council of Medical Research. (2000). Ethical Guidelines for biomedical research on human subjects. *ICMR, New Delh, i,* 1 – 101.

Irwin, C., & Millstein, S. (1991). Correlates and predictors of risk-taking behavior during adolescence. In L. Lipsitt, & L. Mitnick (Eds.), *Self-regulatory behavior and risk taking: Causes and consequences,* Norwood, NJ: Ablex Publishing Corporation.

Jackson, A., & Smith, E. (2002). *Does a rising tide lift all boats? The labour market experiences and incomes of recent immigrants, 1995 to 1998.* Ottawa: Canadian Council on Social Development.

Jarvis, D. S. L. (2007). Ulrich Beck, Globalization and the rise of the risk society: A critical exegetic analysis, *Global Society, 21*(1), 23 – 46.

Johnston, B. L. & Conly, J. M. (2008). The changing face of Canadian immigration: Implications for infectious diseases. *The Canadian Journal of Infectious Diseases & Medical Microbiology, 19*(4), 270 – 272.

Jones, K. & Duncan, C. (1995) Individuals and their ecologies: Analyzing the geography of chronic illness within a multilevel modeling framework. *Health and Place, 1*, 27 – 40.

Kage, J. (1962).*With faith and thanksgiving: The story of two hundred years of Jewish immigration and immigration aid effort in Canada, 1760 – 1960.* Montreal: Eagle Publishing,

Kandula, N., Kersey, M., & Lurie, N. (2004). Assuring the health of immigrants: What the leading health indicators tell us, *Annual Review of Public Health, 25,* 357– 376.

Kasl, S. V., & Berkman, L. (1983). Health consequences of the experience of migration, *Annual Review of Public Health, 4,* 69-90.

Kawachi, I., & Kennedy, B. P. (1997). Health and social cohesion: Why care about income inequality (Socioeconomic determinants of Health)? *British Medical Journal, 314,* 1037 – 1040.

Kawachi, I., Kennedy, B. P., Lochner, K., & Prothrow-Stith, D. (1997). Social capital, income inequality, and mortality. *American Journal of Public Health, 87*(9), 1491 – 1498

Kazemipur, A, & Halli, S. (2003). Poverty experiences of immigrants: Some reflections. *Canadian Issues,* 18 – 20.

Keating, D. P. (2000). Social capital and developmental health: Making the connection. *Journal of Developmental and Behavioral Pediatrics, 21,* 50–52.

Kennedy, G. E., Peersman, G., & Rutherford, G. W. (2002). International collaboration in conducting systematic reviews: The Cochrane Collaborative Review Group on HIV infection and AIDS; [I. Synthesis of HIV prevention research and the HIV/AIDS prevention research project]. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 30*(Suppl 11), S56 – S61

Khanlou, N. (2004). Influences on adolescent self-esteem in multicultural Canadian secondary schools. *Public Health Nursing, 21,* 404-11.

Chan, K. Y., Stoové, M. A., & Reidpath, D. D. (2008). Stigma, social reciprocity and exclusion of HIV/AIDS patients with illicit drug histories: A study of Thai nurses' attitudes. *Harm Reduction Journal, 5,* 28

Kohn, J. (2009). Understanding quantitative and qualitative data. Retrieved May 21, 2009 from http://www.plannedparenthood.org/resources/lesson-plans/understanding-quantitative-qualitative-data-6023.htm

Koka, B. R., & Prescott, J. E., (2002). Strategic Alliances as social capital: A multidimensional view. *Strategic Management Journal*, *23,* 795 – 816

Kolbe, L. J. (1988). The application of health behavior research: Health education and health promotion. In D. S. Cochman (Eds.), *Health behavior: Emerging research perspectives,* (pp. 381 – 396). New York, NY: Plenum

Krieger, N., Williams, D. R., & Moss, N. E. (1997). Measuring social class in US public health research: Concepts, methodologies, and guidelines. *Annual Review of Public Health, 18*(1), 341 – 378

Kunitz, S. J. (2001). Accounts of social capital: the mixed health effects of personal communities and voluntary groups. In: Leon DA, Walt G (eds). *Poverty, inequality and health: An international perspective*. New York: Oxford University Press.

Kunitz, S. J. (2004). Social capital and health. *British Medical Bulletin, 69,* 61 – 73.

Lai, D. S. (1998). *Self-esteem and unsafe sex in Chinese-American and Japanese-American gay men.* Unpublished doctoral dissertation, California School of Professional Psychology at Alameda.

Lamba, N. K. (2003). The employment experiences of Canadian refugees: Measuring the impact of human and social capital on quality of employment, *The Canadian Review of Sociology and Anthropology, 40,* 45-64.

Landau-Stanton, J., & Clements, C. D. (1993). *AIDS, health and mental health: A primary sourcebook.* New York, NY: Brunner/Mazel Inc.

Lang, R., & Hornburg, S. (1998). "What is social capital and why is it important to public policy?" *Housing Policy Debate, 9*(1), 1-16.

Lantz, P. M., Lynch, J. W., House, J. S., Lepkowski, J. M., Mero, R. P., Musick, M. A. et al., (2001). Socioeconomic disparities in health change in a longitudinal study of US adults: The role of health-risk behaviors. *Social Science & Medicine, 53*(1), 29 – 40

Latka, M. (2003). Drug-using women need comprehensive sexual risk reduction interventions. *Clinical Infectious Diseases, 37*(Suppl 5), S445 – 450.

Latkin, C. A. (1998). Outreach in natural settings: The use of peer leaders for HIV prevention among injecting drug users' networks, *Public Health Reports, 13*(Suppl 1), 151-159.

Lê, Q and Lê, T (2004) Intercultural health metaphors. Papers presented at the 2004. AARE conference. Retrieved July 20, 2010 from http://www.aare.edu.au/04pap/abs04.htm

Lendman, S. (2009). *Modern slavery in America.* Retrieved July 12, 2009 from http://www.countercurrents.org/lendman060309.htm

Lerner, R. M. (1994). *America's youth in crisis: Challenges and options for programs and policies.* Thousand Oaks, CA: Sage Publications.

Li, S., Huang, H., Cai, Y., Xu, G., Huang, F., & Shen, X. (2009). Characteristics and determinants of sexual behavior among adolescents of migrant workers in Shangai (China). *BMC Public Health, 9,* 195

Li, H. Z., & Browne, A. J. (2000). Defining mental illness and accessing mental health services: Perspective of Asian Canadians. *Canadian Journal of Community Mental Health, 19,* 143 – 159.

Lin, N. (2001a), *Social capital: A theory of social structure and action.* London, UK: Cambridge University Press.

Lin, N. (2001b). Building a network theory of social capital In N. Lin, K. Cook, & R. S. Burt. *Social capital: Theory and research*, (Ed.), (pp. 3–29). New York, NY: Aldine de Gruyter.

Lin, P., Simoni, J. M., & Zemon, V. (2005). The health belief model, sexual behaviors, and HIV risk among Taiwanese immigrants. *AIDS Education and Prevention, 17*(5), 469 – 83

Lindau, S. T., Laumann, E. O., Levinson, W., & Waite, L. J. (2003). Synthesis of scientific disciplines in pursuit of health. *Perspectives in Biology and Medicine, 46,* S74 – S86.

Locher, J. L., Ritchie, C. S., Roth, D. L., Sawyer Baker, P., Bodner, E. V., & Allman, R. M. (2005). Social isolation, support, capital and nutritional risk in an older sample: Ethnic and gender differences. *Social Science & Medicine, 60,* 747 – 761.

Lochner, K., Kawachi, I. & Kennedy, B. P. (1999). Social capital: A guide to its measurement. *Health and Place*, *5,* 259-270.

López-Vélez, R., Huerga, H., & Turrientes, M. C. (2003). Infectious diseases in immigrants from the perspective of a tropical medicine referral unit. *American Journal of Tropical Medicine and Hygiene, 69,* 115 – 121.

Lyon, B. (1990). Getting back on track: Nursing's autonomous scope of practice. In N. Chaska (Eds.), *The nursing profession: Turning points* (pp 267 – 274). St. Louis, MO: C. V. Mosby.

Maslow, A. (1943). A Theory of Human Motivation, *Psychological Review, 50,* 370 – 96.

Mason, J. O. & Powell, K. E. (1985). Physical activity, behavioral epidemiology, and public health. *Public Health Reports, 100*(2), 113 – 115

Massey, D. S., & Hajnal, Z. (1995). The changing geographic structure of Black-White segregation in the United States. *Social Science Quarterly, 76,* 527 – 42.

Massey, D. S., White, M. J., & Phua, V. (1996). The dimensions of segregation revisited. *Sociological Methods and Research, 25,* 172 – 206.

McGinnis, J., & Foege, W. (1993). "Actual causes of death in the United States." *Journal of the American Medical Association, 270,* 2207 – 2212.

Meadows, L. M., Thurston, W. E., & Melton, C. (2001). Immigrant women's health. *Social Science & Medicine, 52,* 1451-8.

Miller, J. (1986). *What do we mean by relationships?* Wellesley, MA: Stone Center, Wellesley College.

Miller, M. (1995). *Employer sanctions in France: From the campaign against illegal aliens employment to the campaign against illegal work*. Washington, DC: U.S. Commission on Immigration Reform, Research Paper.

Mirken, B. (2002). AIDS Vaccine: The ethical and social issues. *Bulletin of experimental treatment for AIDS. San Francisco AIDS Foundation*. 6 – 8.

Monar, J. (1997). "Comprehensive migration policy: The main elements and options." In K. Hailbronner, D. Martin & H. Motomura (Eds.), *Immigration administrations: The search for workable policies in Germany and the United States*, (pp. 51-78) Providence/Oxford: Berghahn.

Morenoff, J. D. (2003). Neighborhood mechanisms and the spatial dynamics of birth weight. *American Journal of Sociology, 108,* 976 – 1017.

Morris, D. B. (1998). *Illness and culture in the postmodern age*. Berkley, CA: University of California.

Murray, R., Johnston, J., Dolce, J., Lee, W., & O'Hara, P. (1995). Social support for smoking cessation and abstinence: The Lung Health Study. The Lung Health Study Research Group. *Addiction and Behavior, 20,* 159 – 170.

NAC, National Association of Counties. Retrieved June 19, 2009 from http://www.naco.org/Template.cfm?Section=Find_a_County&Template=/cffiles/counties/state.cfm&statecode=tx

Narayan, D (1999), *Bonds and bridges: Social capital and poverty,* World Bank, Washington DC. Retrieved April 11, 2009 from http://www.worldbank.org/poverty/scapital/library/narayan.pdf

NCPHSBBR, National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, Department of Health, Education and Welfare (1979). (2000). *Belmont Report: Ethical Principles and Guidelines for Research Involving Human Subjects*. Washington, D.C.: U.S. Government Printing Office.

Newbold, K. B., & Danforth, J. (2003). Health status and Canada's immigrant population. *Social Science & Medicine, 57,* 1981 – 1995.

OECD, Organization for Economic Co-operation and Development (2001). *The wellbeing of nations: The role of human and social capital, education and skills.* OECD Centre for Educational Research and Innovation, Paris, France.

Offer, A. (2006). *The challenge of affluence: Self-control and well-being in the United States and Britain since 1950.* Oxford: Oxford University Press.

Okazawa-Rey, M. (2002). Warring on women: Understanding complex inequalities of gender, race, class, and nation. *AFFILIA, 17,* 371 – 383.

Oxman-Martinez, J., Hanley, J., Lach, L., Khanlou, N., Weerasinghe, S., & Agnew, V. (2004). Intersection of federal policy parameters affecting women with precarious immigration status: A baseline for understanding barriers to health. *Journal of Immigrant and Minority Health, 7*(4), 247-258.

Pantin, H., Prado, G., Schwartz, S., & Sullivan, S. (2005). Methodological challenges in designing efficacious drug abuse and HIV preventive interventions for Hispanic adolescent subgroups, *Journal of Urban Health, 82*(2), iii92 – iii102.

Parker, R. & Aggleton, P. (2002). HIV/AIDS-related stigma and discrimination: A conceptual framework and an agenda for action. Retrieved July 20, 2010 from http://www.popcouncil.org/pdfs/horizons/sdcncptlfrmwrk.pdf

Pickett, K. E. & Pearl, M. (2001). Multilevel analyses of neighborhood socioeconomic context and health outcomes: A critical review. *Journal of Epidemiology and Community Health*, *55,* 111 – 122.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology, 24,* 1 – 24.

Powell, R. R. (2006). Evaluation research: An overview. The Free Library. Retrieved May 21, 2009 from http://www.thefreelibrary.com/Evaluation+research%3a+an+overview-a0151440807

Pulerwitz, J., Amaro, H., de Jong, W., Gortmaker, S. L., & Rudd, R. (2002). Relationship power, condom use, and HIV risk among women in the USA. *AIDS Care, 14(6),* 789-900.

Putnam, R. D. (1995) 'Bowling Alone: America's Declining Social Capital', Journal of Democracy 6:1, Jan, 65-78. Retrieved March 25, 2009 from http://muse.jhu.edu/demo/journal_of_democracy/v006/putnam.html

Putnam, R. D. (1996). The strange disappearance of civic America. *The American Prospect, 7,* 1-18.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York, NY: Simon and Schuster.

Ramirez-Valles, J. (2002). The protective effects of community involvement for HIV risk behavior: a conceptual framework. *Health Education Research, 17*(4), 389 – 403

Ratcliff, K. S. (2002). *Women and health: Power, technology, inequality, and conflict in a gendered world.* Boston, MA: Allyn and Beacon.

Reed, M. M., Westfall, J. M., Bublitz, C. Battaglia, C., & Fickenscher, A. (2005). Birth outcomes in Colorado's undocumented immigrant population. *BMC Public Health, 5,* 100

Reidpath, D. D. & Chan, K. Y. (2005). A method for the quantitative analysis of the layering of HIV-related stigma. *AIDS Care, 17*(4), 425 – 432.

Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., Jones, J. et al. (1997). Protecting adolescents from harm: Findings from the national longitudinal study on adolescent health, *The Journal of the American Medical Association, 278*(10), 823 – 832.

Rhodes, R. A. W. (1985). Power-dependence, policy communities, and intergovernmental networks. *Public Administration Bulletin, 49*, 4 – 31.

Rice, N. & Leyland, A. (1996) Multilevel models: Applications to health data. *Journal of Health Services Research and Policy*, *1,* 154 – 163.

Rindova, V. P. & Fombrun, C. J. (1999). Constructing competitive advantage: The role of firm constituent interactions. *Strategic Management Journal 20*(8), 691 – 710.

Risman, B. (2004). Gender as social structure: Theory wrestling with social transformation. *Gender & Society, 18,* 429 – 450.

Rosenthal, L., Scott, D., Kelleta, Z., Zikarge, A., Momoh, M., Lahai-Momoh, J., et al. (2003). Assessing the HIV/AIDS health services needs of African immigrants to Houston. *AIDS Education and Prevention, 15,* 570-580

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*(1), 1 – 28

Roux, A. V. D. (2006). Integrating social and biologic factors in health research: A systems view. *Annals of Epidemiology*, *17*(7), 569 – 574

Rubia, M., Marcos, I., & Muennig, P. A. (2002). Increased risk of heart disease and stroke among foreign-born females residing in the United States, *American Journal of Preventive Medicine, 22*(1), 30 – 35.

Sabatier, R. (1996). Migrants and AIDS: Themes of vulnerability and resistance. In M. Haour-Knipe & R. Rector (Eds.), *Crossing borders: Migration, ethnicity, and AIDS* (pp. 86-101). London: Taylor and Francis.

Sallis, J. F., Owen, N., & Fotheringham, M. J. (2000). Behavioral epidemiology: A systematic framework to classify phases of research on health promotion and disease prevention. *Annals of Behavioral Medicine, 22*(4), 294 – 298

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy, *The American Association for the Advancement of Science, 277*(5328:15), 918 – 924.

Sanchez, M. A., Lemp, G. F., Magis-Rodrı´guez, C., Bravo-García, E., Carter, S., & Ruiz, J. D. (2004). The epidemiology of HIV among Mexican migrants and recent immigrants in California and Mexico, *Journal of Acquired Immune Deficiency Syndromes, 37*, S204–S214.

Saul, J., Norris, F. H., Bartholow, K. K., Dixon, D., Peters, M., & Moore, J. (2000). Heterosexual risk for HIV among Puerto Rican women: Does power influence self-protective behavior? *Journal of AIDS and Behavior, 4*(4), 361 – 371

Schmidley, D. A. (2001). *Profile of the foreign-born population in the United States: 2000.* Washington (DC): Government Printing Office US Bureau of the Census, Current Population Report Series P23-206.

Schoepf, B. G. (2001). International AIDS research in anthropology: Taking a critical perspective on the crisis. *Annual Review of Anthropology, 30,* 335 – 361

Scotto, G., Saracino, A., Pempinello, R., El Hamad, I., Geraci, S., Panunzio, M., et al.; Italian Study Group for Infectious Diseases in Immigrants. (2005). Simit epidemiological multicentric study on hospitalized immigrants in Italy during 2002. *Journal of Immigration and Health, 7*(1), 55 – 60.

Seeman, T., Berkman, L., Kohout, F., LaCroix, A., Glynn, R., & Blazer, D. (1993). Intercommunity variation in the association between social ties and mortality in the elderly: A comparative analysis of three communities. *Annals of Epidemiology, 3,* 325 – 335.

Shields, J. (2003). *No safe haven: Markets, welfare, and migrants.* Toronto: Joint Centre of Excellence for Research on Immigration and Settlement (CERIS).

Shookner, M. & Chin-Yee, F. (2003). *An inclusion lens: Looking at social and economic exclusion and inclusion.* Paper presented at the Canadian Social Welfare Policy

Shragge, E., Jordan, S., Hanley, J., Posner, L., Luciano, M., & Baltodano, C. (2004). *Immigrant workers learning to labour in Canada: Rights and organizing strategies*. Research report submitted to the Social Science and Humanities Research Council of Canada.

Singh, G. K., & Siahpush, M. (2002). Ethnic-immigrant differentials in health behaviors, morbidity, and cause-specific mortality in the United States: An analysis of two national data bases, *Human Biology, 74,* 83 – 109

Singh, Z. & Banerjee, A. (2004). HIV/AIDS: Social and ethical issues. *Medical Journal Armed Forces India, 60,* 107 – 108

Sorensen, W., Lopez, L., & Anderson, P. (2001). Latino AIDS immigrants in the Western Gulf states: A different population and the need for innovative prevention strategies. *Journal of Health and Social Policy, 13*(1), 1 – 19.

Soskolne, V. & Shtarkshall, R. A. (2002). Migration and HIV prevention programs: Linking structural factors, culture, and individual behavior--an Israeli experience. *Social Science & Medicine, 55*(8), 1297 – 1307

Sowadsky, R. (2009). *Nevada State Health Division AIDS Program and Nevada AIDS Hotline Coordinator.* Retrieved May 30, 2009 from http://www.fuw.edu.pl/~jt/faq1.html

Spellerberg, A. & The Social Capital Program Team. (2001). *Framework for the measurement of social capital in New Zealand.* Wellington, NZ: Statistics New Zealand Te Tari Tatau. Retrieved February 10, 2009 from www.stats.govt.nz

Srinivasan, S., O'Fallon, L. R., & Dearry, A. (2003). Creating healthy communities, healthy homes, healthy people: Initiating a research agenda on the built environment and public health. *American Journal of Public Health, 93*, 1446 – 1450.

Stephens, C. (2008). Social capital in its place: Using social theory to understand social capital and inequalities in health. *Social Science & Medicine, 66*(5), 1174 – 1184

Subramanian, S. V., Blakely, A., & Kawachi, I. (2003). Income inequality as a public health concern: Where do we stand? *Health Services Research, 38,* 153 – 67.

Subramanian, S. V., Kim, D. J., & Kawachi, I. (2002). Social trust and self-rated health in US communities: A multi-level analysis. *Journal of Urban Health, 79,* S21 – S34.

Subramanian, S. V., Lochner, K. A., & Kawachi, I. (2003). Neighborhood differences in social capital: A compositional analysis. *Health and Place, 9,* 33 – 44.

Super, C. M., & Harkness, S. (2002). Culture structures the environment for development. *Human Development, 45*(4), 270–274.

Takeuchi, D. & Young, K. N. J. (1994). Overview of Asian and Pacific Islander Americans. In N. Zane, D. T. Takeuchi, & K. N. J. Young (Eds.), *Confronting critical health issues of Asian and Pacific Islander Americans.* Thousand Oaks, CA: Sage Publications.

Takyi, B. K. (2002). The making of the second Diaspora: On the recent African immigrant community in the United States of America. *The Western Journal of Black Studies, 26*(1), 245 – 267

The World Bank, (1999). *What is social capital? PovertyNet* Retrieved May 25, 2009 from http://www.worldbank.org/poverty/scapital/whatsc.htm

Thomason, B. T., Bachanas, P. J., & Campos, P. E. (1996). Cognitive behavioral interventions with persons affected by HIV/AIDS. *Cognitive and Behavioral Practice, 3*(2), 417 – 442

Torczyner, J. L. (1997). *Diversity, mobility and change: The dynamics of Black communities in Canada.* Montreal: McGill Consortium for Ethnicity and Strategic Social Planning.

Trieber, F., Batanowski, T., Broden, D., Strong, W., Levy, M., & Knox, W. (1991). Social support for exercise: Relationship to physical activity in young adults. *Preventive Medicine, 20,* 737 – 750.

Trochim, W. M. K. & Donnelly, J. P. (2006). *The research methods knowledge base.* (3rd Ed.), New York, NY: Atomic Dog.

Udry, J. R. (1994). Integrating biological and sociological models of adolescent problem behaviors. In R. D. Ketterlinus, & M. E. Lamb (Eds.), *Adolescent problem behaviors: Issues and research.* Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

UNAIDS & IOM, The Joint United Nations Program on HIV/AIDS and the International Organization for Migration. (1998). Migration and AIDS. *International Migration, 36*(4), 445 – 466.

UNAIDS, Joint United Nations Program on HIV/AIDS. (2001). Population mobility and AIDS. Retrieved July 19, 2010 from http://data.unaids.org/publications/irc-pub02/jc513-popmob-tu_en.pdf

USCIR, U. S. Commission on Immigration Reform (1997) *Report to Congress. Becoming an American: Immigration and immigrant Policy.* Washington, DC: Government Printing Office.

USINS, US Immigration and Naturalization Service (2001). Retrieved June 25, 2009 from http://www.bcis.gov/graphics/shared/aboutus/statistics/illegalalien/illegal.pdf

Vissandjee, B., DesMeules, M., Cao, Z., Abdool, S., & Kazanjian, A. (2004). Integrating ethnicity and migration as determinants of Canadian women's health. *BMC Women's Health, 4,* S32.

Wandersman, A. & Nation, M. (1998). Urban neighborhoods and mental health: Psychological contributions to understanding toxicity, resilience, and interventions, *American Psychologist, 43,* 647 – 656.

Warmbrod, J. R. (2001). *Conducting, interpreting, and reporting quantitative research*. Research Pre-Session, New Orleans, Louisiana.

Werner, E. (1989). High-risk children in young adulthood: A longitudinal study from birth to 32 years, *American Journal of Orthopsychiatry, 59*, 72 – 81.

Wetherill, R. R. & Fromme, K. (2007). Alcohol use, sexual activity, and perceived risk in high school athletes and non-athletes, *Journal of Adolescent Health, 41*(3), 294 – 301.

WHO, World Health Organization (1948). *Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946;* signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. Retrieved June 24, 2008 from http://www.who.int/about/definition/en/

Wilkenson, R. (1999). Income inequality, social cohesion, and health: Clarifying the theory – a reply to Muntaner and Lynch, *International Journal of Health Services, 29,* 525 – 545.

Wilson, P. A. & Yoshikawa, H. (2004). Experiences of and responses to social discrimination among Asian and Pacific Islander gay men: Their relationship to HIV risk. *AIDS Education and Prevention, 16*(1), 68 – 83.

WMDH, World Medical Declaration of Helsinki. (1964). *Ethical principles for medical research involving human subjects*. Retrieved December 28, 2008 from http://www.hpci.ch/files/documents/guidelines/hh_gl_helsinki.pdf

Wong, F. Y., Campsmith, M. L., Nakamura, G. V., Crepaz, N., & Begley, E. (2004). HIV testing and awareness of care-related services among a group of HIV-positive Asian Americans and Pacific Islanders in the United States: Findings from a supplemental HIV/AIDS surveillance project, *AIDS Education and Prevention, 16*(5), 440 – 447.

Woolcock, M. (2001). The place of social capital in understanding social and economic outcomes. *ISUMA Canadian Journal of Policy Research, 2*(1), 11 – 17.

Xiang, H., Yu, S., Zhang, X., Scurlock, C., Smith, G., & Stallones. L. (2007). Behavioral risk factors and unintentional injuries among U.S. immigrant adults, *Annals of Epidemiology, 17*(11), 889 – 898

Xu, X. T., Borders, T. P., & Arif, A. A. (2004). Ethnic differences in parents' perception of participatory decision making style of their children's physicians, *Medical Care*, *42*, 328–335.

Yach, D., Hawkes, C., Gould, C. L., & Hofman, K. J. (2004). The global burden of chronic disease, overcoming impediments to prevention and control. *Journal of American Medical Association, 291,* 2616 – 2622.

Yin, R. K. (1984). *Case study research: Design and methods.* Applied social research methods series. (Vol. 5). Newbury Park, California: Sage.

Yoshikawa, H., Chin, J., Kim, H., Hsueh, J., & Rossman, E. (1999). *Immigration, ethnicity and acculturation in culturally anchored HIV prevention for Asian/Pacific Islander populations: A qualitative study.* National HIV Prevention Conference (Abstract 587).

Zuckerman, M. (1994). *Behavioral expressions and biosocial bases of sensation seeking.* New York, NY: Cambridge University Press.

Zwi, A., & Cabral, A. J. (1991). Identifying "high risk situations" for preventing AIDS. *British Medical Journal, 303,* 1527-1529

APPENDIX A: SAMPLE SIZE ESTIMATION

Using STATA version 9.0

```
Assumptions

          a.  Proportion of condom users among SSA immigrants was 0.0

          b.  Proportion of non-condom users among SSA immigrants was 0.1

          c.  Power to detect difference is 0.80
. sampsi 0.0 0.1, alpha(0.05) power(.80)

Estimated sample size for two-sample comparison of proportions

Test Ho: p1 = p2, where p1 is the proportion in population 1
                  and p2 is the proportion in population 2
Assumptions:

         alpha =   0.0500  (two-sided)
         power =   0.8000
            p1 =   0.0000
            p2 =   0.1000
         n2/n1 =   1.00

Estimated required sample sizes:

            n1 =       93
            n2 =       93
```

Adjusting for a response rate of 80%, Sample Size becomes 186 + 186 x .2 = 224

APPENDIX B: IMPLIED CONSENT FORM

You are invited to take part in a research study of behavioral risk factors for HIV infection among sub-Saharan African immigrants in Houston. You were chosen for the study because you are a sub-Saharan African immigrant. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Gbadebo Ogungbade, who is a doctoral student at Walden University. Gbadebo is a sub-Saharan African immigrant from Nigeria living in Houston, TX.

Background Information:
The purpose of this study is to investigate HIV risk-taking behaviors among Sub-Saharan African (SSA) immigrants in Houston, TX.

Procedures:
If you agree to be in this study, you will be asked to:

- Give your implied consent to participate in this study simply by completing a self-reported paper questionnaire

Voluntary Nature of the Study:
Your participation in this study is voluntary. This means that everyone will respect your decision of whether or not you want to be in the study. No one at any organization involved in administering the questionnaire will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during the study. If you feel stressed during the study you may stop at any time. You may skip any questions that you feel are too personal.

Risks and Benefits of Being in the Study:
There are no risks to any participant in the study. There are no particular benefits to individuals for participating in the study but the information generated by the study could provide insight into health issues in the SSA immigrant community.

Compensation:
There will be no financial compensation to any participant in the study. A thank you card will be given to participants after completing the questionnaire.

Confidentiality:
Any information you provide will be kept anonymous and in a password protected personal computer. The researcher will not use your information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in any reports of the study.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via (713) 459-8428 or ogungbade@hotmail.com. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is

the Walden University representative who can discuss this with you. Her phone number is 1-800-925-3368, extension 1210. Walden University's approval number for this study is **12-21-09-0324803** and it expires on **December 20, 2010.** The researcher will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. I am agreeing to the terms described above.

Date of consent

To protect your privacy signatures are not being collected for this study, your completion of the survey will indicate your consent to participate

Researcher's Written Signature

APPENDIX C: TEST OF ASSOCIATION

```
. tab bi_CUBS employ, cchi2 chi2 row col exact expect
+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
| chi2 contribution  |
|   row percentage   |
| column percentage  |
+--------------------+

           |        employ
   bi_CUBS |         1          2 |     Total
-----------+----------------------+----------
         0 |        31        108 |       139
           |      30.0      109.0 |     139.0
           |       0.0        0.0 |       0.0
           |     22.30      77.70 |    100.00
           |     93.94      90.00 |     90.85
-----------+----------------------+----------
         1 |         2         12 |        14
           |       3.0       11.0 |      14.0
           |       0.3        0.1 |       0.4
           |     14.29      85.71 |    100.00
           |      6.06      10.00 |      9.15
-----------+----------------------+----------
     Total |        33        120 |       153
           |      33.0      120.0 |     153.0
           |       0.4        0.1 |       0.5
           |     21.57      78.43 |    100.00
           |    100.00     100.00 |    100.00

          Pearson chi2(1) =   0.4832   Pr = 0.487
           Fisher's exact =                 0.735
   1-sided Fisher's exact =                 0.381
```

```
. tab bi_CUBS Soc_Ass_Entitled, cchi2 chi2 row col exact expect
+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
| chi2 contribution  |
|   row percentage   |
| column percentage  |
+--------------------+

           |  1=Yes, 2=No, 3=N/A,
           |      99=Missing
   bi_CUBS |         1          2 |     Total
-----------+----------------------+----------
         0 |        52         82 |       134
           |      52.1       81.9 |     134.0
           |       0.0        0.0 |       0.0
           |     38.81      61.19 |    100.00
           |     92.86      93.18 |     93.06
-----------+----------------------+----------
         1 |         4          6 |        10
           |       3.9        6.1 |      10.0
           |       0.0        0.0 |       0.0
           |     40.00      60.00 |    100.00
```

```
           |      7.14       6.82 |      6.94
-----------+----------------------+----------
     Total |        56         88 |       144
           |      56.0       88.0 |     144.0
           |       0.0        0.0 |       0.0
           |     38.89      61.11 |    100.00
           |    100.00     100.00 |    100.00
          Pearson chi2(1) =   0.0056   Pr = 0.940
           Fisher's exact =                 1.000
   1-sided Fisher's exact =                 0.594

. tab bi_CUBS Qualify_for_Financial_Aid, cchi2 chi2 row col exact expect
+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
| chi2 contribution  |
|   row percentage   |
| column percentage  |
+--------------------+
Enumerating sample-space combinations:
stage 4:  enumerations = 1
stage 3:  enumerations = 2
stage 2:  enumerations = 5
stage 1:  enumerations = 0
           |       1=Yes, 2=No, 3=N/A, 99=Missing
   bi_CUBS |         1          2          3          5 |     Total
-----------+---------------------------------------------+----------
         0 |        53         72          2          1 |       128
           |      58.4       66.8        1.9        0.9 |     128.0
           |       0.5        0.4        0.0        0.0 |       0.9
           |     41.41      56.25       1.56       0.78 |    100.00
           |     84.13     100.00     100.00     100.00 |     92.75
-----------+---------------------------------------------+----------
         1 |        10          0          0          0 |        10
           |       4.6        5.2        0.1        0.1 |      10.0
           |       6.5        5.2        0.1        0.1 |      11.9
           |    100.00       0.00       0.00       0.00 |    100.00
           |     15.87       0.00       0.00       0.00 |      7.25
-----------+---------------------------------------------+----------
     Total |        63         72          2          1 |       138
           |      63.0       72.0        2.0        1.0 |     138.0
           |       7.0        5.6        0.2        0.1 |      12.8
           |     45.65      52.17       1.45       0.72 |    100.00
           |    100.00     100.00     100.00     100.00 |    100.00
          Pearson chi2(3) =  12.8348   Pr = 0.005
           Fisher's exact =                 0.001

. tab bi_CUBS Qualify_for_Financial_Aid1, cchi2 chi2 row col exact expect
+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
| chi2 contribution  |
|   row percentage   |
| column percentage  |
+--------------------+
           | Qualify_for_Financial
           |         _Aid1
   bi_CUBS |         0          1 |     Total
-----------+----------------------+----------
```

```
           0 |        53         75 |       128
             |      58.4       69.6 |     128.0
             |       0.5        0.4 |       0.9
             |     41.41      58.59 |    100.00
             |     84.13     100.00 |     92.75
-----------+----------------------+----------
           1 |        10          0 |        10
             |       4.6        5.4 |      10.0
             |       6.5        5.4 |      11.9
             |    100.00       0.00 |    100.00
             |     15.87       0.00 |      7.25
-----------+----------------------+----------
       Total |        63         75 |       138
             |      63.0       75.0 |     138.0
             |       7.0        5.9 |      12.8
             |     45.65      54.35 |    100.00
             |    100.00     100.00 |    100.00
          Pearson chi2(1) =  12.8348   Pr = 0.000
           Fisher's exact =                 0.000
   1-sided Fisher's exact =                 0.000
```

APPENDIX D: UNIVARIATE LOGISTIC REGRESSION

```
xi:logistic bi_CUBS Qualify_for_Financial_Aid

note: Qualify_for_Financial_Aid != 1 predicts failure perfectly
      Qualify_for_Financial_Aid dropped and 75 obs not used


Logistic regression                               Number of obs   =         63
                                                  LR chi2(0)      =       0.00
                                                  Prob > chi2     =          .
Log likelihood = -27.566165                       Pseudo R2       =     0.0000

------------------------------------------------------------------------------
     bi_CUBS | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
------------------------------------------------------------------------------


. xi:logistic bi_CUBS Soc_Ass_Entitled

Logistic regression                               Number of obs   =        144
                                                  LR chi2(1)      =       0.01
                                                  Prob > chi2     =     0.9405
Log likelihood = -36.313948                       Pseudo R2       =     0.0001

------------------------------------------------------------------------------
     bi_CUBS | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Soc_Ass_En~d |   .9512195   .6367436    -0.07   0.940     .2561468    3.532422
------------------------------------------------------------------------------

xi:logistic bi_CUBS employ

Logistic regression                               Number of obs   =        153
                                                  LR chi2(1)      =       0.53
                                                  Prob > chi2     =     0.4679
Log likelihood = -46.554809                       Pseudo R2       =     0.0056

------------------------------------------------------------------------------
     bi_CUBS | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      employ |   1.722222   1.361372     0.69   0.492     .3657938    8.108529
------------------------------------------------------------------------------
```

APPENDIX E: VARIABLE EXTRACTION FOR MULTIVARIATE LOGISTIC REGRESSION ANALYSIS (MODEL-BUILDING)

Employed =2 unemployed =1

```
. tab employ Level_HIV_AIDS_Know, all
           | 1 = A lot, 2 = Some, 3 = Nothing
           |               at all
    employ |         1          2          3 |     Total
-----------+---------------------------------+----------
         1 |        21         12         10 |        43
         2 |        92         28          2 |       122
-----------+---------------------------------+----------
     Total |       113         40         12 |       165
          Pearson chi2(2) =  24.0278   Pr = 0.000
 likelihood-ratio chi2(2) =  21.1244   Pr = 0.000
               Cramér's V =   0.3816
                    gamma =  -0.5578  ASE = 0.121
          Kendall's tau-b =  -0.2857  ASE = 0.080
. tab bi_CUBS Level_HIV_AIDS_Know, all
           | 1 = A lot, 2 = Some,
           |  3 = Nothing at all
   bi_CUBS |         1          2 |     Total
-----------+----------------------+----------
         0 |       105         38 |       143
         1 |        12          2 |        14
-----------+----------------------+----------
     Total |       117         40 |       157
          Pearson chi2(1) =   1.0141   Pr = 0.314
 likelihood-ratio chi2(1) =   1.1335   Pr = 0.287
               Cramér's V =  -0.0804
                    gamma =  -0.3694  ASE = 0.340
          Kendall's tau-b =  -0.0804  ASE = 0.066
. tab employ Marr_Divorcee_HIV_Risk, all
           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
    employ |         1          2          4 |     Total
-----------+---------------------------------+----------
         1 |        11         22          0 |        33
         2 |        50         61          7 |       118
-----------+---------------------------------+----------
     Total |        61         83          7 |       151
          Pearson chi2(2) =   3.5309   Pr = 0.171
 likelihood-ratio chi2(2) =   5.0018   Pr = 0.082
               Cramér's V =   0.1529
                    gamma =  -0.0989  ASE = 0.180
          Kendall's tau-b =  -0.0407  ASE = 0.074
. tab bi_CUBS Marr_Divorcee_HIV_Risk, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
   bi_CUBS |         1          2          4 |     Total
-----------+---------------------------------+----------
         0 |        57         77          7 |       141
         1 |         6          8          0 |        14
-----------+---------------------------------+----------
     Total |        63         85          7 |       155
          Pearson chi2(2) =   0.7285   Pr = 0.695
 likelihood-ratio chi2(2) =   1.3583   Pr = 0.507
               Cramér's V =   0.0686
                    gamma =  -0.1024  ASE = 0.256
```

```
          Kendall's tau-b =  -0.0293  ASE = 0.074

. tab employ Marr_Divorcee_HIV_Risk, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
    employ |         1          2          4 |     Total
-----------+---------------------------------+----------
         1 |        11         22          0 |        33
         2 |        50         61          7 |       118
-----------+---------------------------------+----------
     Total |        61         83          7 |       151
          Pearson chi2(2) =   3.5309   Pr = 0.171
 likelihood-ratio chi2(2) =   5.0018   Pr = 0.082
               Cramér's V =   0.1529
                    gamma =  -0.0989  ASE = 0.180
          Kendall's tau-b =  -0.0407  ASE = 0.074

. tab bi_CUBS Marr_Divorcee_HIV_Risk, all
           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
   bi_CUBS |         1          2          4 |     Total
-----------+---------------------------------+----------
         0 |        57         77          7 |       141
         1 |         6          8          0 |        14
-----------+---------------------------------+----------
     Total |        63         85          7 |       155

          Pearson chi2(2) =   0.7285   Pr = 0.695
 likelihood-ratio chi2(2) =   1.3583   Pr = 0.507
               Cramér's V =   0.0686
                    gamma =  -0.1024  ASE = 0.256
          Kendall's tau-b =  -0.0293  ASE = 0.074

. tab employ Widow_Inher_STD_Risk, all

           |  1 = Yes, 2 = No, 3 = Don't Know, 4 = Not
           |                  Applicable
    employ |         1          2          3          4 |     Total
-----------+---------------------------------------------+----------
         1 |        17         16          0          0 |        33
         2 |        55         54          2          7 |       118
-----------+---------------------------------------------+----------
     Total |        72         70          2          7 |       151

          Pearson chi2(3) =   2.6883   Pr = 0.442
 likelihood-ratio chi2(3) =   4.6072   Pr = 0.203
               Cramér's V =   0.1334
                    gamma =   0.1599  ASE = 0.175
          Kendall's tau-b =   0.0675  ASE = 0.074

. tab bi_CUBS Widow_Inher_STD_Risk, all

           |  1 = Yes, 2 = No, 3 = Don't Know, 4 = Not
           |                  Applicable
   bi_CUBS |         1          2          3          4 |     Total
-----------+---------------------------------------------+----------
         0 |        70         62          2          7 |       141
         1 |         4         10          0          0 |        14
-----------+---------------------------------------------+----------
     Total |        74         72          2          7 |       155

          Pearson chi2(3) =   4.1452   Pr = 0.246
```

```
 likelihood-ratio chi2(3) =   4.8724   Pr = 0.181
              Cramér's V =   0.1635
                   gamma =   0.3035  ASE = 0.220
         Kendall's tau-b =   0.0899  ASE = 0.068

. tab employ Patro_Prost_STD_Risk, all

           | 1 = Yes, 2 = No, 3 =
           |  Don't Know, 4 = Not
           |      Applicable
    employ |         1          2 |     Total
-----------+----------------------+----------
         1 |        33          0 |        33
         2 |       114          4 |       118
-----------+----------------------+----------
     Total |       147          4 |       151

          Pearson chi2(1) =   1.1491   Pr = 0.284
 likelihood-ratio chi2(1) =   2.0030   Pr = 0.157
              Cramér's V =   0.0872
                   gamma =   1.0000  ASE = 0.000
         Kendall's tau-b =   0.0872  ASE = 0.023

. tab bi_CUBS Patro_Prost_STD_Risk, all

           | 1 = Yes, 2 = No, 3 =
           |  Don't Know, 4 = Not
           |      Applicable
   bi_CUBS |         1          2 |     Total
-----------+----------------------+----------
         0 |       141          0 |       141
         1 |        10          4 |        14
-----------+----------------------+----------
     Total |       151          4 |       155

          Pearson chi2(1) =  41.3529   Pr = 0.000
 likelihood-ratio chi2(1) =  20.4014   Pr = 0.000
              Cramér's V =   0.5165
                   gamma =   1.0000  ASE = 0.000
         Kendall's tau-b =   0.5165  ASE = 0.112

. tab employ HIV_can_be_Prevented, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
    employ |         1          2          3 |     Total
-----------+---------------------------------+----------
         1 |        31          0          2 |        33
         2 |       118          2          0 |       120
-----------+---------------------------------+----------
     Total |       149          2          2 |       153

          Pearson chi2(2) =   7.8740   Pr = 0.020
 likelihood-ratio chi2(2) =   7.1593   Pr = 0.028
              Cramér's V =   0.2269
                   gamma =  -0.5894  ASE = 0.330
         Kendall's tau-b =  -0.1155  ASE = 0.101

. tab bi_CUBS HIV_can_be_Prevented, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
   bi_CUBS |         1          2          3 |     Total
```

```
-----------+---------------------------------+----------
         0 |       139          2          2 |       143
         1 |        12          2          0 |        14
-----------+---------------------------------+----------
     Total |       151          4          2 |       157

          Pearson chi2(2) =   8.6830   Pr = 0.013
 likelihood-ratio chi2(2) =   5.0518   Pr = 0.080
               Cramér's V =   0.2352
                    gamma =   0.6848  ASE = 0.231
          Kendall's tau-b =   0.1671  ASE = 0.129
. tab employ HIV_can_be_cured, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
    employ |         1          2          3 |     Total
-----------+---------------------------------+----------
         1 |         8         25          0 |        33
         2 |        37         75          6 |       118
-----------+---------------------------------+----------
     Total |        45        100          6 |       151

          Pearson chi2(2) =   2.6953   Pr = 0.260
 likelihood-ratio chi2(2) =   3.9798   Pr = 0.137
               Cramér's V =   0.1336
                    gamma =  -0.0737  ASE = 0.195
          Kendall's tau-b =  -0.0278  ASE = 0.073
 tab bi_CUBS HIV_can_be_cured, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
   bi_CUBS |         1          2          3 |     Total
-----------+---------------------------------+----------
         0 |        39         96          6 |       141
         1 |         8          6          0 |        14
-----------+---------------------------------+----------
     Total |        47        102          6 |       155

          Pearson chi2(2) =   5.4784   Pr = 0.065
 likelihood-ratio chi2(2) =   5.4944   Pr = 0.064
               Cramér's V =   0.1880
                    gamma =  -0.5691  ASE = 0.186
          Kendall's tau-b =  -0.1844  ASE = 0.080

. tab employ Condom_Use_Prot_HIV_Infn, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
    employ |         1          2          3 |     Total
-----------+---------------------------------+----------
         1 |        16         11          6 |        33
         2 |        94         16          8 |       118
-----------+---------------------------------+----------
     Total |       110         27         14 |       151

          Pearson chi2(2) =  12.6961   Pr = 0.002
 likelihood-ratio chi2(2) =  11.7039   Pr = 0.003
               Cramér's V =   0.2900
                    gamma =  -0.5642  ASE = 0.124
          Kendall's tau-b =  -0.2801  ASE = 0.085
. tab bi_CUBS Condom_Use_Prot_HIV_Infn, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
```

```
           |        4 = Not Applicable
   bi_CUBS |         1          2          3 |     Total
-----------+---------------------------------+----------
         0 |       104         23         14 |       141
         1 |        10          4          0 |        14
-----------+---------------------------------+----------
     Total |       114         27         14 |       155

          Pearson chi2(2) =   2.4983   Pr = 0.287
 likelihood-ratio chi2(2) =   3.5976   Pr = 0.166
               Cramér's V =   0.1270
                    gamma =  -0.0119  ASE = 0.274
          Kendall's tau-b =  -0.0032  ASE = 0.073

. tab employ UnP_Sx_Unk_HIV_Stat_HIV_Risk, all

           |  1 = Yes, 2 = No, 3 = Don't Know, 4 = Not
           |                  Applicable
    employ |         1          2          3          4 |     Total
-----------+---------------------------------------------+----------
         1 |        29          4          0          0 |        33
         2 |       104          9          4          3 |       120
-----------+---------------------------------------------+----------
     Total |       133         13          4          3 |       153

          Pearson chi2(3) =   2.5799   Pr = 0.461
 likelihood-ratio chi2(3) =   4.0018   Pr = 0.261
               Cramér's V =   0.1299
                    gamma =   0.0837  ASE = 0.283
          Kendall's tau-b =   0.0230  ASE = 0.075

. tab bi_CUBS UnP_Sx_Unk_HIV_Stat_HIV_Risk, all

           |  1 = Yes, 2 = No, 3 = Don't Know, 4 = Not
           |                  Applicable
   bi_CUBS |         1          2          3          4 |     Total
-----------+---------------------------------------------+----------
         0 |       125          9          6          3 |       143
         1 |        10          4          0          0 |        14
-----------+---------------------------------------------+----------
     Total |       135         13          6          3 |       157

          Pearson chi2(3) =   8.9030   Pr = 0.031
 likelihood-ratio chi2(3) =   7.0517   Pr = 0.070
               Cramér's V =   0.2381
                    gamma =   0.3966  ASE = 0.234
          Kendall's tau-b =   0.1139  ASE = 0.095
. tab employ Multp_Sx_Ptn_HIV_Risk, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
    employ |         1          2          3 |     Total
-----------+---------------------------------+----------
         1 |        29          2          2 |        33
         2 |       118          2          0 |       120
-----------+---------------------------------+----------
     Total |       147          4          2 |       153

          Pearson chi2(2) =   9.4785   Pr = 0.009
 likelihood-ratio chi2(2) =   7.9989   Pr = 0.018
               Cramér's V =   0.2489
                    gamma =  -0.7828  ASE = 0.172
          Kendall's tau-b =  -0.2227  ASE = 0.100
```

```
. tab bi_CUBS Multp_Sx_Ptn_HIV_Risk, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
   bi_CUBS |         1          2          3 |     Total
-----------+---------------------------------+----------
         0 |       137          4          2 |       143
         1 |        12          2          0 |        14
-----------+---------------------------------+----------
     Total |       149          6          2 |       157

          Pearson chi2(2) =   4.7365   Pr = 0.094
 likelihood-ratio chi2(2) =   3.2924   Pr = 0.193
               Cramér's V =   0.1737
                    gamma =   0.5657  ASE = 0.284
          Kendall's tau-b =   0.1275  ASE = 0.117
. tab employ Homosx_HIV_Risk, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
    employ |         1          2          3 |     Total
-----------+---------------------------------+----------
         1 |        31          0          2 |        33
         2 |       112          6          2 |       120
-----------+---------------------------------+----------
     Total |       143          6          4 |       153

          Pearson chi2(2) =   3.5624   Pr = 0.168
 likelihood-ratio chi2(2) =   4.4787   Pr = 0.107
               Cramér's V =   0.1526
                    gamma =   0.0248  ASE = 0.404
          Kendall's tau-b =   0.0050  ASE = 0.080
. tab bi_CUBS Homosx_HIV_Risk, all

           | 1 = Yes, 2 = No, 3 = Don't Know,
           |        4 = Not Applicable
   bi_CUBS |         1          2          3 |     Total
-----------+---------------------------------+----------
         0 |       133          6          4 |       143
         1 |        12          2          0 |        14
-----------+---------------------------------+----------
     Total |       145          8          4 |       157

          Pearson chi2(2) =   3.0127   Pr = 0.222
 likelihood-ratio chi2(2) =   2.6145   Pr = 0.271
               Cramér's V =   0.1385
                    gamma =   0.3503  ASE = 0.346
          Kendall's tau-b =   0.0733  ASE = 0.099

. tab employ Drk_Alc_Bf_Sx_3mths, all

           | 1 = Yes, 2 = No, 3 =
           |  Don't Know, 4 = Not
           |      Applicable
    employ |         1          2 |     Total
-----------+----------------------+----------
         1 |         4         29 |        33
         2 |        15        105 |       120
-----------+----------------------+----------
     Total |        19        134 |       153

          Pearson chi2(1) =   0.0034   Pr = 0.953
```

```
 likelihood-ratio chi2(1) =   0.0034   Pr = 0.953
              Cramér's V =  -0.0047
                   gamma =  -0.0175  ASE = 0.300
         Kendall's tau-b =  -0.0047  ASE = 0.080

. tab bi_CUBS Drk_Alc_Bf_Sx_3mths, all

           | 1 = Yes, 2 = No, 3 =
           |  Don't Know, 4 = Not
           |      Applicable
   bi_CUBS |         1          2 |     Total
-----------+----------------------+----------
         0 |        11        132 |       143
         1 |        10          4 |        14
-----------+----------------------+----------
     Total |        21        136 |       157

          Pearson chi2(1) =  44.7073   Pr = 0.000
 likelihood-ratio chi2(1) =  29.2374   Pr = 0.000
              Cramér's V =  -0.5336
                   gamma =  -0.9355  ASE = 0.042
         Kendall's tau-b =  -0.5336  ASE = 0.105
```

APPENDIX F: MULTIVARIATE LOGISTIC REGRESSION

```
. xi:logistic bi_CUBS  Soc_Ass_Entitled i.Mar_Status Country_Or Imm_Status

Gender

i.Mar_Status      _IMar_Statu_1-6     (naturally coded; _IMar_Statu_1 omitted)

note: _IMar_Statu_3 != 0 predicts failure perfectly
      _IMar_Statu_3 dropped and 2 obs not used

note: _IMar_Statu_4 != 0 predicts failure perfectly
      _IMar_Statu_4 dropped and 4 obs not used

note: _IMar_Statu_5 != 0 predicts failure perfectly
      _IMar_Statu_5 dropped and 6 obs not used

note: _IMar_Statu_6 dropped because of collinearity

Logistic regression                               Number of obs   =        116
                                                  LR chi2(5)      =      23.25
                                                  Prob > chi2     =     0.0003
Log likelihood = -17.487583                       Pseudo R2       =     0.3993

------------------------------------------------------------------------------
     bi_CUBS | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Soc_Ass_En~d |   6.179693   7.634571     1.47   0.140     .5487418    69.59304
_IMar_Stat~2 |    .012548   .0273401    -2.01   0.044     .0001754     .897873
  Country_Or |   1.506757   .2603371     2.37   0.018     1.073923    2.114043
  Imm_Status |   .0635769   .0877445    -2.00   0.046     .0042514    .9507577
      Gender |     .48117   .5005165    -0.70   0.482      .062643    3.695937
------------------------------------------------------------------------------

Employment

. xi:logistic bi_CUBS   employ Mar_Status Country_Or i.Imm_Status i.Came_to_USA
i.Lengt
> h_o_Stay_Hou
i.Imm_Status      _IImm_Statu_1-2     (naturally coded; _IImm_Statu_1 omitted)
i.Came_to_USA     _ICame_to_U_1-5     (naturally coded; _ICame_to_U_1 omitted)
i.Length_o_St~u   _ILength_o__1-4     (naturally coded; _ILength_o__1 omitted)

note: _ICame_to_U_3 != 0 predicts failure perfectly
      _ICame_to_U_3 dropped and 39 obs not used

note: _ICame_to_U_5 != 0 predicts failure perfectly
      _ICame_to_U_5 dropped and 2 obs not used

note: _ILength_o__4 != 0 predicts failure perfectly
      _ILength_o__4 dropped and 10 obs not used


Logistic regression                               Number of obs   =         77
                                                  LR chi2(7)      =      32.81
                                                  Prob > chi2     =     0.0000
Log likelihood = -16.914032                       Pseudo R2       =     0.4924

------------------------------------------------------------------------------
     bi_CUBS | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      employ |    6.81907   22.65069     0.58   0.563     .0101465    4582.843
```

```
  Mar_Status |   .1351548   .2034594    -1.33   0.184     .0070705    2.583533
  Country_Or |   1.876951   .4297919     2.75   0.006     1.198233    2.940117
_IImm_Stat~2 |   10.74618   19.47609     1.31   0.190     .3080065    374.9287
_ICame_to_~2 |    90.5443   340.4426     1.20   0.231     .0570664      143662
_ILength_o~2 |   .0194125   .0342801    -2.23   0.026     .0006095    .6183012
_ILength_o~3 |   .0085206   .0266613    -1.52   0.128     .0000185    3.925624
------------------------------------------------------------------------------

. xi:logistic bi_CUBS   employ Mar_Status Country_Or i.Imm_Status i.Came_to_USA
Length_
> o_Stay_Hou
i.Imm_Status      _IImm_Statu_1-2     (naturally coded; _IImm_Statu_1 omitted)
i.Came_to_USA     _ICame_to_U_1-5     (naturally coded; _ICame_to_U_1 omitted)

note: _ICame_to_U_3 != 0 predicts failure perfectly
      _ICame_to_U_3 dropped and 39 obs not used

note: _ICame_to_U_5 != 0 predicts failure perfectly
      _ICame_to_U_5 dropped and 2 obs not used


Logistic regression                               Number of obs   =         87
                                                  LR chi2(6)      =      33.84
                                                  Prob > chi2     =     0.0000
Log likelihood = -17.981359                       Pseudo R2       =     0.4848

------------------------------------------------------------------------------
     bi_CUBS | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      employ |   8.579436   26.17042     0.70   0.481     .0217261    3387.933
  Mar_Status |   .3613498   .4415167    -0.83   0.405     .0329521    3.962524
  Country_Or |   2.017497    .507538     2.79   0.005      1.23219    3.303301
_IImm_Stat~2 |   12.77729   22.17056     1.47   0.142     .4260626    383.1811
_ICame_to_~2 |   137.0934   480.0761     1.41   0.160     .1433061    131150.1
Length_o_S~u |   .0402165   .0659063    -1.96   0.050     .0016198    .9984896
------------------------------------------------------------------------------
Note: 2 failures and 0 successes completely determined.

. xi:logistic bi_CUBS   employ Mar_Status Country_Or i.Imm_Status Came_to_USA
Length_o_
> Stay_Hou
i.Imm_Status      _IImm_Statu_1-2     (naturally coded; _IImm_Statu_1 omitted)

Logistic regression                               Number of obs   =        128
                                                  LR chi2(6)      =      33.70
                                                  Prob > chi2     =     0.0000
Log likelihood = -22.973902                       Pseudo R2       =     0.4231

------------------------------------------------------------------------------
     bi_CUBS | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      employ |   154.9438   323.5191     2.42   0.016     2.587526    9278.196
  Mar_Status |   .2027436   .2441774    -1.33   0.185     .0191333     2.14835
  Country_Or |   1.743232   .2731154     3.55   0.000     1.282318    2.369815
_IImm_Stat~2 |   2.448999   2.545403     0.86   0.389     .3193597    18.78007
 Came_to_USA |   .6050927   .7028872    -0.43   0.665     .0620941    5.896493
Length_o_S~u |   .1352893   .1344326    -2.01   0.044     .0192953    .9485814
------------------------------------------------------------------------------

. xi:logistic bi_CUBS   employ Mar_Status Country_Or i.Imm_Status
Length_o_Stay_Hou
i.Imm_Status      _IImm_Statu_1-2     (naturally coded; _IImm_Statu_1 omitted)
```

Logistic regression — Number of obs = 141; LR chi2(5) = 34.74; Prob > chi2 = 0.0000; Log likelihood = -23.66906; Pseudo R2 = 0.4233

bi_CUBS	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
employ	83.16765	135.951	2.70	0.007	3.37697	2048.244
Mar_Status	.2274001	.2043433	-1.65	0.099	.0390747	1.323385
Country_Or	1.732924	.2558305	3.72	0.000	1.29753	2.314419
_IImm_Stat~2	2.153661	1.926287	0.86	0.391	.3731141	12.4312
Length_o_S~u	.1269415	.0944498	-2.77	0.006	.0295307	.5456737

APPENDIX G: RESEARCH INSTRUMENT DESIGN

The author of this dissertation did not obtain the question items in the questionnaire exclusively from one particular source. He developed the scale through a series of improvement on the knowledge of HIV/AIDS, health promotion theories and using the basic definitions of the constructs and a combination of items referred to in various papers (Bandawe & Foster, 1994, Jemmot, Jemmot, & Hacker, 1992, Montano & Kasprzyk 2002).

The author is a SSA immigrant who had lived in Houston, Texas for more than two decades. He had worked successfully on various HIV/AIDS grant funded projects nationally and internationally for more than eight years. He included Questionnaire items that he has successfully used in similar populations in the US and outside the US together for this study.

Some of the question items were from his field observation and ethnographic qualitative studies of the utterances, attitudes, beliefs, activities, and behaviors of SSA immigrants in Houston; their health-seeking behaviors, HIV risk-taking behaviors and HIV voluntary counseling and testing. Though researchers conducted most of the studies in the industrialized world, HIV risk-taking behaviors are fairly similar across all population groups. Contextual factors are important is designing some of the items. The author had permission to use items from other sources. The instrument will help to measure the dependent and independent variables and demographic characteristics of the participants that have to do with information gathered to address the study hypotheses.

APPENDIX H: VARIABLE ASCERTAINMENT AND MEASURES

Dependent/Outcome Variable

The outcome variable was HIV risk-taking behaviors. This variable was measured with the categorical item, *"I used condom before sex within the past 3 months"*. The responses were *"Yes" "No" "DK" and "NA"*, which were further recoded as *"Yes"* and *"No."*

Independent/Predictor Variables

The independent variables were education opportunity, employment, and social assistance.

(a). Educational opportunities was assessed using the categorical items, *Do you qualify for financial aid for school?*

- *Yes* or *No*

(b). Employment opportunity was measured by the item, *Which of the following best describes your work situation in the past 30 days?*

- *Unemployed*
- *Regular full-time work (30 hours or more per week)*
- *Regular part-time work (Less than 30 hours per week)*
- *Occasional work*
- *Retired*
- *Unable to work (Disabled)*
- *Homemaker*
- *Student*

(c). Social assistance was assessed with one item:

- *"Are you entitled to Governmental social assistance, such as food stamps, unemployment compesation, WIC Insurance, etc?*
  - *Yes* or *No*

(e). Sociodemographic characteristics included:

- *age,*
- *gender/sex,*
- *marital status,*
- *sexual orientation and*
- *religion*
- *income will be measured by annual wages in a categorical scale and eventually dichotomized into "< $10,000.00 as low income" and ">$10,000.00 as relatively high income" and were self-reported.*

APPENDIX I: RESEARCH INSTRUMENT

HIV Risk Assessment of Sub-Saharan African Immigrants in Houston, Texas

Take this absolutely anonymous test and discover your risk for HIV or other sexually transmitted diseases (STDs). This is a learning tool as well as a risk assessment tool. You can make a difference by responding to these questions as honestly as you can. Let us hear your true voice. THANK YOU!!!

Data Items on HIV Knowledge, Attitudes, Beliefs, Risk Perception and Risk Behaviors

1. How much have you heard or read about the health condition HIV/AIDS?

A lot	1
Some	2
Nothing at all (Skip to Q 75 on page 9)	3

Please circle one response to each question (**DK=** I Don't Know, NA= Not Applicable).

2. HIV is found in blood, semen, or vaginal secretions	Yes	No	DK	NA
3. Sexually transmitted diseases (STDs) include HIV	Yes	No	DK	NA
4. Marriage to a divorcee is a risk for HIV infection	Yes	No	DK	NA
5. A healthy looking individual may be infected with HIV	Yes	No	DK	NA
6. Intravenous drug users can contract HIV	Yes	No	DK	NA
7. Using condoms will protect me from HIV infection	Yes	No	DK	NA
8. Multiple sexual partnership increases the risk of HIV infection	Yes	No	DK	NA
9. HIV positive pregnant women can give the virus to her unborn baby	Yes	No	DK	NA
10. I drink alcohol	Yes	No	DK	NA
11. I drank alcohol before sex within the past 3 months	Yes	No	DK	NA
12. I smoke cigarette	Yes	No	DK	NA
13. I smoke marijuana (Hash, THC)	Yes	No	DK	NA
14. I smoked marijuana before sex within the past 3 months	Yes	No	DK	NA
15. I use cocaine	Yes	No	DK	NA
16. I used condom before sex within the past 3 months	Yes	No	DK	NA
17. I use crack	Yes	No	DK	NA
18. I use drugs injected with needles (Shot-up)	Yes	No	DK	NA
19. I used drugs injected with needles before sex within the past 3 months	Yes	No	DK	NA
20. I have shared needles to inject (shoot-up) drugs	Yes	No	DK	NA
21. I have had sex with partners who shoot-up drugs	Yes	No	DK	NA
22. I have exchanged money/drugs/other things for sex	Yes	No	DK	NA
23. I have had sex with a man who has sex with a man	Yes	No	DK	NA

24. An unprotected sex with my legal spouse who is a divorcee or who had taken HIV risks in the past puts me at risk of HIV.

A) Strongly disagree.	1
B) Disagree.	2
C) I don't know.	3
D) Agree	4
E) Strongly agree.	5

Data Items on Social Capital

25. I am a (Please circle one):

A) man who has sex only with women (heterosexual male).	1
B) man who has sex only with other men (homosexual male).	2
C) man who has sex with both men and women (bisexual male).	3
D) woman who has sex only with men (heterosexual female).	4
E) woman who has sex only with other women (lesbian).	5
F) woman who has sex with both men and women (bisexual female).	6
G) I prefer not to answer this question	7
H) Not Applicable	8

26. My age is:

A) ----------

B) I prefer not to answer this question.

27. Do you have the legal right to work in the United States?	(a) Yes	(b) No
28. I have an official USA Social Security Card	(a) Yes	(b) No
29. If Yes, My Social Security Card allows me to work	(a) Yes	(b) No
30. Are you entitled to Governmental social assistance (GSA), such as food stamps, unemployment compesation, WIC Insurance, etc?	(a) Yes	(b) No

31. If your answers to Q76 to 79 were No, what efforts are you making to be authorized to work in the USA and be entitled to GSA?

a. Marry an American citizen	1
b. Apply for a change of my visa any other way	2

32. Are you in school?	Yes	No

33. If your answer to Q81 was No, why are you not in school?

a. I cannot afford the school fees	1
b. I do not want to go to school	2
c. I only want to work	3
d. I am on a temporary visa	4

34. Do you qualify for financial aid for school?	Yes	No

35. If your answer to Q83 was No, why do you not qualify for financial aid?

a. My visa does not allow me to apply for financial aid	1
b. I just do not want to get into financial debt	2

36. I came to the USA

a. On a temporary visa	1
b. On a permanent residence visa (Green Card Lottery)	2
c. None of the above	3

37. If your answer to Q 85 is (a), I am working on regularizing my stay by

a. Getting married to an American citizen	1
b. Joining the Armed Forces	2
c. Winning the Visa Lottery	3
d. Virtue of my profession	4

38. I have adjusted my status by

a. Getting married to an American citizen	1
b. Joining the Armed Forces	2
c. Winning the Visa Lottery	3
d. Virtue of my profession	4

39. With which of the following mainstream Americans do you interact most? (Please circle one):

American of African Ancestry	1
Caucasian Americans	2
Hispanic	3
American of Asiatic or Pacific Ancestry	4
American of Alaskan/Amerindian Ancestry	5

40. Gender

Male	1
Female	2
Transgender	3

41. What is your marital status?

Single/Never Married----------	1
Legally Married ----------	2
Co-habiting ----------	3
Separated ----------	4
Divorced----------	5
Widowed----------	6

42. If your answer to Q90 was 2 to 6, your spouse is or was

a. A continental sub-Saharan African	1
b. An African American citizen	2
c. A Caucasian American citizen	3
d. A Hispanic American citizen	4
e. An Asian American citizen	5
f. An American Indian citizen	6
g. An American citizen from another race	7

43. I came to the USA

(a) Single (Unmarried)	1
(b) Married	2
(c) Married but without my family members	3

44. What is your level of education?

Less than High school	1
High School Graduate	2
Some College	3
College Graduate	4
Masters Degree	5
PhD Degree	6

45. Which of the following best describes your work situation in the past 30 days?

Unemployed----------	1
Regular full-time work (30 hours or more per week) ----------	2
Regular part-time work (Less than 30 hours per week) ----------	3
Occasional work----------	4
Retired----------	5
Unable to work (Disabled) ----------	6
Homemaker----------	7
Student----------	8

46. In the last 30 days, I received income from

A job----------	1
Unemployment benefits----------	2
V.A., Disability, SSI----------	3
Welfare, Food stamps----------	4
Alimony, Child support----------	5
A spouse or sexual partner(s) -----	6
Other family members----------	7
Friends----------	8
Trading sex for money----------	9
Other illegal or possibly illegal sources----------	10
No income----------	11

47. In the last 30 days approximately how much income did you receive from all sources?

No income----------	1
Less than $300.00----------	2
$300 - $500----------	3
$500 or more----------	4

48. What is your religious preference?

Christianity (Please specify your denomination----------	1
Catholic----------	2
Protestant (Non-Catholic)----------	3
Muslim----------	4
Other (Please specify) ----------	5
None----------	6

Please answer the following by filling in the required information

49. What country in Africa are you from?----------

50. How long have you lived in the Houston, Texas?---------- (Years)

APPENDIX J: CONCEPT PROGRAMMING

Concept programming, a programming paradigm, focuses on how abstract *concepts* translate into measurable *representations* that are found in the code space. By defining variables the scientists bring a micro slice of nature to the laboratory, observe its behavior on a range of controlled circumstances and draw pertinent conclusions (Hulley, & Cummings, 1998; Winer, 1971). Measurement scales are relevant because the type of scale determines (a) how the data capture file needs to be set up, (b) the method of statistical summary and analysis, and (c) the statistical power of the study, i.e. the ability of a study to rule out or find a difference between two groups or an association between two variables.

The research hypotheses started with conceptual variables expressed in theoretical, general, qualitative, or subjective terms. A mixture of readily available validated instrument, establishing consensus or inferring an operational variable from theory was used to define the operational or measured variables. The responses to the resulting measurement scale was “yes/no” (nominal), or “none/low/moderate/high (ordinal). Factor analysis will facilitate the most appropriate items to use in the analysis to test the hypotheses in the study.

The investigator in this study took the following steps to write the code for the dependent and independent variables from concepts to numbers: (a) Identified and defined the relevant concepts in the concept space, (b) Identified traditional notations for the concepts, or invent usable notations, (c) Identified a combination of programming constructs that allowed the concept to be represented comfortably in the code; that

included finding a code notation that matched the notation identified in the previous step as closely as possible, and (d) Wrote code that preserved as much as possible the expected behavior and semantics of the relevant aspects of the original concept.

CURRICULUM VITAE

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CURRENT CAREER GOAL

- To assess disease disparities with geo-epidemiologic mapping (Spatial epidemiology)
- To reduce health disparities and improve health literacy through capacity building, public health services, and establishment and conduct of culturally-sensitive infectious diseases outbreaks surveillance and management globally.
- To collaborate with other health scientists in culturally apposite risk factors in HIV infection and management continuum (HIV/AIDS/STDs/Zoonoses) globally

EDUCATION:

- PhD (Health Services: Health and Human Behaviors) Walden University, Minneapolis, Minnesota. (Dissertation: *Social capital variables as predictors of HIV risk-taking behaviors among Sub-Saharan African immigrants in the USA)* 2010
- M.P.H. (Epidemiology/Biostatistics) - University of Texas, Houston, Texas, 1982
- D.V.M. - University of Ibadan, Ibadan, Nigeria, 1978

PROFESSIONAL PROFILE:

- Health scientist with special interest in HIV/AIDS/STDs/Zoonoses cross-talk; health and human behaviors
- Population health epidemiologist; biostatistician; public health program leadership, supervision, coordination, management, and evaluation.
- Good human relations and collaborative skills involving complex level organizational matrix and professional colleagues.
- Database maintenance, as well as research and administrative data analysis.
- Determined direction in research and instruction in epidemiology and statistical modeling in epidemiology
- A self starter, efficient in co-coordinating and directing organization research

JOB EXPERIENCE:

- Organized, conducted, evaluated, and reported USAID programs on zoonoses outbreaks surveillance and management for physicians and veterinarians
- Conceived, planned, implemented, and reported national and international culturally-sensitive, community-based disease control programs
- Experienced in influencing private and public sectors management bodies to ensure public health through collaborative efforts
- Skillful in communicating public health intervention through preparation of scientific/technical reports of the results and process, impact, and outcome evaluation of public health projects to the stakeholders
- More than twenty five years of field experience as Research Scientist in epidemiology and Statistical methods in epidemiology.
- Proven capability to function independently and as team player in mentoring junior staff and trainees

SKILLS

- Experienced in using STATA and SPSS statistical software for data modeling, univariable and multivariable regression analysis
- Proficient in the use of Microsoft Word, Excel, PowerPoint and Access

ABILITY

- Proven ability to design and test data collection instruments, analyze survey data, and apply methods for multivariable logistic regression analysis.
- Able to make sense of data; from data to decision-making
- Able to maintain good human relations and complete audits on time

PROFESSIONAL EXPERIENCE, POSITIONS AND HONORS

2009 –	United States Agency for International Development (USAID)/African Epidemiology Network (AFENET) Position: Consultant (Zoonoses outbreak surveillance and managem't)
2009 –	Cardiotech Ultrasound School, 12135 Bissonnet Street, Suite E, Houston, Texas 77099 Position: Instructor (Ultrasound Physics, Maths and English)
2007 –	Global Health Services Initiatives, Incorporated, Houston, Texas Position: CEO, Chief Consultant and Principal Research Scientist
2007 –	Population Health Research Institute, Houston, Texas Position: Vice President Research
2006 – 2007	Institute of Community Health, College of Pharmacy, University of Houston, Houston, Texas Position: Senior Research Scientist
2003- 2006	HIV Prevention Programs, College of Pharmacy, University of Houston, Houston, Texas Position: Research Scientist
2003	Center for HIV Prevention, College of Pharmacy and Health Sciences, Texas Southern University, Houston, Texas Position: Research Scientist
2001- 2003	Center for Cardiovascular Diseases, College of Pharmacy and Health Sciences, Texas Southern University, Houston, Texas. Position: Research Scientist
2001- 2002	Texas Department of Health, Public Health Region 6/5 South, Houston, Texas. Position: Zoonoses Surveillance Coordinator Associate Assisted in meat safety assurance and Zoonoses Control Program
1983-2000	Royal Veterinary Clinic Limited, Lagos, Nigeria Position: Resident Doctor; Veterinary Public Health Practitioner
1980-1983	University of Texas System Cancer Treatment Center, and M. D. Anderson Hospital, Houston, Texas. Position: Laboratory Technician
1980-1981	Houston Zoological Gardens, Hermann Park, Houston, Texas Position: Voluntary Veterinary Assistant

PROFESSIONAL AFFILIATION & MEMBERSHIP

- American Public Health Association
- Nigerian Veterinary Medical Association
- Texas Association of Community Health Center (TACHC)
- Global Health Services Initiatives, Incorporated
- Population Health Research Institute

COMMUNITY ACTIVITIES

2003- Saving Lives through Alternate Options (SLAO) Houston, Texas

- An associate and active member of the community-based organization (CBO) to address population health disparities
- Made presentations on health-related projects conducted in collaboration with the CBO to international health professional delegates of the States Department

2004- Motherland, Inc Houston, Texas. www.MotherLandinc.org
Position: Vice President, Board of Directors

- Involved in the Board's deliberations on the progress of the Company
- Involved in drawing up a curriculum for Life Skills, Nutrition, and Fitness
- Made education presentations (IMB model) on obesity, HIV/AIDS, drug abuse, and anger management at elementary and high schools around Houston, Texas
- Evaluated the Company programs

2004- Preventive Health Research Network (PHRN). Houston, Texas.
Role: Chief Public Health Adviser

- Collaborated with other members to address population health disparities

2007- Public Health Information/Health Awareness Media System

- Involved in provision of preventative health education on Radio and Television to improve public health awareness in Houston, Texas

SELECTED SCIENTIFIC PUBLICATIONS/ABSTRACTS PRESENTATIONS

Contributed to the chapter on Management and Policy in Public Health in the book titled: National Public Health Certification Examination Preparatory Guide Authored by Laurens Holmes, Jr., Preface written by Dr. James H. Steele and Published by Jones & Barlett Publishers (2008). http://www.jbpub.com/catalog/9780763761295/

Reviewer for several scientific journals including Journal of the National Medical Association

1. Holmes, L. Jr., Escalante, C., Garrison, O., Foldi, B. X., **Ogungbade, G. O.**, Essien, E. J., Ward, D. (2008 Sep). Testicular cancer incidence trends in the USA (1975-2004): plateau or shifting racial paradigm? Public Health, 122(9), 862-872.
2. Holmes, L. Jr., **Ogungbade, G. O.**, Ward, D. D., Ross, M. W., Ekong, E., Essien, E. J. (August 2008). Epidemiologic and behavioral characterization of knowledge of condom use and modeling among military personnel. African Journal Reproductive Health, 12(2), 32 – 44

3. Holmes, L. Jr., **Ogungbade, G. O.**, Ward, D. D., Garrison, O., Peters, R. J., Kalichman, S. C., Lahai-Momohe, J., Essien, E. J. (April 2008). Potential markers of female condom use among inner city African-American women. AIDS Care. 20(4):470-7.
4. Essien, E. J., **Ogungbade, G. O.**, Ward, D., Fernandez-Esquer, M. E., Smith, C. R., Holmes, L. Jr. (2008 Apr). Injecting drug use is associated with HIV risk perception among Mexican Americans in the Rio Grande Valley of South Texas, USA. Public Health, 122(4), 397-403. Epub 2007 Oct 24.
5. Holmes, L. Jr., Monjok, E., Ward, D., Garrison, O. M., Toney, E. D., **Ogungbade, G.**, Essien, E. J. (2008 Mar 4). Racial Variance in Rationale for HIV Testing in Community-Based Setting in the United States: Evidence from the National Health Interview Survey. *Journal of the International Association of Physicians in AIDS Care* (JIAPAC) (Chic Ill). 7(2):61-8. Epub 2008 Mar 4
6. Essien, E. J., **Ogungbade, G. O.**, Ward, D., Ekong, E., Ross, M. W., Meshack, A., Holmes, L. Jr. (2007 November). Influence of educational status and other variables on HIV risk perception among military personnel: A large cohort finding. *Military Medicine, 172(11),* 1177 – 81
7. Essien, E. J., **Ogungbade, G. O.**, Harrison, N. K., Ekong, E., Ward, D., Holmes, L. (2006 October). Emerging socio-demographic and lifestyle predictors of intention to use condom in Human Immunodeficiency Virus intervention among uniformed services personnel. *Military Medicine. 171(10):*1027-1034(8).
8. Ross, M. W., Essien, E. J., Ekong, E., James, T. M., Amos, C. E., **Ogungbade, G. O.**, Williams, M. L. (2006 October). The impact of a situationally-focused individual HIV/STD risk reduction intervention on risk behavior in a one-year cohort of Nigerian military personnel. *Military Medicine, 171(10):*970-975.
9. Ehsanzadeh, P. C., Montoya, I. D., Essien, E. J., **Ogungbade, G. O.** (2006 July). HIV/AIDS in the Middle East: A guide to a proactive response. *The Journal of the Royal Society of Health, 126(4):*165-71.
10. Essien, E. J., Meshack, A. F., Peters, R. J., **Ogungbade, G. O**., Osemene, N. I. (2005 March 17). Strategies to prevent HIV transmission among heterosexual African American women. *International Journal for Equity in Health,; 4(1):*4.
11. Essien, E. J., Meshack, A. F., Peters, R. J., **Ogungbade, G. O.**, Osemene, N. I. (2005 January 7). Strategies to prevent HIV transmission among heterosexual African-American men. *BMC Public Health, 5(1),* 3.
12. Essien, E. J., Ekong, E., Williams, M. L., Amos, C. E., James, T. M., Peters, R. J., **Ogungbade, G. O.**, Ross, M. W. (2005). Effectiveness of a situationally-based HIV risk-reduction intervention for the Nigerian Uniformed Services on readiness to adopt condom use with casual partners. *Counseling, Psychotherapy, and Health, 1(1):* 19-30.
13. Essien, E. J., Ross, M. W., Williams, M. L., Meshack, A. F., Fernandez-Esquer, M. E., Peters, R. J., **Ogungbade, G. O.** (2004 June 17). Primary Source of Income is Associated with Differences in HIV Risk Behaviors in Street-Recruited Samples. *International Journal for Equity in Health. 3(1),* 5

14. Ajayi, A. A., **Ogungbade, G. O.**, Okorodudu, A. O. (2004 May). Sex hormone regulation of systemic endothelial and renal microvascular reactivity in type-2 diabetes: studies in gonadectomized and sham-operated Zucker diabetic rats. *European Journal of Clinical Investigation. 34(5),* 349-357.
15. Ajayi, A. A., **Ogungbade, G. O.**, Hercule, H. C., Oyekan, A. O., Mutembei, L. (2004 March). Alteration in endothelin receptor sub-type responsiveness and in the endothelin-TXA2 mimetic U46619 interaction, in type-2 hypertensive diabetic Zucker rats *Diabetes Research in Clinical Practice, 63(3),* 155-169.
16. **Ogungbade, G. O.**, Akinsanmi, L. A., Jiang, H., Oyekan, A. O. (2003 November). The role of epoxyeicosatrienoic acids in the renal functional response to inhibition of Nitric Oxide (NO) production in the rat. *American Journal of Physiology Renal Physiology, 285(5),* F955-64. Epub Jul 15.
17. Essien, E. J., **Ogungbade, G. O.**, Peters, R., Kalichman, S., Holmes, L. Jr. Marijuana use prior to sexual intercourse and condom use as predictors of HIV risk perception among inner city African American women. *AIDS CARE* (In Press)
18. Essien, E. J., **Ogungbade, G. O**., Ross, M. W., Peters, R. J., Kalichman, S. C., Ward, D., Holmes, L. Jr. Community-based randomized controlled trial of substance risk reduction-oriented HIV intervention for inner city African American Women. Public Health (In Press).
19. Holmes, L. Jr., **Ogungbade, G. O.,** Steele, J. H. Aging America and the Challenges of Public Health: Systematic Review. Journal of Aging and Health (Submitted)

CONFERENCE PRESENTATIONS/ABSTRACTS

1. Holmes, L. Jr, Monjok, E., Ward, D., Garrison, O., Toney, E. D., **Ogungbade, G. O.**, Essien, E. J. (2007). Ethic/Racial variance in rationale for HIV testing: Evidence from the National Health Interview Survey. 4th IAS on Pathogenesis, treatment and prevention, Sydney Australia, July 22-25, 2007
2. Holmes, L., **Ogungbade, G. O**., Ward, D., Essien, E. J. (2007). Marijuana use prior to sexual intercourse and condom use interaction as predictors of HIV risk perception among inner city African American women. Abstract, The 8th International Conference on the Biopsychosocial Aspects of HIV infection. Marseilles, France. July 1 – 4
3. Holmes, L., **Ogungbade, G. O.**, Ward, D., Essien, E. J. (2007). Potential markers of female condom use among inner city African American women in Houston, Texas, USA. Abstract, The 8th International Conference on the Biopsychosocial aspects of HIV infection. Marseilles, France. July 1 – 4
4. Essien, E. J., **Ogungbade, G. O**., Ward, D., Monjok, E., Holmes, L. (2007). HIV risk perception correlates inversely with consistent condom use in a random sample of inner city African American men, Houston, Texas: Prospect for prevention. Abstract, The 4th International AIDS Society Conference on HIV pathogenesis, treatment, and prevention. Sydney, Australia. July 22 – 25.
5. Holmes, L., Ward, D., **Ogungbade, G. O**., Garrison, O., Essien, E. J. (2007). Racial and ethnic paradigm in testicular cancer incidence trends in the United States: HIV/AIDS implication. Abstract, The 4th International AIDS Society

Conference on HIV pathogenesis, treatment, and prevention. Sydney, Australia. July 22 – 25.

6. Holmes, L., Monjok, E., **Ogungbade, G. O**., Essien, E. J. (2007). Ethnic and racial variance in rational for HIV testing in a large population sample: Findings from the United States National Health Interview Survey. Abstract, The 4th International AIDS Society Conference on HIV pathogenesis, treatment, and prevention. Sydney, Australia. July 22 – 25.
7. Essien, E. J., **Ogungbade, G. O**., Ward, D., Meshack, A., Holmes, L. (2007). Influence of socioeconomic proxies on HIV risk perception and knowledge of HIV risk factors: Findings from large sample, low income, multi-ethnic populations in the United States. Abstract, The 4th Annual National Conference on HIV/STD prevention in rural area. Bloomington, Indiana. April 5 – 7
8. Essien, E. J., **Ogungbade, G. O**., Ward, D., Holmes, L. (2007). Efficacy of community-based integrated substance abuse and HIV prevention intervention trial among inner city African American women in Houston, Texas, USA. Abstract, The 8th International Conference on the Biopsychosocial Aspects of HIV infection. Marseilles, France. July 1 – 4.
9. Vassallo, A., Sever, L., Grimes, R., **Ogunbade, G.,** Awosika-Olumo, A., and Jones, L. Influence of Religious and Spiritual Beliefs on Breast Health Choices among Nigerian Women in Houston, TX. American Public Health Association Annual Conference Tuesday, November 06, 2007 - Table 8 Abstract #152433
10. Essien, E. J. Ehsanzadeh, P. C., Monjok, E., **Ogungbade, G. O.**, Balogun, J., Meshack, A. F., Ward, D., Holmes, L. (2006). Attitude towards condom use self-efficacy among Hispanic youths. Abstract, The 2006 International Meeting of the Institude of Human Virology. Baltimore. Maryland, November 17 – 20
11. Holmes, L., Essien, E. J., **Ogungbade, G. O.** (2006). Education level as a predictor of self-reported drug use and HIV sexual risk behavior among multi-ethnic/racial groups in the United States: Population-based finding. *Abstract. XVI International AIDS Conference Toronto Canada 13-18 August, (Abstract # CDD0063).*
12. **Ogungbade, G. O**., Essien, E. J., Monjok, E., Holmes, L. (2006). Income and education as covariates influencing HIV/AIDS risk perception and knowledge among multi-ethnic populations in United States: A large cohort evidence. *Abstract. XVI International AIDS Conference Toronto Canada 13-18 August. (Abstract #TUPE 0528)*
13. Kamiru, N. H., **Ogungbade, G. O**., Ross, M. W., Ekong, E., Essien, E. J. (2005). Reliability and validity of a condom use beliefs scale: The Nigerian Uniformed services AIDS program. *Abstract, The 15th International Conference on AIDS/STI in Africa. Abuja, Nigeria. December 4-11.*
14. Essien, E. J., Ross, M. W., Ekong, E. E., **Ogungbade, G. O**. (2005). The impact of a situationally-focused individual HIV/AIDS risk reduction intervention on risk behavior in a one-year cohort of Nigerian military personnel. *(Abstract: The 7th International Conference on the Biopsychosocial Aspects of HIV Infection. Cape Town, South Africa. April 2-8,*

15. Essien, E. J., Ekong, E., Ross, M. W., **Ogungbade, G. O.** (*2004).* Effectiveness of an HIV Prevention Intervention for the Nigerian Uniformed Services. *Abstract, The NIMH Annual International Research Conference on the Role of Families in Preventing and Adapting to HIV/AIDS. Atlanta, Georgia July 23-25,. (Won 1st prize for Outstanding Scientific Poster).*

16. Essien, E. J., Ekong, E. E., Ross, M. W., Linares, A. C., **Ogungbade, G. O.** (2004). HIV transmission risk behaviors in the Nigerian Army. *(Abstract: The 15th World AIDS Conference. Bangkok, Thailand. July 10-16,)*

17. Essien, E. J., Ross, M. W., Ekong, E., **Ogungbade, G. O.** (2003). HIV prevention intervention for Military personnel in Nigeria: Baseline results. *(Abstract/Poster presentation in Paris, France July 8-13. Research sponsored by World AIDS Foundation Grant, #01-038-258).*