

SOCIAL CAPITAL: THE MISSING LINK BETWEEN
HIV/AIDS KNOWLEDGE, ATTITUDES,
AND RELATED BEHAVIORS AMONG
YOUNG WOMEN IN TANZANIA

by

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ABSTRACT

SOCIAL CAPITAL: THE MISSING LINK BETWEEN HIV/AIDS KNOWLEDGE, ATTITUDES, AND RELATED BEHAVIORS AMONG YOUNG WOMEN IN TANZANIA

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The primary purpose of this study is to investigate the influence of various social capital predictor variables (e.g., human, family, emotional, physical, economic, community and educational social capital) on sexually transmitted infections (STI), HIV/AIDS, sexual and risky behavior knowledge, and attitudes towards people living with AIDS (PLA) among young people (ages 16-24) in Tanzania. This research also looks at the relationship between participants' STI and HIV/AIDS knowledge and their individual characteristics (age, sex, and education). The study also explores any statistically significant differences between young women's and young men's STI, HIV/AIDS, sexual and risky behavior knowledge and attitudes toward people living

with AIDS. The study uses a secondary data analysis of a data set collected by the Adventist Development and Relief Agency (ADRA), a private volunteer organization, through a baseline survey that was administered at the beginning of 2006 in Tanzania. The data analysis consists of descriptive statistics, simple linear and multiple regressions, and univariate analysis of variance (ANOVA). These statistical analyses were performed by using the Statistical Package for Social Sciences (SPSS). Social capital was found to be a statistically significant predictor for participants' STI, HIV/AIDS, sexual and risky behavior knowledge, and attitudes towards people living with AIDS (PLA). Subjects enrolled in or with a secondary level of education were found to have more knowledge regarding STI, and have a higher level of positive attitudes towards PLA. However, age and gender were not found to be statistically significant predictors.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	iii
ABSTRACT	v
LIST OF ILUSTATIONS	xi
LIST OF TABLES	xii
DEFINITION OF TERMS.....	xiv
Chapter	
1. INTRODUCTION.....	1
1.1 Tanzania: Demographics and Brief History	1
1.2 Statement of the Problem: HIV/AIDS in Sub-Saharan Africa and Tanzania.....	2
1.3 Status of Women with HIV/AIDS in Africa.....	6
1.4 Purpose of the Study	7
2. THEORETICAL PERSPECTIVE	8
2.1 Social Capital: Theoretical Perspective	9
2.2 Social Capital: Conceptual Framework.....	12
2.2.1 Community Social Capital.....	12
2.2.2 School Social Capital: Formal and Informal Education	14
2.2.3 Religious Social Capital	15
3. LITERATURE REVIEW.....	17
3.1 HIV/AIDS Epidemiology: Incidence, Prevalence, and Treatment.....	17

3.1.1 HIV/AIDS Incidence	18
3.1.2 HIV/AIDS Prevalence	18
3.1.3 HIV Treatment.....	19
3.2 Socio-economic Impact of HIV/AIDS	21
3.3 Global Response to HIV/AIDS	22
3.4 HIV/AIDS and Gender	23
3.4.1 Biological Factors	24
3.4.2 Social Factors.....	25
3.4.3 Cultural Factors	27
3.4.4 Other factors	29
3.5 Strategies to Address HIV/AIDS Pandemic for Women.....	32
3.5.1 Prevention	32
3.5.2 Treatment.....	33
3.5.3 Caregiving.....	34
3.5.4 Education	34
3.5.5 Violence	35
3.5.6 Marriage.....	35
3.5.7 Inheritance Rights	36
3.5.8 Human Rights	37
4. METHODOLOGY.....	39
4.1 Research Design	39
4.1.1 Targeted Population.....	40

4.1.2 Sampling Design.....	41
4.1.3 Data Collection and Instruments	42
4.2 Research Questions and Hypotheses	43
4.3 Variables Descriptions.....	46
4.3.1 Criterion Variables (DV)	47
4.4 Data Analysis.....	53
4.5 Reliability and Validity of the Study Design.....	54
4.5.1 Reliability	54
4.5.2 Validity	54
4.6 Advantages and Disadvantages of Secondary Data Analysis.....	57
4.6.1 Advantages of Secondary Data Analysis.....	57
4.6.2 Limitations of Secondary Data Analysis.	58
5. STUDY FINDINGS.....	59
5.1 Descriptive Statistics	59
5.2 Predictor Variable: Social Capital	60
5.2.1 Research Question # 1	60
5.2.2 Hypotheses:.....	61
5.3 Predictor Variable: Age	67
5.3.1 Research Question # 2	67
5.4 Predictor Variables: Sex/Gender	69
5.4.1 Research Question # 3	69
5.5 Predictor Variable: Education.....	71

5.5.1 Research Question # 4	71
6. DISCUSSION	85
6.1. Discussion of Findings by Predictor Variable	86
6.1.1 Discussion of Social Capital.....	86
6.1.2 Discussions Regarding Age.....	90
6.1.3 Discussion Regarding Sex/gender	91
6.1.4 Discussion Regarding Education.....	92
6.2 Implication for Social Work Practice, Policy, and Research.....	93
6.2.1 The Importance for Social Work Practice	93
6.2.2 The Importance for Social Work Policy	94
6.2.3 The Importance for Social Work Research	95
6.3 Study Limitations.....	96
6.4 Conclusions.....	97
Appendix	99
A. ORIGINAL SURVEY.....	99
B. INSTRUMENTS DEVELOPED BASED ON THE ORIGINAL SURVEY	118
REFERENCES.....	136
BIOGRAPHICAL INFORMATION	148

LIST OF ILUSTATIONS

Figure	Page
2.1 Social capital framework	16
4.1 Summary of the predictor (IV) and criterion (DV) variables	46
6.1 Tested model for social capital framework	89

LIST OF TABLES

Table	Page
4. 1 Summary of main sample size rules.....	42
4. 2 Variables and scales	50
4. 3 Social capital scale	53
5. 1 Main demographic characteristics.....	60
5. 2 Simple linear regression – Social capital (IV) & STI knowledge (DV).....	61
5. 3 Multiple linear regression – Elements of social capital (IV) & STI knowledge (DV)	62
5. 4 Simple linear regression – Social capital (IV) & HIV/AIDS knowledge (DV).....	62
5. 5 Multiple linear regression – Elements of social capital (IV) & HIV/AIDS knowledge (DV)	63
5. 6 Simple linear regression – Social capital (IV) & sexual knowledge (DV)	64
5. 7 Multiple linear regression – Elements of social capital (IV) & sexual knowledge (DV)	64
5. 8 Simple linear regression – Social capital (IV) & risky behavior knowledge (DV)	65
5. 9 Multiple linear regression – Elements of social capital (IV) & risky behavior knowledge (DV)	66
5. 10 Simple linear regression – Social capital (IV) & attitudes towards PLA (DV)	66
5. 11 Multiple linear regression – Elements of social capital (IV) & attitudes towards PLA (DV).....	67

5.12 Multiple linear regression – Age (IV) & STI knowledge (DV).....	68
5.13 Simple linear regression – Age (IV) & attitudes towards PLA (DV).....	69
5.14 Univariate Analysis of Variance (ANOVA) between education (IV) and STI knowledge (DV)	75
5.15 Univariate Analysis of Variance (ANOVA) between education (IV) and STI knowledge (DV)	76
5.16 Univariate Analysis of Variance (ANOVA) between education (IV) and HIV/AIDS knowledge (DV).....	76
5.17 Univariate Analysis of Variance (ANOVA) between education (IV) and HIV/AIDS knowledge (DV).....	77
5.18 Univariate Analysis of Variance (ANOVA) between education (IV) and sexual knowledge (DV)	77
5.19 Univariate Analysis of Variance (ANOVA) between education (IV) and sexual knowledge (DV)	78
5.20 Univariate Analysis of Variance (ANOVA) between education (IV) and risky behavior knowledge (DV)	79
5.21 Univariate Analysis of Variance (ANOVA) between education (IV) and risky behavior knowledge (DV)	79
5.22 Univariate Analysis of Variance (ANOVA) between education (IV) and attitudes towards PLA (DV)	80
5.23 Univariate Analysis of Variance (ANOVA) between education (IV) and attitudes towards PLA (DV)	81
5.24 Findings for Research Hypothesis #1 – Social Capital.....	81
5.25 Findings for Research Hypothesis #2 – Age.....	82
5.26 Findings for Research Hypothesis #3 – Sex/gender.....	83
5.27 Findings for Research Hypothesis #4 – Education	83

DEFINITION OF TERMS

AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Therapy
FGC	Female Genital Cutting
Gender	A social construct that differentiates the power, roles, responsibilities, and obligations of women from that of men in society, while sex refers only to biologically determined characteristics of men and women (WHO, 2003).
Gender equity	Fairness and justice in the distribution of benefits and responsibilities between women and men (Theobald, Tolhurst, & Squire, 2006)
HIV	Human Immunodeficiency Virus
Incidence of disease	Number of new cases of disease occurring in a population during a definite time interval; epidemiologists are using this number to measure the risk of disease (Wikipedia)
NIAID	National Institute of Allergy and Infectious Diseases
PLA	People Living with AIDS
Prevalence of disease	Total number of cases of a given disease in a specified population at a specific time <i>and/or</i> the ration of the number of cases of a disease present in a statistical population at a specified time and the number of individuals in the population at that specific time (Wikipedia)
Sex	Defines the biological distinction between men and women (WHO, 2003)
Sexuality	The social construct of a biological drive. An individual's sexuality is defined by whom one has sex with, in what ways, why, under what circumstances, and with what outcomes (WHO, 2003)
UNAIDS	Joint United Nations Programme on HIV/AIDS

UNFPA	United Nations Population Fund
UNIFEM	United Nations Development Fund for Women
Violence against Women	Refers to a range of behaviors, including sexual violence (rape and forced sex), physical assault, emotional abuse, ongoing belittlement, humiliation or intimidation, and economic restrictions (AIDS epidemic update: December 2004)
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

1.1 Tanzania: Demographics and Brief History

The United Republic of Tanzania was formed April 26, 1964 through the union of two states, Tanganyika and Zanzibar. The country is located in East Africa and has a tropical climate. It is a multiparty democracy. The executive branch of the Republic consists of the president, vice-president, president of Zanzibar, prime minister and cabinet ministers. The Judiciary branch consists of three divisions: the Court of Appeals of the United Republic of Tanzania, the High Courts for Mainland Tanzania and Tanzania Zanzibar, and the Judicial Service Commission for Tanzania Mainland. The educational system consists of the following: Basic Level—pre-primary, primary, and non-formal education; Secondary Level—ordinary and advanced level of secondary schooling; and Tertiary Level—programs and courses offered by non-higher and higher education institutions (2 years of pre-primary education, 7 years of primary education, 4 years of Junior Secondary (ordinary level); 2 years of Senior Secondary (advanced level), and up to 3 or more years of Tertiary Education). The Health Services System has the following structure: (1) Village Health Service, (2) Dispensary Services, (3) Health Center Services, (4) District Hospitals, (5) Regional Hospitals, (6) Referral/Consult Hospitals, and (7) Treatment Abroad. Due to the fact that more than

70% of the population lives in rural areas, health facilities have a heavy rural emphasis. The latest census report in 2002 estimated that Tanzania has approximately 33 million, 36% of whom are living below the poverty line. (Tanzania, 2008a; Tanzania, 2008b; (CIA World Factbook, 2008)

1.2 Statement of the Problem: HIV/AIDS in Sub-Saharan Africa and Tanzania

The leading infectious disease causing death in the world today is considered to be HIV/AIDS (Gaberman & Wolfe, 1999). The number of people newly infected with the Human Immunodeficiency Virus (HIV) in 2007 was 2.5 million (1.8-4.1 million), bringing the total number of individuals world-wide living with HIV in 2007 to 33.2 million (30.6-36.1 million), of which 15.4 million (13.9-16.6 million) were women, and 2.5 million (2.2-2.6 million) were children under 15 years of age. By the end of 2007, 50% of all adults living with HIV worldwide and 61 % of all adults living with HIV in sub-Saharan Africa were women, and youth under 25 years of age accounted for 50% of the new HIV infections at the global level (UNAIDS, 2007; Worldwide HIV & AIDS Statistics, 2007). Since it was first reported in 1981, more than 25 million people died of AIDS (Worldwide HIV & AIDS Statistics, 2007). As these numbers indicate, AIDS has become a global pandemic.

Although HIV/AIDS became a problem in Sub-Saharan Africa in the late 1970s, the first cases of HIV/AIDS were not reported in Tanzania until 1983. In time HIV/AIDS impacted almost all sectors of development. As a result, in December 1999 the Tanzanian president declared HIV/AIDS a national disaster. In 2001, the Office of the Prime Minister issued a National Policy on HIV/AIDS, followed in 2003 by a

National Multi-Sectoral Strategic Framework on HIV/AIDS 2–3-2007. According to available statistics, 1.4 to 1.6 million people live with HIV in Tanzania (UNAIDS, 2007; UNICEF – Tanzania Statistics, 2008; CIA World Factbook, 2007).

According to the UNAIDS 2006 AIDS Epidemic Update, “The future course of the world’s HIV epidemic hinges in many respects on the behavior young people adopt or maintain, and the contextual factors that affect those choices” (p. 7). At the same time, statistics shows that women were more likely to get infected with the HIV virus than men. The purpose of this paper is to examine the main risk behaviors that are contributing to the increase of HIV/AIDS infection in young women living in Tanzania, and to investigate whether various social capital predictor variables such as group adherence, religion, community, and education could influence attitudes toward HIV/AIDS, sources of knowledge, and related behaviors. The analysis is exploratory in its nature, and it is based on the available literature/research studies.

The geographical area of Sub-Saharan Africa was chosen for this study, because this region maintains its number one region most affected by the AIDS pandemic in the world (UNAIDS, 2007). It is also considered to be “the poorest, most underdeveloped region in the world [that] faces by far the higher rate of HIV infections” (Eaton, Flisher, & Aaro, 2003, p. 149). Although only approximately 10% of the world’s population lives in Sub-Saharan Africa, the region is considered to be the home of approximately 68% adults and 90% of children of the world population living with HIV. The number of adults and children living with HIV/AIDS in Sub-Saharan Africa increased from 20.9 million in 2001, to 22.5 million in 2007 (UNAIDS, 2007). The number of deaths due to

AIDS also increased from 1.4 million in 2001 to 1.6 million in 2007, in consequence more than 3 in four (76%) of all AIDS deaths in 2007 occurred in this part of the world. Due to the AIDS deaths, there are approximately 11.4 million (10.5-14.6) orphans in the region. Another reason for studying this region is the fact that, in Sub-Saharan Africa, women are more likely than men to be infected with HIV (HIV/AIDS in Tanzania, n.d.; Poverty and Human Development Report, 2005). It is estimated that in this region, “for every 10 adult men living with HIV, there are about 14 adult women who are infected with the virus” (UNAIDS 2006a, p .5). Statistics shows that across all age groups, 61% of people living with HIV in Sub-Saharan Africa in 2007 were women (UNAIDS, 2007; Worldwide HIV & AIDS Statistics, 2007). Furthermore, the study narrowed its focus on the country of Tanzania due to the fact that, although the HIV infection levels have diminished between 1994–2005 from 8.1% to 6.5%, at the end of 2006 was still “one of the most affected countries in the world” (UNAIDS, 2006a, p. 18; UNICEF – Tanzania Statistics, 2008; World Development indicators, 2006; Tanzania, 2008b).

The research review was prepared through a thorough library and Internet literature search. Some of the internet databases explored are as follows: Academic Search Premier, ArticleFirst, Contemporary Women’s Issues (CWI), ProQuest Digital Dissertations, ECO, ERIC, PsycInfo, Social Services Abstracts, Social Work Abstracts, Sociological Abstracts, WorldCat, MEDLINE, CINAHL Plus, CINAHL Select, Health Source: Nursing/Academic Edition, and scholar.google.com. The following search words were used when the searches were conducted in the above databases: HIV/AIDS & epidemiology / infection / epidemics / knowledge / risk perception / stigma /

domestic violence / depression / socio-economic / poverty / prevention / Africa / Sub-Saharan Africa / women / gender / education / social capital, etc. The body of the literature chosen for this research review focused mainly on Women and HIV/AIDS, Sub-Saharan Africa, and Social Capital. The literature review search incorporates articles published between the early 1990s to the present.

Unfortunately, from a social capital perspective, limited research has been done on sources of HIV/AIDS knowledge, attitudes, and related behavior of women, and on how women who tested HIV positive experience their illness, what their coping strategies are, and what their relationship is to self esteem. Additionally, limited research has been done at the global level to explore if and how social support correlates with coping. In a study among HIV positive women with depression, Vyavaharkar, Moneyham, Tavakoli, Phillips, Murdaugh, Jackson and Meding (2007) found that women who experienced satisfaction with social support and thus with managing HIV disease, were more likely to be taking their HIV medication. In another study by Turner-Cobb, Gore-Felton, Marouf, Koopman, Kim, Israelski and Spiegel (2002) researchers found that HIV positive individuals who were satisfied with their interpersonal relationships and social support were more directly engaged in managing their illness and were more likely to better cope with it. In South Africa researchers found that individuals experiencing AIDS related bereavement used reframing as a coping method, they sought comfort in their spiritual beliefs, and tried to maintain a positive attitude about the future, while suppressing their emotions (Demmer, 2007). Studies in Rwanda, Kenya and Mozambique showed that each region uses different

coping strategies; in Rwanda, families losing a member to AIDS are more likely to replace the lost labor force by adding another family member through marriage or by bringing young relatives into the household, depending on the gender or age of the person dying (UNAIDS, 2006). Due to the limited availability of empirical studies, the main limiting factor of the literature review is that more conceptual articles were found and used in the body of this paper.

1.3 Status of Women with HIV/AIDS in Africa

Around the globe, as Fraerman (2002) points out, the main victims of the pandemic are women. Kofi A. Annan (2002), at the time the secretary general of the United Nations, stated, “today, AIDS has a woman’s face” (Annan, 2002, para 4; Fraerman, 2002; Sofia World AIDS Day Press Release, 2006) These statements are sustained by the UNAIDS/WHO statistics, which indicate that 47% of all people living with HIV worldwide in 2004 are women. In Sub-Saharan Africa, the number of women living with HIV increased from 57% in 2004 to 77% in 2005 of all people living with HIV (UNAIDS, 2004, 2005a).

Research shows that usually poverty and gender roles are the most important factors predicting an individual’s participation in risky behaviors, which in turn would directly or indirectly influence not only their vulnerability to HIV infection, but also the level of quality of care they receive or lack thereof. As a result, Smith (2005) states:

It is no coincidence that HIV prevalence is greater in the world’s poorest and weakest countries, for it is in these places that there is little with which to counter the spread of the disease: Infrastructure is limited in scope and poorly

maintained; health and education services are grossly inadequate; and budgets are constrained by debt. (p. 80)

In order to stop, or at least contain, the worldwide spread of HIV/AIDS, the poverty and gender inequality that are the basis of this fast spreading disease must be dealt with without delay (United Nations Population Fund [UNFPA], Joint United Nations Programme on HIV/AIDS [UNAIDS], & United Nations Development Fund for Women [UNIFEM], 2005a).

1.4 Purpose of the Study

The main goal of this dissertation study is to identify if there exists a relationship between social capital and participants' STI knowledge, HIV/AIDS knowledge, risky behavior knowledge and attitudes towards people living with AIDS (PLA). The following objectives will help achieve this goal:

1. Assess the level of HIV/AIDS related knowledge, attitudes, and sexual behavior among the young people in Tanzania surveyed by the ADRA "Support to HIV/AIDS prevention through abstinence and behavior change for youth" program.
2. Determine whether there is a relationship between participants' individual characteristics (age, sex/gender, education) and their HIV/AIDS knowledge, attitudes, and related behaviors
3. Determine if social capital has any impact on the HIV/AIDS knowledge, attitudes, and related behavior of young women

CHAPTER 2

THEORETICAL PERSPECTIVE

There are numerous theoretical approaches that could be used as frameworks to analyze HIV/AIDS related risk behaviors among young women. Some of them are: feminist perspective, eco-systemic perspective, sociological perspective, social learning theory, social cognitive learning theory, theory of reasoned action, theory of planned behavior, social capital theories, the culture of poverty theory, theory of social disorganization, attachment theory, dependency theory, and others.

According to Eaton et al. (2003), “HIV risk behavior is influenced by factors at three levels: within the person, within the proximal context (interpersonal relationships and physical and organizational environment), and within the distal context (culture and structural factors)” (p. 149). Based on the observations of these authors’ listed theoretical approaches, the social capital perspective seems to be the most appropriate conceptual framework for the area of study proposed by this paper. This is due to the fact that social capital theory is the only theory whose elements can cover all of the levels enumerated by Eaton et al.: (1) within the person - human social capital: acquired knowledge, intelligence, personal abilities; (2) within the proximal context - family social capital, community social capital; and (3) within the distal context - external social capital.(see Figure 2.1).

2.1 Social Capital: Theoretical Perspective

Although many social scientists consider that Pierre Bourdieu, a French sociologist, anthropologist, and philosopher, was the first one to develop the concept of social capital in the 1970s, it is also believed that the concept of social capital first emerged in Lyda Judson Hanifan's discussions of rural school community centers (Hanifan 1916, 1920). Hanifan was predominantly concerned with the understanding of goodwill, fellowship, sympathy and social interaction among the individuals who compose the social entity. Other prominent contributions in the area of social capital have come from Jane Jacob (1961) in relation to urban life and neighborliness, and James S. Coleman (1988) in the social context of education. However, most recently, it has been the work of Robert D. Putnam who brought the issue of social capital to the forefront of the latest sociological studies (1993; 2000).

Since the early 1900s, numerous definitions of social capital have emerged. For example, Putnam (2000) considers that “social capital refers to connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them.” (p. 19). Bourdieu (1980) considers it “a family asset, manipulated for the betterment of individual members and the family as a whole.” Cohen and Prusak (2001) believe that “social capital consists of the stock of active connections among people: the trust, mutual understanding, and shared values and behaviors that bind the members of human networks and communities and make cooperative action possible” (p. 4). Other social scientists are more interested in social capital from the informal social networks

perspective. In this perspective people are involved in social activities, groups and associational memberships, and the like.

When trying to conceptualize social capital theory, several elements emerged from the available literature: human capital, physical capital, family social capital, personal capital, emotional capital, community social capital, economic social capital, linguistic capital, professional capital, symbolic capital, functional capital, political capital, and cultural capital (institutional & personified). In an attempt to narrow this particular area of study, some social scientists are using various ways of classifying social capital (SC). Krishna and Uphoff, 1999 classifies social capital as: *Structural SC* - facilitates the collective action between and among individuals through roles, networks, rules, procedures and precedents; and *Cognitive SC* - facilitates collective action through norms, values, attitudes and shared beliefs among individuals. Putnam (2000) classifies social capital as: *Informal SC* - the ways in which individuals interconnect and relate to each other; and *Formal/institutionalized SC* - the quantity of time and effort that individuals invest in community-based groups and activities. Onyx and Bullen (2000) classifies social capital as: *Bonding SC (rural communities)* - it is characterized by strong mutual support among members of a group, both on a vertical level between members and their leaders, as well as on a horizontal level among community members; and *Bridging SC (urban communities)* - a greater tolerance and acceptance of others among group members, as well as of outsiders.

Putnam (2000) provides three main reasons for which social capital is important for the wellbeing of a community and its individuals: (1) social capital allows citizens to

resolve collective problems more easily; (2) social capital “greases the wheels” that allow communities to advance smoothly; and (3) social capital is widening our awareness of the many ways in which our fates are linked (pp. 288-90). People who have active and trusting connections to others (whether family member, friends, or community organizations) develop or maintain character traits that are considered good by the rest of the society. In addition, Putnam states that social capital works through psychological and biological processes to improve the individual’s life. He concludes by asserting that individuals, whose experiences are abundant in social capital, handle traumas and fight illness more successfully.

Since statistics showed that millions of people are dying worldwide every year of AIDS related diseases, and many more millions are infected each year with the HIV virus, for a long time the only hope for future generations seemed to be the development of a preventive HIV vaccine. However, Gallo states that,

... some people working on HIV made glib statements for an early vaccine success; this position was never that of most leading HIV scientists. Indeed, many AIDS scientists regularly acknowledge the possibility of the impossibility of success. Horton implies that International AIDS Vaccine Initiative (IAVI) once held an optimistic position, but most scientists recognized that this was naïve, and IAVI, like most scientists, no longer argues that a vaccine is just around the corner. (2005, p. 1894)

This staggering statement raises many questions, one such as, “Is social capital the best avenue to provide correct information and resources regarding HIV/AIDS to young women?”

2.2 Social Capital: Conceptual Framework

Having social support adds to individuals’ psychological resources to help them overcome emotional hurdles as well as provides them with added sustenance through finances—material skills and emotional skills to handle future difficult situations with a higher level of success (Cohen & McKay, 1984). Social support can be found at three levels—individual, group, and community. At the individual levels, secondary education and marital status influence HIV/AIDS attitudes, related behaviors, and sources of knowledge among girls and young women (Gregson, Terceira, Mushati, Nyamukapa & Campbell, 2004). At the group level, several factors (e.g., how well the group is functioning, their declared purpose, participants’ socio-demographic characteristics) are very important in influencing HIV/AIDS attitudes, related behavior, and sources of knowledge among girls and young women (Gregson et al., 2004). At the community level, the value of social capital is thought to depend upon the available number of social networks and the subsequent degree of social unity resulted. (Putnam, 1993). The following are some of the most discussed elements of social capital.

2.2.1 Community Social Capital

In his study conducted in Zimbabwe, Gregson et al. (2004) examined the role of social capital in providing supportive community environment that could improve young women’s chances of avoiding HIV infection. Community social capital could be

formed by community and social networks, and group memberships. (a) Community networks are considered to be the main avenues to provide for the diffusion of health-related information (Veenstra, 2000). Health-enabling community circumstances can assist HIV prevention in a cultural, socio-economic, and epidemiological context (Campbell & MacPhail, 2002). (b) Social networks have an important role due to the fact that they could provide the proper contexts within which peers can make the appropriate decisions to change their behavior in response to the given health-related information (Campbell & MacPhail, (2002). (c) Group membership provides the right context for the development of a sense of companionship and unity that could increase members' self-confidence, social skills, and sense of self-esteem (Campbell & MacPhail, 2002). Research shows that young women who were active in local community groups had a better chance of not getting infected with HIV (Campbell, Williams, & Gilgen, 2001). Several factors could predict a group's influence on its participants in how well the group functions, the purpose of the group, and the educational level of the individual participants. Groups are usually delimited by marital status and gender (Gregson et al., 2004).

Gregson and colleagues state that “young women who were satisfied with the performance of the groups in which they participated were more likely to have avoided HIV than other women.” (p. 2129). The study also reveals that youth groups have a positive effect in helping young women to avoid HIV infections; that saving groups or political parties have a primarily negative effect in avoiding HIV infections; and that AIDS and women's groups are the most beneficial influence in avoiding HIV,

especially when compared to not being a member of any other group. “Involvement in local community groups is often positively associated with successful avoidance of HIV, which in turn, is positively associated with psychological determinants of safer behavior” (Gregson et al., 2004, p. 2119). Gregson goes on to state that the impact of group membership on risky sexual behavior is not always a positive one. For example, gender specific social networks or group memberships may reinforce strong male attitudes regarding sexuality, thus perpetuating one of the main causes that is believed to facilitate the transmission of the virus, which is unequal gender relations.

2.2.2 School Social Capital: Formal and Informal Education

Formal and informal education is crucial in helping to prevent and contain the spreading of HIV. The following are several factors that support this point: (1) schools provide easier access to the media, and thus increase students’ exposure to information regarding HIV/AIDS (Kelly, 2000); (2) the exposure to western ideas through the school curricula could provide students with a different paradigm in regard to gender roles and risky HIV behaviors (Blanc, 2000); (3) schools provide convenient sites for meetings, resources for group activities, and training in organizational skills (Gregson et al., 2004).

Gregson’s et al., (2004) study provided evidence that: (1) young women’s chances of avoiding HIV are strongly influenced by two factors—obtaining a secondary education and by remaining single; (2) young women with higher levels of schooling had better knowledge of HIV, which enhanced self-efficacy; and (3) young women with

greater knowledge of HIV were more likely not to have started having sexual intercourse.

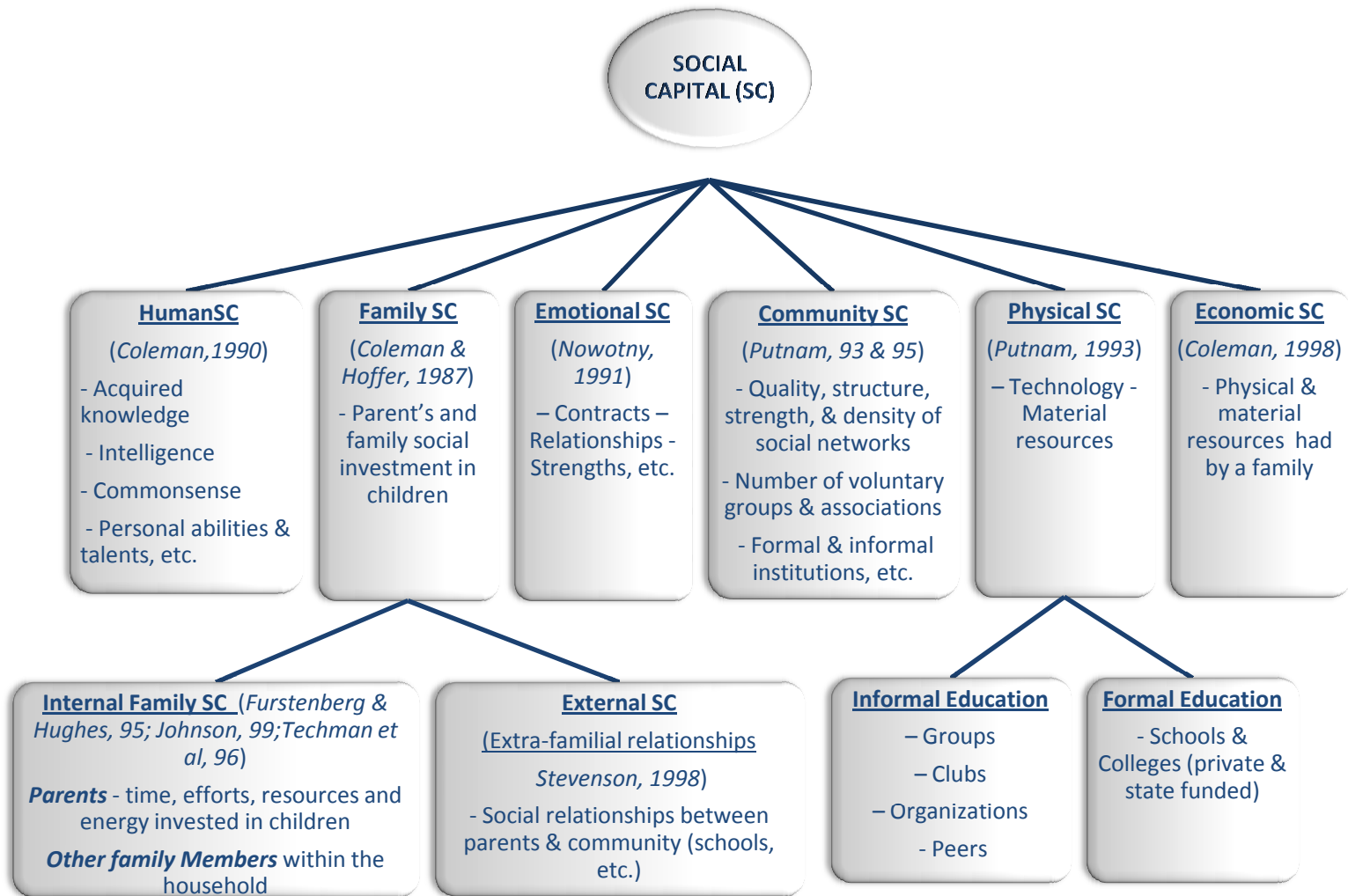
2.2.3 Religious Social Capital

According to Garner (2000) religious organizations include an intrinsic authority that has the potential to influence their members' sexual behavior. Based on the results of a study conducted in Ghana, Takyi (2003) concluded, "Given that many women in Ghana spend considerable time in faith and other church-based interactions where the diffusion of AIDS information is more likely to occur, it is likely that social capital gained through the network of relationships and church-based ties could lead to the dissemination of AIDS information" (p. 1222).

Regrettably, religious organizations also have a negative influence on women's risky sexual behavior when restricting individuals' actions (e.g., forbidding the use of condoms due to the fact that they are in opposition to Church beliefs) (Takyi, 2003). This can be considered an anti-social capital characteristic of religion. Anti-social capital has been defined as the social norms and networks that "impose excessive financial or social obligations on actors or further solidify criminal and/or violent forces in a society" (Mustafa 2005, para. 2). Within the context of this dissertation, anti-social capital may be defined as the sum of the social networks that foster norms that hinder the development of the psychological qualities and related behaviors needed to avoid HIV infection (Portes & Landolt, 1996, 2000)

Based on the available literature, the following figure (Figure 2.1), presents a logic model containing the main elements of social capital.

Figure 2.1 Social capital framework



CHAPTER 3

LITERATURE REVIEW

3.1 HIV/AIDS Epidemiology: Incidence, Prevalence, and Treatment

The first cases of HIV/AIDS were diagnosed in the U.S. in the early 1980s. However, a plasma sample taken in 1959 from an African adult male indicated the Human Immunodeficiency Virus (HIV) was infecting the human race long before 1980. HIV is a lentivirus (slow virus), which attacks the immune system, and it is considered a descendant of a Simian Immunodeficiency Virus (SIV) that affects monkeys. According to avert.org, there are several theories as to how HIV has crossed species: (1) the “Hunter” theory; (2) the oral polio vaccine (OPV) theory; (3) the contaminated needle theory; (4) the colonialism theory; and (5) the conspiracy theory.

Once a person is infected with HIV, he/she can pass it on to others. Scientists consider the following as several unsafe behaviors or situations which are considered to contribute to the spread of the HIV infection: (1) unprotected sexual intercourse with an infected person, (2) sharing drug needles or syringes, (3) transfusions with contaminated blood or blood components, and (4) mother to child transmission. They believe the virus is not spread through casual contact (i.e., the sharing of food utensils, towels and bedding, swimming pools, telephones, or toilet seats). They also believe the virus is also not spread by insect bites such as mosquitoes and bedbugs. Although it is considered that the HIV virus is spread through the exchange of bodily fluids, during oral or vaginal intercourse, there is no scientific evidence that it could be spread

through saliva, sweat, tears, urine or feces (National Institute of Allergy and Infectious Diseases [NIAID], 2007).

3.1.1 HIV/AIDS Incidence

HIV incidence is considered to be the number of new HIV infections in the population of focus, during a certain period of time. Thus, HIV incidence statistics are used to assess if prevention strategies are successful in reducing the number of new infections. Due to limited reliable data-collection practices in poor countries such as the ones located in Sub-Saharan Africa, the HIV incidence is difficult to calculate. Even so, UNAIDS, estimates that “global HIV incidence likely peaked in the late 1990s at over 3 million new infections per year, lowering to 2.5 million new infections in 2007.” (UNAIDS, 2007, p.6) Two thirds of the infections (68%) occurred in 2007 were in Sub-Saharan Africa.

3.1.2 HIV/AIDS Prevalence

Furthermore, the HIV prevalence (percentage of persons infected with HIV) cannot be accurately determined either, since so many cases remain unknown or unreported. Nevertheless, statistics show that the global prevalence of HIV infections remains pretty much the same, due to the fact that the reduction in the number of annual new HIV infections (better prevention strategies) is balanced by the reduced mortality of people already infected due to antiretroviral treatment. Although in the last couple of years the percentage prevalence has stabilized, the number of persons living with HIV is higher than ever before - 33.2 million in 2007. Even though the antiretroviral treatment is proven to prolong the lives of infected people, “AIDS remains a leading cause of mortality worldwide and the primary cause of death in Sub-Saharan Africa.” (UNAIDS, 2007, p.6)

3.1.3 HIV Treatment

Until recent years, worldwide, one year's supply of antiretroviral drugs used in the treatment of HIV/AIDS cost several thousand dollars; today, the much needed medicine can be found for as little as \$148 per year (Noble, n.d.). In 2003, Médecins Sans Frontières demonstrated through pilot studies in the poorest parts of the world, that treatment for HIV/AIDS is feasible. This raised awareness promoted a shift in the emphasis of numerous non-governmental organizations (NGOs) around the world to help provide the drugs in these poverty stricken areas. In 2006 UNAIDS reported that as of June 2005 50% more people living with HIV in 21 countries were receiving the antiretroviral drugs needed than in previous years. Between 2001 and 2005 the number of HIV positive individuals receiving antiretroviral drugs increased from 240,000 to approximately 1.3 million worldwide (UNAIDS, 2006; WHO, 2006a). As of December 2006 approximately 2 million people living with HIV were receiving antiretroviral drugs out of more than 7 million in need (Noble, n.d.). The same source citing World Health Organization (WHO) statistics states that approximately 15 % of people who are on treatment in Tanzania are children, and approximately 65% are women (UNAIDS, 2006; WHO, 2006a). In Sub-Saharan Africa the treatment of millions of HIV-infected people with antiretroviral drugs is becoming more feasible as well, due to price reduction from pharmaceutical companies due to greater competition on the market, as well as the development of generic versions of the same drugs. Even with the price reductions and global initiatives, studies show that adherence to treatment is directly impacted by the amount of payment expected from the patient and their ability to pay constantly and long-term: user fees have a negative effect on the continuum of care, as they were associated with frequent treatment interruptions (Colebunders, Kanya, Semitala, Castelnuovo, Katabira & McAdam, 2005).

As important as antiretroviral drugs are in the treatment of HIV, there is another factor that determines the life expectancy of the patients: nutrition. Results from a study in Malawi showed that severely malnourished individuals receiving antiretroviral drug treatment were six times more likely to die in the first three months of treatment (Zachariah, Fitzgerald, Massaquoi, Arnould, Makombe & Harries, 2006). Another study conducted in Singapore showed similar results: malnutrition was “significantly associated with decreased survival” (Paton, Sangeetha, Earnest & Bellamy, 2006, p. 327). In their article, Oguntibeju, van den Heever and Van Schalkwyk (2007) review several studies that confirmed what it was already known, further expanding their findings from developing countries to people of all age groups in all countries: poor nutritional conditions directly affect the rapid progression of the HIV infection.

Even in the best conditions, with all the global help provided in purchasing medicines and providing them for free or for low fees to patients, or the fact that access to the much needed medicines has more than tripled since 2003, the treatment cannot be done efficiently without the full accord and involvement of all governmental and non-governmental parties, political support, community/cultural acceptance, and a good health-care infrastructure (Weidle, Mastro, Grant, Nkengasong, & Macharia, 2002; Noble, n.d.).

Several steps that should be followed in order ensure a successful introduction of antiretroviral therapy into a community are suggested by Weidle et al. (2002): (1) acceptance of treatment by political and community leaders; (2) education and sensitization of the community; (3) training of health-care and community workers; (4) enhancement of health-care infrastructure to enable monitoring for effect and toxicity; (5) judicious and equitable patent selection process; (6) secure and sustainable system for acquisition and distribution of drugs; (7) design of the programs adapted to local conditions; (8) culturally appropriate methods to ensure adherence and

to provide support of patients; (9) preventive therapy for opportunistic infections; and (10) continuing assessment of knowledge, attitudes and behaviors.

From an ethical standpoint, all antiretroviral drugs should be used fairly to ensure that all patients have an equal chance to receive treatment. Some of the main challenges to the successful use of antiretroviral therapy are “securing and mobilizing funds and technical assistance from the international community, allocating scant national resources between competing health priorities, and developing or enhancing local systems of care” (Weidle et al., 2002, p. 2261).

3.2 Socio-economic Impact of HIV/AIDS

The HIV pandemic has a devastating impact on the economy of the countries hardest hit by it. The HIV pandemic can prevent economic growth by lowering people’s savings, and through the rising cost of health care and reduced productivity (Bates, Fenton, Gruber, Laloo, Medina, Squire, Theobald, Thomson & Tolhurst, 2004).

The estimated loss in the annual economic growth of the countries with high HIV prevalence is 1-2% (UNAIDS, 2004a). The following are several additional factors that could lead to the loss of economic growth: (1) economy—HIV/AIDS often hits working age population the hardest (which leads to fewer working age people to support children and the elderly). In addition, national survey data from Tanzania suggests that HIV is more prevalent in females - approximately 11% - in the wealth status highest quintile, and living in urban areas, compared to approximately 9% of males in the same positions (Poverty, 2005); (2) demography—HIV/AIDS changes the demographic structure of affected countries (affects age and sex/gender distribution with fewer women compared to men); (3) life expectancy—by 2010, life expectancy in highly affected countries is expected to drop below 40 years of age; (4) education—AIDS claims the lives of numerous teachers, contributing to educators shortages. A

study in South Africa shows that 12.7% of educators are HIV positive (Human Science Research Council, 2005); (5) health system—the large numbers of health care workers dying of AIDS, combined with the increasing demand for health care services, are straining the already weak public health infrastructure of affected countries. Botswana lost approximately 17% of its health workers to AIDS, 16% health workers in four South African provinces are living with HIV, while it is estimated that in Zambia 40% of midwives are HIV positive (UNAIDS, 2006; Noble, n.d.); (6) malnutrition, food insecurities, and famine that affected countries in the Sub-Saharan Africa region is getting worse, putting more people's lives at risk; (7) democracy and governance – the Institute for Democracy in South Africa released a study that found that in the past several years a large number of Members of Parliament in Malawi, Tanzania, Zambia and Zimbabwe have died of undisclosed causes (Global Health Reporting, 2008). Since stigma related to HIV/AIDS among the higher circles in these societies is high, the researchers are wondering that no political officials have died of HIV related complications. Could AIDS be a cause in some of these deaths? The answer is yet unknown. The same study found that due to the large number of AIDS related deaths, voters' registers are difficult to maintain; this added to the rising number of deaths among politicians have high implications for democracy and governance stability. (UN Population Division, 2005; UNAIDS, 2004a, 2005a; World Health Organization [WHO], 2004).

3.3 Global Response to HIV/AIDS

One of the main reasons for the rapid spread of the HIV pandemic in some parts of the world is the developing and underdeveloped countries' lack of resources to invest in HIV/AIDS prevention and treatment. As a result, global initiatives to assist these countries in this matter increased overtime. Among some of the international initiatives designed to address the HIV/AIDS pandemic are the: (1) United Nations General Assembly Special Session on

HIV/AIDS; (2) Global Fund AIDS, Tuberculosis, and Malaria; (3) World Health Organization's "3 x 5 Initiative"; and (3) U.S. "President's Emergency Plan for AIDS Relief" (PEPFAR). Although these good intentions exist, financial resources are still falling short of projected need. As a result, millions of people around the globe at risk for HIV will not have access to preventive measures, and those already living with HIV/AIDS will not be able to access care and treatment. UNAIDS projects that for 2006, \$15 billion will be needed to address the pandemic; this amount is estimated to increase in 2008 to \$22 billion (UNAIDS, 2005b).

3.4 HIV/AIDS and Gender

Due to the fact that in many countries societies have a patriarchal structure, gender inequality is one of the leading causes for the very rapid increase of the HIV/AIDS among women. As a result, gender equity should be on the main agenda of governmental and nongovernmental organizations which are trying to prevent, and contain the spread of the disease. The gender equity concept "recognizes that women and men have different needs and power and that these differences should be identified and addressed in order to reduce disparities in health experiences and outcomes" (Theobald, Tolhurst & Squire, 2006, p. 300). Without using a gender equity approach in disease control, specifically in the attempts to prevent and contain the spread of HIV/AIDS, all efforts will remain unsuccessful.

As stated previously, in Sub-Saharan Africa the HIV prevalence among women increased from 57% in 2004 to 77% in 2005 of all people living with HIV. In order to identify and design appropriate interventions that will address more specifically the high risk of HIV infection faced by women around the globe in general and in Sub-Saharan Africa in particular, there are three important steps that need to be taken: (1) identify the factors that are leading to this phenomenon,

(2) identify the ways in which the negative effects of these factors can be addressed, and (3) construct adequate empowerment strategies for women.

Türmen (2003) believes that there are three main factors that could lead to risky behaviors which are considered accountable for the rapid increase of HIV infection for women: (1) biological; (2) social; and (3) cultural.

3.4.1 Biological Factors

According to a report published by the United Nations Population Fund (UNFPA), women are more vulnerable to HIV infection than men. The male-to-female rate of HIV transmission is 2 to 4 times greater for females than it is for males (UNFPA, n.d.). For young girls, the risk of becoming infected during unprotected vaginal intercourse is even greater, since the “lining of the neck of the womb is not fully developed” (USAIDS/WHO, 2004, p. 11). Also, “women tend to be infected by multiple strains of HIV-1 than men. [This] indicates that virus-host-cell interactions may be different in men and women” (Ahmad, 2000, para. 1).

Furthermore, from a social capital perspective there has been little research on how women who tested HIV positive experience their illness. What are their coping strategies and how has it affected their self esteem. Also, limited research has been done to explore at the global level if and how social support correlates with coping. As confirmation of the lack of interest from the scientific community regarding the specific issues related to HIV-positive women, Berer (2000), in his summary of the presentations from the 13th International AIDS Conference in Durban, stated, “For women, however, reproductive and sexual health issues were by large not visible on the main conference agenda . . . ” (p. 160).

After women are tested, they often do not return for their test results, due to the fact that many people associate HIV/AIDS with promiscuity and link it to women. As a result, these

women do not receive the necessary health care (Wood, Montaner & Kerr, 2005). Moreover, the majority of infected women lack or have very limited accesses to health care. As stated by Türmen (2003), “Women have limited access or receive an inferior quality of care than men” (p. 412).

3.4.2 Social Factors

According to the AIDS Epidemic Update Report, “Much sexual risk taken by girls and young women is marked by unequal gender relations, and unequal access to resources, assets, income opportunities and social power” (UNAIDS, 2004, p. 11). In Sub-Saharan Africa this unequal gender relations can be illustrated through the practice of marriage which takes place within patriarchic traditions such as bride-price, polygamy, the control parents (particularly fathers) have over choosing a groom. (McCloskey, Williams & Larsen, 2005). Some of the main social factors influencing the rapid increase of HIV infection for women are: social status, discrimination and violence against women, poverty, and stigma. (a) *Social status* is a leading factor to gender inequality, and “affects women’s power and ability to negotiate the conditions of sexual intercourse, especially condom use” (Türmen, 2003, p. 413); (b) *Lack of sexual education for women* - according to UNAIDS’ AIDS Epidemic Update (2004), the most important HIV/AIDS risk behaviors are produced by the social norms that enforce the ignorance of girls and young women in regard to sex and sexuality. As a result of these attitudes, in numerous countries young women possess no knowledge about how to protect themselves against infections with HIV and other sexually transmitted diseases; (c) *Discrimination against women* may includes the following: inability to become property owners through inheritance, inability to control family resources and assets that are otherwise under the legal ownership of the male of the family, and lack of the right to ask for dissolution of marriage. For women, all these

discriminatory behaviors and beliefs drastically limit their access to basic resources that would empower them—education, access to information and medical care, and income (Türmen, 2003); (d) *Violence against women* is a widely accepted cultural norm in many African countries. As a result, several risk behaviors are emerging from the “fear of violence,” such as preventing many young girls and women from accessing HIV information and preventing them from getting tested and receiving treatment, even when they suspect they have become infected with the virus (UNAIDS, 2004); (e) *Stigma* can be defined as a demeaning characteristic associated with an individual, association that can negatively influence the individual’s status in society (Goffman, 1963). The main sources related to HIV stigma are fear of illness, fear of contagion and fear of death. The main reactions to stigma are silence and denial (Brown, Macintyre & Trujillo, 2003). Stigma is considered to be one of the main factors underlining the public health efforts made to combat and contain the spread of HIV pandemic (Malcolm, Aggleton, Bronfman, Galvão, Mane & Verrall, 1998). Fear of social stigmatization leads to social and emotional isolation, thus restraining women’s access to health care; and (f) *Poverty* is one of the main predictors of HIV infection. According to Hallman (2004), poverty is one of the main variables increasing a woman’s likelihood of having multiple sex partners, which in turn, increases the risk of pregnancy at a young age and drastically lowers the age limit of when young women have their first sexual intercourse. This lowers their chances of chastity, thus undermining the ABC (abstain, be faithful, and use condoms) prevention strategy promoted by Christian conservative organizations. Poverty can also lead to the use of sex in exchange for money, goods, or any other basic living necessities. This is due to the fact that in many cases, especially when their children and their own daily survival needs are at stake, many women and girls have little or no choice but to exchange sex to meet those needs. Hallman also states that poverty limits women’s access

to information and services because they tend to have less access to television, radio, and publications. Additionally, poverty influences internal migration. When men move away to work on oil rigs, are in the military or on farms, they are more likely to engage in extramarital relationships with sex workers, and they are more likely to become infected with STDs or HIV, thereby increasing the rate of infection in women (Hallman, 2004).

3.4.3 Cultural Factors

The first lady of Burkina Faso, Ms. Chantal Compaore, in her address to the UN Special Session (2000), stated that “these damaging practices [from infanticide to rape, from forced marriage, to genital cutting], are integrated in social systems and traditional customs. They continue from generation to generation—though they are an attack on women’s health, or her human rights and on positive development” (para. 1). In addition to the lack of sexual education for women, the following are some of the other main cultural factors that influence the rapid increase of HIV infection for women: female genital and sexual cutting, marriage, and prostitution. (a) *Female genital and sexual cutting* (FGC). According to WHO, FGC is practiced in approximately 27 countries. In many of these countries nearly the entire female population is affected (e.g., Somalia, Sudan, Burkina Faso, Ethiopia, Egypt, Guinea, Nigeria). The belief is that the practice facilitates girls to continue to be virgins until they marry. Men (and older women) are strong supporters of this practice since they believe “the practice represses the sexual desire of women and is a way of curbing promiscuity” (Mwaura, 2000, para.3). This practice is exposing young girls to HIV infection when the instruments used in the procedures performed are not sterilized. In countries such as Kenya, many girls are actually submitted to this practice twice. They have to be “cut” again before they get married, as a result of having had their sex organs sewn up at the time of the initial FGC (Mwaura, 2000). The Inter African

Committee on Traditional Practices Affecting the Health of Women and Children's organization states in their 2000 report that although its goal to eradicate FGC by the year 2000 was not achieved, numerous legislative and behavioral changes took place around the continent of Africa as a result of its efforts. Some of the countries that adopted legislative measures against FGC are Burkina Faso, Djibouti, Egypt, Ghana, Guinea, Ivory Coast, Senegal, Tanzania, and Togo. There are also several publicly supported movements that are openly condemning FGC in Nigeria and Mali. (INS Resource Information Center, n.d); (b) *Marriage*. Forced marriage for girls at a very early age, usually with a much older male, creates power imbalance and lack of control over sexual activities and financial resources. When marriage happens at an early age, it leads to school drop out; which in turn leads to lack of education and skills that could help women find employment instead of having to turn to prostitution, usually their only other venue, to be able to feed their family (Türmen, 2003); (c) *Prostitution*. Another risk behavior that exposes women to the HIV virus is represented by the fact that it is culturally accepted for men (both married and unmarried) to have intercourse with multiple partners, including sex workers. The AIDS Epidemic Updates Report states that the majority of the male clients of sex workers have additional sexual partners, including wives, and girlfriends. Furthermore, many men are also bisexual (UNAIDS, 2004). These attitudes and practices can lead to a "snow ball" effect. As a result, if a man gets infected with the virus, it is very likely that not only his new sexual partners will get infected, but also his wife and his newborn children as well, thus passing the disease on to the next generations. The same report states that in 2002 alone, an approximately 50% of all new infections occurred among spouses" (2004, p. 9).

Other cultural factors instrumental in HIV transmission include: (1) the practice of sex between very young women and much older men, who are more likely than younger men to be

infected (Türmen, 2003), (2) high regard for women's virginity that leads women to condone anal sexual practices that are known to present an increased risk of HIV infection (Gupta & Weiss, 2005); (3) cultural beliefs that sex with a virgin can cure a man infected with HIV/AIDS, which leads to rape and to young girls becoming infected at a much earlier age (Gupta & Weiss, 2005).

3.4.4 Other factors

Other factors are: (a) *Contaminated blood transfusion*. Due to lack of resources and training, blood donations are not always screened in many countries around the globe for major bloodborne infections, including HIV. According to the WHO Global Database on Blood Safety, 20% (13 million units of blood) of the global blood supply existing in the period 1997-1999 was not screen for all relevant transfusion-transmissible infections. In other words, 13 million tests were not performed for HIV, hepatitis B virus (HBV), syphilis, and others. Additionally, poor quality or incorrectly stored test kits and laboratory errors due to insufficient staff training and lack of standard operating procedure, are added risks to the security of blood transfusions (WHO, 2004b).

Although, data for 2001-2002 indicates an improvement in regard to the number of tests performed (from 13 million to 6 million), there is still a long way to go in order to eradicate HIV infections through blood transfusions. This is especially when most of the unscreened donations are collected from the poorest regions of the world where HIV infection is more frequent. (WHO, 2004); (b) *Non-sterile injections*. Unsafe injection practices are frequently linked with high rates of morbidity and mortality, particularly in developing countries. This is due mainly to bloodborne infections such as hepatitis B and C, and HIV (Miller, & Pisani, 1999; Kane, Lloyd, Zaffran, Simonsen & Kane, 1999). According to the WHO (2006b), each year approximately 16

billion injections are administered in developing and underdeveloped countries. It also states that each year unsafe injection practices cause an estimated 1.3 million early deaths, and that globally nearly 2% of all new HIV infections are caused by unsafe injections (para. 7 & 9).

Reuse of syringes and needle in the absence of sterilization exposes millions of people to infections. Assessments carried out in numerous countries have revealed that syringes and needles are often just rinsed in a pot of tepid water between injections. Worldwide, up to 40% of injections are given with syringes and needles reused without sterilization and in some countries this proportion is as high as 70% (WHO, 2006b, para. 5).

Injection practices could be improved by changing the behavior of health care workers and patients, by ensuring availability of equipment and supplies, and by managing waste safely and appropriately (WHO, 2006b); (c) *Needle sharing among drug users*. Tanzania has been known to be a country of transit for heroin from Southwest and Southeast Asia and for cocaine from South America destined for markets in South Africa, Europe and the United States (CIA World Factbook, 2008; McCurdy, Williams, Kilonzo, Ross & Leshabari, 2005). Some of this heroin remains on the Tanzanian markets where users have access to it. Heroin is also the most widely injected drug around the world. A well-known fact is that one of the major routes for HIV infection is sharing of drug paraphernalia, especially injection equipment among drug users (UNAIDS, 2006). In Tanzania, intravenous drug users congregate in places called “geto”-es, where, according to a research study in 2003, needles and drug paraphernalia is shared among acquaintances (McCurdy, Williams, Kilonzo, Ross & Leshabari, 2005). According to Williams, McCurdy, Atkinson, Kilonzo, Leshabari and Ross (2006) in a study conducted in Dar es Salaam, Tanzania’s capital, women were more likely to be heroin users, to be living on the streets, to use sex to support their drug habit than men. Drug use is intricately linked to sex work in many parts

of the world. Tanzania is no exception. Most women intravenous heroin users in McCurdy et al.'s (2005b) study admitted to trading sex for heroin (McCurdy, Williams, Ross, Kilonzo, & Leshabari, 2005b). According to UNAIDS (2006), in a Chinese city 49% of sex workers who used drugs intravenously were found to be HIV positive, while in South Africa 20% of a sample of HIV positive female sex workers admitted to injecting drugs.

In 2005a, McCurdy, Williams, Ross, Kilonzo, and Leshabari reported a new practice among Tanzanian female injection drug users: "flashblood". "Flashblood" describes the practice of drawing blood right after injecting drugs and sharing that blood with others. This practice has been found among female sex workers in Dar es Sallam who used it due to the belief that there is some drug still in the drawn blood that could help with withdrawal symptoms of those who cannot afford the drugs themselves. The authors report that the practice has been initiated by sex workers who could afford the drugs due to availability of clients, to help those who are in poor health and who due to their poor appearance cannot attract enough clients to support their habits. This practice further intensifies the spread of HIV, bringing new dimensions to the epidemic (McCurdy et al., 2005a); and (d) *Incarceration*. According to the UNAIDS 2006 Report on the Global AIDS Epidemic, prisoners are at high risk to be infected or to spread HIV/AIDS. According to Walmsley (2005), approximately nine million people are in prison at any given time, and approximately thirty million individuals are moving from the prison to the community and back to the prison. Furthermore, prisons are considered to be high-risk environments for HIV, STIs, hepatitis C or tuberculosis transmissions (UNAIDS, 2006). HIV infections data from UNAIDS (2006) from prisons around the globe is staggering: 41% of prisoners in the general prison system in South Africa were HIV positive; 12.1% of prisoners in New Bell prison in Cameroon were known to be infected with HIV; and in Zambia, it has been officially recognized

that in 2004, 449 inmates had died of HIV/AIDS related diseases. Prisons are known to be places where illicit drug use, violence, unprotected sex, rape, and unsafe injection practices are rampant. In addition to these risky behaviors, tabooing with contaminated equipment, as well as sharing razor blades, overcrowding and poor nutrition, all present a picture where the spread of HIV virus is a threat to the prison population, and the community at large after release (Simoooya & Sanjobo, 2001; WHO Europe, 2005, UNAIDS, 2006).

3.5 Strategies to Address HIV/AIDS Pandemic for Women

In order to successfully address the biological, social and cultural factors which, as stated above, are considered accountable for the rapid increase of HIV infection of women, a capacity building framework will be used. According to Brown (2005), “Capacity building includes managing change, resolving conflicts, enhancing coordination, fostering communication, and ensuring that information is shared” (p. 331). As a result, the following areas will be addressed: (1) prevention, (2) treatment, (3) care giving, (4) education, (5) gender-based violence, and (6) human rights (The Global Coalition on Women and AIDS). Additionally, it is suggested that issues related to (7) marriage and (8) inheritance rights should be addressed as well, since they are considered some of the most influential causes for HIV infection. Several suggestions on how to effectively address these areas and to help the empowerment of women become a reality, are proposed based on the literature and research studies available.

3.5.1 Prevention

Research shows that not only in Africa, but also around the globe, the main source of HIV infection is unprotected heterosexual sexual intercourse (Gupta & Weiss, 2005). Oriel states that men’s masculinity is often measured by their refusal to wear condoms (2005). Additionally, Moeliono (2004) affirms that some men consider sexually transmitted diseases as “sources of

pride and masculinity” (p. 86). As a result, the prevention strategies should be tailored to first address this specific contamination trend. Furthermore, Türmen (2003) proposes that when dealing with women in particular, the prevention strategies should be centered on their specific biological and behavioral needs that increase their susceptibility to infection. Moreover, their social and economic inequalities should be taken into account when prevention strategies are designed and recommended. For example, the ABC prevention strategy is useless in countries where women’s abstinence choices are threatened on a daily basis by rape or other forms of sexual gender-based violence. Their lack of social and economic power forbids women from negotiating fidelity and condom use (UNAIDS, UNFPA, UNIFEM, 2004). Additionally, Mize, Robinson, Bockting, and Scheltema, (2002) suggest culturally specific materials and resources should be used so the prevention strategies will be successful (e.g., ethnicity-specific pamphlets, ethnically-matched presenters/educators).

3.5.2 Treatment

Presently, the treatment available to HIV infected individuals is antiretroviral therapy (ART), which uses various drugs to inhibit the replication of the HIV virus in the patient’s body. Since in general women are poorer than men, their access to treatment is nonexistent or very limited, even though the WHO and UNAIDS are making serious efforts to provide ART treatment to as many people as possible (e.g., “3 x 5” initiative). The lack of treatment may be due to the fact many women may not have the financial means to pay for transportation to the clinics, or may fear stigma or violence. Even when available, numerous cultural practices may prevent women from seeking and accepting care. As a result, local and state governments should formulate specific regulations that will enable health service providers to make available mobile

health clinics, reduce or eliminate fees, and supply child care at health centers (UNAIDS, UNFPA, UNIFEM, 2004).

3.5.3 Caregiving

According to Dozier (1998), women and girls are the main caregivers of people living with HIV/AIDS. Due to lack of financial means, it is estimated that worldwide over 90% of care due to sickness is given at home by women and girls. Regardless of this fact, governments and policy makers seldom take under consideration this phenomenon when designing policies for poverty reduction. There is a huge need for qualified volunteers and paid community health workers to assist overwhelmed and overworked women in their care giving efforts (UNAIDS, UNFPA, UNIFEM, 2004).

3.5.4 Education

HIV/AIDS education. Education should be considered the most vital element of any strategy designed to prevent and contain the spread of the HIV/AIDS. The HIV/AIDS education should use tailored approaches that address women's distinctive biological and behavioral risk factors. It is considered that when education is culturally specific and designed to address the unique issues and needs of the targeted population, it is more likely to lead to positive outcomes (Pitts, Wilson & Phillips, 1989).

General education. It is considered that advanced levels of education decrease the likelihood of risky sexual behavior, predominantly the probability that a young woman will trade sex for money or will experience forced sex (HIV/AIDS Source, 2005). As a result, advocacy for the promotion of at least primary and secondary education for girls, as well as for women's literacy programs, should take place. The importance of education is illustrated by behavioral changes in men and women, thus undermining some of the cultural mindsets (e.g., social

inequality, discrimination against women). It also can help women become financially autonomous, which will empower them to claim more sexual independence by delaying sexual activity by using protective measures. Although challenging, this is not impossible. Two of the strategies that could be used to keep girls in school are offering free education and protecting girls from sexual harassment (UNAIDS, UNFPA, UNIFEM, 2004).

3.5.5 Violence

Partner violence and sexual abuse are considered important constructs influencing the risk of HIV infection in women (Lichtenstein, 2005). Violence is virtually a two-edged sword, being one of the main sources of infection for women and one of the main factors that prevents women from seeking treatment after becoming infected. Every day, around the globe, millions of women are getting infected with HIV as a result of being submitted to coercive sex, rape, and prostitution. The majority of them, because of the fear of violence, are afraid to access preventive resources and treatment or care. They are also afraid to ask their sexual partner to use protection. Some of the strategies that could empower women to stand-up against violence are: (1) poverty alleviation; (2) education; (3) legal reforms that will challenge cultural norms; and (4) the development of a new declaration of sexual rights using sexual equality as its foundation (Oriol, 2005).

3.5.6 Marriage

Due to the prevalence of child marriages, and young women's arranged marriages with men 10 years older or more, marriage for a great number of women around the world represents a very high risk of HIV infection (Gupta & Weiss, 2005). Dr. Gupta, the president of the International Center for Research on Women (ICRW), suggests the following strategies to help prevent child marriage, and at least contain the spread of the disease after the young girls get

married: (1) interventions to increase the age of marriage; (2) investment in young women's access to secondary schools, availability of reproductive health services and information and non-exploitative economic opportunities; (3) supportive community education initiatives on the risk of child marriage; and (4) investment in a female controlled method of prevention (e.g., female condom or microbicides).

3.5.7 Inheritance Rights

Around the globe, there are countries in which women still do not have the right to possess land and property, or to inherit it. Some of the effects of this phenomenon are: (1) poverty, which increases women's probability to engage in risky sexual behaviors in an attempt to provide the basic needs for survival to their children, especially after their husbands die; (2) homelessness; (3) violence; (4) increased potential for disease. For example, in Kenya women's rights to own, inherit, manage, and dispose of assets are under constant attack from customs, law, and individuals—including government officials—who believe that women cannot be trusted with or do not deserve possessions . . . women who try to fight back are often beaten, raped, or ostracized (Human Rights Watch, 2003, para. 1, para. 6).

The following are several strategies that could assist women who find themselves in this situation: (1) create advocacy groups that could influence governments to pass legislation that will ensure women's inheritance and property rights; (2) support literacy programs for women in order to empower themselves; this would also help them become aware of their property rights, if these rights exist; (3) invest in paralegal services that would help families affected by AIDS create the legal documentation that will prevent "property grabbing" (usually when the dead husband's family takes away the possessions from the wife) (Izumi, 2007).

3.5.8 Human Rights

In underdeveloped and developing countries, HIV/AIDS is predominantly a disease of social and sexual inequalities. Oriel (2005) states, “When men refuse to wear condoms and still succeed in gaining sexual intercourse, it indicates that male sexual pleasure is in direct violation of a range of women’s rights, including the rights to health, bodily integrity and even women’s right to life” (p. 399). However, just helping women become aware of their human rights in regard to different issues such as female genital cutting (FGC), property and inheritance rights, is not enough. As a result, the international humanitarian rights organizations should work hand in hand with the international aid organization in an attempt to develop appropriate programs that would not only educate women in regard to their human rights, but also empower them to be able to uphold these rights. Also, these organizations should work with governments to design legislation that will promote women’s human rights.

By following the assumptions of some social scientists such as Putnam, Coleman, and Bourdieu, who believe that people who have access to a broader range of social capital elements handle trauma and fight illness more successfully, this dissertation attempts to find out if there is a positive relationship between participants’ social capital and participants’ Sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sex and sexuality knowledge, their sexual behaviors, as well as their attitudes toward people living with AIDS (PLA).

This study will assess the relationship between participants’ social capital and their STI and HIV/AIDS knowledge, risky behavior knowledge, and their attitudes toward people living with AIDS; at the relationship between participants’ STI and HIV/AIDS knowledge, and their individual characteristics (age and education). The study will also look for statistically

significant differences between young women's and men's STI and HIV/AIDS knowledge and attitudes toward people living with AIDS (sex).

CHAPTER 4

METHODOLOGY

Since the relationship between social capital and sexually transmitted infections (STI), HIV/AIDS, sexual and risky behavior knowledge, as well as young women and men's (age 16-24) attitudes towards people living with AIDS (PLA) has not yet been clearly conceptualized or understood, the nature of this dissertation will be an exploratory one. The following sections describe the methods used to answer the research questions posed by this dissertation study and to test the research hypotheses.

4.1 Research Design

This study is a secondary data analysis of the data collected through a baseline survey administered in January 2006 by the Adventist Development and Relief Agency (ADRA) in Kenya and ADRA Tanzania, under the direction of the ADRA International. ADRA International is a private volunteer organization founded in 1956, operating in over 125 countries. Its "purpose is to develop human capacity, increase self reliance, and empower communities to meet crisis or chronic distress. ADRA works to achieve positive change without regard to ethnicity or religious affiliation" (ADRA Kenya & Tanzania, 2005, p. 10). The original data was collected for the *Support to HIV/AIDS Prevention through Abstinence and Behavioral Change for the Youth (ABY) Program* that has operated in Kenya and Tanzania since 2005 and will end in 2009.

The goal of the ABY Program is to "reduce HIV/AIDS infections in the countries of

Kenya and Tanzania through a consortium HIV/AIDS prevention strategy that reaches 1 million youth ages 10-24 with ABY messages by September 2009” (ADRA Kenya & Tanzania, 2005, p. 8). The program’s objectives are to: (1) expand skills-based HIV training for youth; (2) facilitate positive community discourse on HIV/AIDS; and (c) reinforce the role of parents and other protective influences. The baseline survey was designed to take place during the 2nd and 3rd quarters of the project, in 2006. The staff training for the data collection began on January 9, 2006 for both countries. The data collection for Kenya took place between January 23–27, 2006, while the data collection for Tanzania took place between January 30 and February 3, 2006.

The data used for this dissertation was collected by ADRA Tanzania for the Tanzania ABY Program. The Tanzania data collection took place in three regions - Mara, Mwanza, and Kilimanjaro. The data collection was done by ADRA Tanzania staff and volunteers. Although its existence is documented as early as 1971, ADRA Tanzania was established as an independent organization in 1982. Over the years, this organization has successfully implemented various projects with emphasis on health, education, income generation, agriculture and relief activities. Today ADRA Tanzania employs 46 permanent workers, and coordinates numerous volunteers.

4.1.1 Targeted Population

The original study examined Kenyan and Tanzanian young men and women (N=671; male n=359, female n=307) between 16–24 years of age. Only 106 of the participants have been married before, 363 were currently in school at the time of the data collection, and 15 never attended school. The Tanzanian sample which is of interest to this study, has an n=326. The participants volunteered for the study and were interviewed face-to-face by ADRA workers and volunteers. The interviews were done in schools (primary schools, secondary schools, high schools, and universities), banks, video shows, taxi stands, kiosks, households and homesteads,

hospitals, post offices, markets, churches, township offices, police stations, and shopping centers. Each interview took about one hour to complete.

4.1.2 Sampling Design

The research study used a convenient sample strategy, age being the main determinant for the participation in the study (16–24).

Sample Size. Green (1991) states that sample size in a research study design is very important, due to the fact that it can determine: (a) Alpha – the probability of committing Type I error (incorrectly rejecting the null hypothesis); (b) Power – less likelihood of making a Type II error (not rejecting a false null hypothesis); and (3) Effect Size – the degree to which the criterion variable is related to the predictor variables in the population. In order for the findings to be considered statistically significant, there is much disagreement among social science researchers regarding how large a sample size should be. Bordesleske (1994) considers that the sample size should be at least 30 cases per variable; Tabachick and Fidell (2000) believe that a sample size of 20 cases per variable is acceptable; while Rubin and Babbie (2004) consider that the “common statistical rule-of-thumb requirement for multiple requirement for multiple regression analysis” is to have at least 10 cases per variable (p. 272). Other social scientists are using different rules-of-thumb: (a) 1st – the number of subjects, N , should always be equal to or greater than some constant ($N \geq A$); (b) 2nd – stipulates a recommended minimum ration B of subject-to-predictors ($N \geq Bm$; m – number of predictors); and (c) 3rd – more general, encompasses the first two rules ($N \geq A + Bm$) (Green, 1991). Furthermore, some scientists are developing their own rules based on the specific needs of the study at hand. Table 4.1 summarizes the main recommendations regarding the sample size:

Table 4.1 Summary of main sample size rules

Author	Rule		
Schmidt (1971)	A minimum subject-to-predictor ration in value from 15-to-1 to 25-to-1		
Harris (1975)	$N > 50 + m$ (N=sample size, m=nr. of variables)		
Pedhazur (1982)	Use of rules-of-thumb		
Bordesleske (1994)	At least 30 cases per variable		
Marks (1996)	200 subjects for any regression analysis		
Tabachick and Fidell (2000)	20 cases per variable are acceptable. However, the “ <i>bare minimum requirement is to have at least 5 times more cases than IVs</i> ” (pp.128-129)		
Rubin and Babbie (2001)	At least 10 cases per variable		
	1 st Rule	2 nd Rule	3 rd Rule
Rules-of-thumb	$N \geq A$	$N \geq Bm$	$N \geq A + Bm$

Effect Size. Cohen (1988,1992) states that a behavioral sciences study should have a medium effect size. This dissertation study has 14 variables. According to the above table, the minimum sample size should be 138. Due to the fact that the Tanzanian Sample has $n = 326$, the required sample size is achieved.

4.1.3 Data Collection and Instruments

Data collection took place in January 2006 and it was done by ADRA Tanzania staff and volunteers. The interview was administered face-to-face, and it took about one hour. The participation in the survey was done on a voluntary basis. The instrument used in this survey is a result of collaborative efforts between ADRA International, ADRA Kenya, and ADRA Tanzania employees. In order to use locally and culturally relevant language, the original survey used the word *sex* to describe the participant’s gender. Since this study is based on a secondary data analysis, and this investigator had no control over the development of the original survey, the findings and discussion will reflect the use of the word *sex* to describe gender. The survey begins with demographic information (age, sex/gender, marital status, education, and language). It continues with sections regarding communication, sex and sexuality, relationship, healthful living, responsible behavior, HIV/AIDS knowledge, life skills, human rights, gender

understanding, and mass media preference. Not all questions are exhaustive and inclusive. The original survey can be found in Appendix A.

Validity and Reliability of the Instrument. The original instrument was developed by ADRA International in collaboration with ADRA Kenya, and ADRA Tanzania for the sole purpose of the ABY study, and thus used for the first time. No pilot study was implemented to validate the instrument and test it for reliability (consistency).

4.2 Research Questions and Hypotheses

Research Question # 1

Is there a positive relationship between participants' social capital and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA)?

Hypothesis #1

There a positive relationship between participants' social capital and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA).

Sub-hypotheses 1.1 – 1.5:

H1.1 The higher the level of social capital, the higher the knowledge regarding sexually transmitted infections (STI)

H1.2 The higher the level of social capital, the higher the knowledge regarding HIV/AIDS

H1.3 The higher the level of social capital, the higher the sexual knowledge

H1.4 The higher the level of social capital, the knowledge regarding risky behavior

H1.5 The higher the level of social capital, the more positive the attitude toward people living with AIDS (PLA)

Research Question # 2

Is there a positive relationship between participants' age, and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS?

Hypothesis # 2

There a positive relationship between participants' age, and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS.

Sub-hypotheses 2.1 – 2.2:

H2.1 The older the participants, the higher the level of sexually transmitted infections (STI) knowledge

H2.2 The older the participants, the higher the level of HIV/AIDS knowledge

H2.3 The older the participants, the higher the level of sexual knowledge

H2.4 The older the participants, the higher the level of risky behavior knowledge

H2.5 The older the participants, the more positive the attitude toward people living with AIDS (PLA)

Research Question # 3

Is there a positive relationship between participants' sex/gender and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA)?

Hypothesis # 3

There a positive relationship between participants' sex/gender and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA).

Sub-hypotheses 3.1 – 3.5:

H3.1 Young women are more knowledgeable in regard to sexually transmitted infections (STI) than young men

H3.2 Young women are more knowledgeable in regard to HIV/AIDS than young men

H3.3 Young women are more knowledgeable in regard to sexuality than young men

H3.4 Young women are more knowledgeable in regard to risky behavior than young men

H3.5 Young women show a more positive attitude toward people living with AIDS (PLA)

Research Question # 4

Is there a positive relationship between participants' education and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA)?

Hypothesis # 4

There is a positive relationship between participants' education and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA)

Hypotheses 4.1 – 4.5

H4.1 The higher the level of education, the higher the knowledge regarding sexually transmitted infections (STI)

H4.2 The higher the level of education, the higher the knowledge regarding HIV/AIDS

H4.3 The higher the level of education, the higher the sexual knowledge

H4.4 The higher the level of education, the higher the knowledge regarding risky behavior

H4.5 The higher the level of education, the more positive the attitude toward people living with AIDS (PLA)

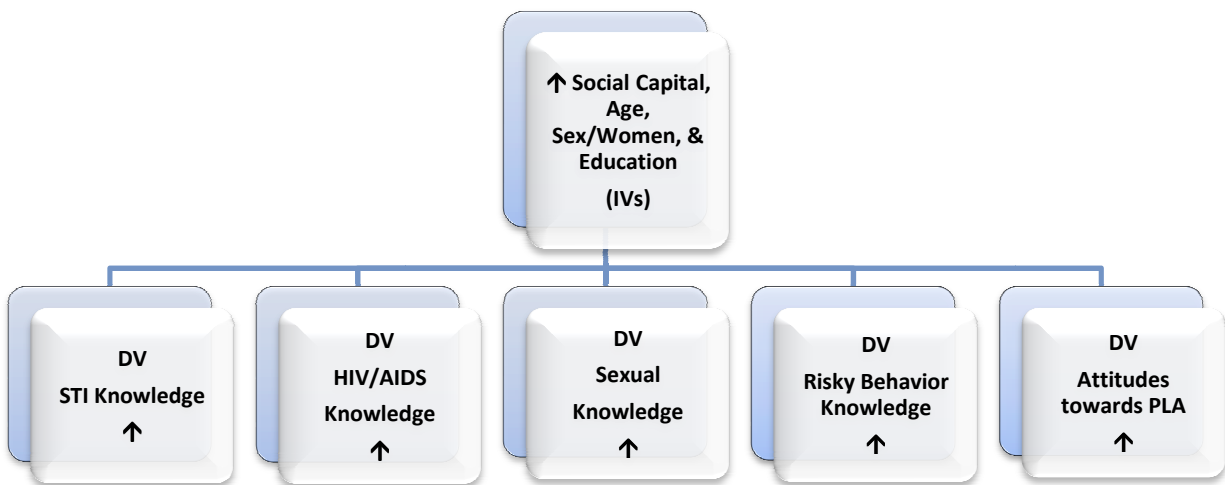


Figure 4.1 Summary of the predictor (IV) and criterion (DV) variables

4.3 Variables Descriptions

Based on the available literature and the theoretical underpinning of social capital presented in chapters two and three of this document, relevant questions used in the original survey were grouped to develop specific measurable instruments. The new, re-developed instrument, although limited in its nature, addresses the particular needs of this dissertation study, and can be found in Appendix B. After determining relevant hypotheses and sub-hypotheses for the chosen research questions, it is important to identify the variables to be used in the statistical tests. Following is a detailed description of what questions were chosen to delineate the predictor and criterion variables in the new instrument.

4.3.1 Criterion Variables (DV)

Based on an in-depth analysis of the relevant literature and theory, succeeded by a careful analysis of the original research instrument, the following have been chosen as criterion variables (DV) for this study, and are summarized in Table 4.2.

Sexually transmitted infections (STI) knowledge. The subjects' knowledge regarding STI is delineated by the following questions (Qs). S7Q1: *Have you heard about sexually transmitted infections* (yes, no); S7Q2: *Which STI do you know*—gonorrhea, syphilis, herpes, Chlamydia, HIV/AIDS; S7Q4: *What are the signs/symptoms of STI*—body itching, body rash, discharge from the penis/vagina, lower abdominal pains, sores on the penis/vagina, sores on the mouth; S7Q5: *How is STI transmitted*—sexual intercourse, kissing, sharing sharp objects, sharing tooth brush, blood transfusion, insect bites, mother to child, sharing bathing towels, witchcraft; S7Q6: *How can STI be prevented*—abstinence, using condoms, having uninfected sexual partner, non penetrative sexual activities; S7Q7: *What should a person infected with STI do*—seek treatment, do nothing; S7Q8: *Where should a person go for treatment*—health centers, traditional healers, self treatment; S7Q9: *When should STI infected person seek treatment*—immediately after noticing the symptoms, 4 weeks after noticing the symptoms, 2 months after noticing the symptoms; and S7Q10: *What are the social responsibilities of a person infected with STI*—inform the partner/s immediately, seek medical help with the partner/s, seek medical help alone, continue having sex.

HIV/AIDS knowledge. The subjects' knowledge regarding HIV/AIDS is measured by the following questions. S7Q11: *Have you heard about HIV/AIDS* (yes, no); S7Q13: *Is it possible for a healthy-looking person to have the AIDS virus* (yes, no); S7Q14: *Is it possible that a healthy-looking person who has the AIDS could transmit it to his/her sexual partner* (yes, no);

S7Q15: *What are the symptoms of AIDS*—gradual loss of body weight, gradual loss of hair, frequent diarrhea, herpes zoster, prolonged fever, body rash, prolonged cough; S7Q16: *Who is at risk of being infected with HIV/AIDS*—all, youth, women, men, those who get involved with commercial sex; S7Q17: *How is HIV transmitted*—sexual intercourse, kissing, sharing sharp objects, blood transfusion, insect’s bites, mother to child, substance abuse, sharing bathing towels, sharing of tooth brush, direct contact with the fluid of infected corpse/dead person; S7Q18: *How can HIV be prevented*—abstinence, using condoms, being faithful to partner, having no infected sexual partner; S7Q19: *Where can people go to be tested for the virus that causes HIV*—hospital, clinic, VCT center, pharmacy, mobile clinic, field worker; S7Q24: *How would you care for a person infected with HIV/AIDS*—feeding, bathing, counseling/encouragement, sharing information, showing compassion, sharing resources or donating resource; and S10Q2: *How does respect for human rights contribute to reduction of the spread of HIV*—reduction of rape, reduction of child abuse, reduction of sexual exploitation, protection of the individual rights.

Sex and sexuality knowledge. The subjects’ knowledge regarding sex and sexuality is measured by the following questions: S3Q1: *What is sex*—being male or female, sexual intercourse between male and female; S3Q6: *What are the functions of penis*—secretion/urination, sexual pleasure, sexual intercourse, means to transfer sperm from procreation; S3Q7: *What are the function of vagina*—secretion/urination, sexual pleasure, sexual intercourse, means to receive sperm for procreation; S4Q12: *What is the right stage to start sexual intercourse*—at marriage, while in primary school, while in secondary school, while in college, after completion of one’s education, when in love, when one feels like having sex, when one has the right resources, when negotiated; S5Q2: *How does one maintain healthy sexual*

life—avoiding substance abuse, be faithful to partner, avoid underage sex, use contraception, undergo voluntary counseling and HIV training; S6Q1: *Can a person control sexual urge* (yes, no); S6Q2: *What do you do when you have sexual urge*—find sex partner, masturbate, get involved in some diverting activities, discuss with peer group, practice self control, get pornographic material; S9Q3: *What is sexual abuse*—verbal abuse, physical abuse, rape, lack of quality between men and women where one sex/gender has a low social status, forcing one's sexual desire over the opposite sex, taking advantages of children; S9Q4: *What are the effects of sex abuse*—loss of self confidence, loss of trust in the establishment, distrust of the opposite sex, running away from home, psychological trauma, physical trauma, STI; and S9Q6: *Who decides on sexual rights*—the male, the female, both.

Risky behaviors knowledge. The subjects' knowledge regarding risky behavior is measured by the following questions: S5Q1: *What are the factors that can have a negative effect on one's reproductive (sexual) health?* – female genital cutting, underage marriage, substance abuse, not having sex regularly, stress, rape, cultural practices, not having sex at all, unsafe sex; S5Q3: *What are the potential health consequences of underage sex?* – unsafe pregnancy, unsafe delivery, congenital complications, educational interruption, maternal complications, STI, termination of pregnancy; and S6Q3: *Identify risky sexual intercourse* – getting involved in commercialized sex, practicing unsafe sex, unfaithfulness to partner.

Attitudes toward people living with AIDS (PLA). The subjects' attitude toward individuals living with AIDS is measured by the following questions. S7Q22: *Would you be willing to care for a person suffering from AIDS* (yes, no); S7Q26: *If a teacher has the AIDS virus but is not sick, should the teacher be allowed to continue teaching in the school*—yes, no, don't know; S7Q26: *Do you agree or disagree with the following statement: People with AIDS*

virus should be ashamed of themselves—agree, disagree, don't know; S7Q25: *Do you agree or disagree with the following statement: People with AIDS virus should be blamed for bringing the disease into the community*—agree, disagree, don't know.

4.2.2 Predictor Variables

After establishing the criterion variables (DV), through the use of the same method, the following variables were chosen as the predictor variables:

Control variables. Some of the subjects' demographic characteristics are used as control variables in Q1: age, Q2: gender, and Q3: level of education.

The following table summarizes the above presented criterion and predictor variables with the corresponding questions used to delineate these variables in the new instruments.

Table 4.2 Variables and scales

	Variable Description	New Scales
Criterion Variables (DV)	STI Knowledge	S7Q1; S7Q2; S7Q4; S7Q5; S7Q6; S7Q7; S7Q8; S7Q9; S7Q10
	HIV/AIDS Knowledge	S7Q11; S7Q13; S7Q14; S7Q15; S7Q16; S7Q17; S7Q18; S7Q19; S7Q24; S10Q2
	Sexual Knowledge	S3Q1; S3Q6; S3Q27; S4Q12; S5Q2; S6Q1; S6Q2; S9Q3; S9Q4; S9Q6
	Risky Behavior Knowledge	S5Q1; S5Q3; S6Q3
	Attitudes towards PLA	S7Q22; S7Q25; S7Q26; S7Q27
Predictor Variables (IV)	Age	Q1
	Sex/Gender	Q2
	Education	Q5
	Social Capital	See Table 4.3

Social capital. Based on the literature review, a comprehensive social capital framework would include an in-depth analysis of various elements (subsets) of social capital such as: human, family (internal and external), emotional, educational (formal and informal), community, physical, and economic social capital. However, due to the limited information collected for the original study, the above listed elements of social capital can be assessed only marginally.

(a) *Human social capital*—includes acquired knowledge, intelligence, commonsense, personal abilities and talents (Coleman, 1990). Questions S1Q5 and S8Q3 will be used to assess human social capital. S1Q5: *What is your level of education*—never attended school, lower primary, middle primary, upper primary, secondary; and S8Q3: *What are your aspirations*—complete education, keep healthy, start family, get a job/make an independent living, make sure to have a career, be responsible, have no aspiration/plan.

(b) *Family social capital*—it is represented by parents and family social investment in children. It includes internal elements—parents’ time, efforts, resources, and energy invested in children, and other family members (within the household); and external elements, social relationships between parents and community (schools) (Coleman, 1988). The original research instrument includes several elements that could be identified under internal family social capital. S2Q1: *Who are you primarily living with*—both biological parents, father only, mother only, father and sep mother, mother and step father; and S2Q2: *What are the responsibilities of person/s whom you are living with regarding your welfare*—basic needs, education, guidance, discipline, medical care, provision of security/protection, sexual satisfaction, none, don’t know.

(c) *Emotional social capital*—it consists of contacts, relationships, and strengths (Nowotny, 1991). In this study, elements of emotional social capital are included in the following questions: S2Q3: *With whom do you mainly discuss sexual issues*—both biological parents, father only, mother only, uncle only, aunt only, sep mother, step father, grandparents, guardian, friends, nobody, other; S2Q4: *How often do you discuss*—weekly, monthly, bimonthly, quarterly, biannually, annually, as needed; S2Q6: *When you make decisions where do you seek advice from*—parent/guardian, teacher, friend/peers, relative, professional, other.

(d) *Physical social capital*—it consists of technology and material resources (Putnam, 1993). Question S7Q12 is the only one that addresses participants' access to technology. S7Q12: *From where or whom did you hear/read about HIV/AIDS*—radio, newspapers/magazine, TV, parents, teachers, friends/peers, health workers, pamphlets/brochures, other.

(e) *Economic social capital*—it includes a family's physical and material resources (Coleman, 1988). The only question from the instrument that addresses the economic level of the participants in the study is S8Q2: *What challenges do you experience in life*—economic, family relationship, peer pressure, courtship, reproductive health, general health maintenance, educational access, cultural demands, generational gap, school, other. The decision to consider all the participants who did not check economic could be considered debatable by some. On the other hand, since the instrument does not contain any question regarding the economic wellbeing of each participant, this will be the only way to control for economic social capital.

(f) *Community social capital*—it is considered to encompass the quality, structure, strengths and density of social networks; number of voluntary groups and associations; formal and informal institutions (Putnam, 1993, 1993Spring). Questions S4Q1 and S4Q2 addressed this issue. S4Q1: *Who are your friends*—peers in the neighborhood, class mates, club members, relatives, work mates; and S4Q2: *How do you select your friends*—same profession, same neighborhood, same school/college.

(g) *Education*—as an element of social capital, education has two components: formal (school and colleges, private and state funded), and informal (groups, clubs, organizations, peers). For formal education it was chosen S1Q5: *What is your level of education*—primary, lower primary, middle primary, upper primary, secondary; and for informal, S4Q1: *Who are your friends*—peers in the neighborhood, class mates, club member, relatives, work mates.

Table 4.3 summarizes the above presented elements of social capital with the corresponding questions used to delineate these elements in the new instruments.

Table 4.3 Social capital scale

	Elements of SC (Subscales)	New Scale
Social Capital (SC)	Human SC	S1Q5; S8Q3
	Family SC	S2Q1; S2Q2
	Emotional SC	S2Q3; S2Q4; S2Q6;
	Physical SC	S7Q12
	Economic SC	S8Q2 (only 1)
	Community SC	S4Q1; S4Q2
	Education SC	S1Q5; S4Q1

4.4 Data Analysis

The data analysis was done by using the Statistical Package for Social Sciences (SPSS)®. Descriptive statistics were performed to obtain a general description of the data. Logistic regression analysis and Univariate Analysis of Variance (ANOVA) were used to study the relationship between the predictor variables (IV) and criterion variables (DV).

Logistic regression analysis was used to study the relationship between the predictor variables (IV): social capital, age, and the criterion variables (DV): STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, and subjects' attitudes towards PLA. First, a simple linear regression was performed to obtain a linear regression equation so that the criterion variables (STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, and subjects' attitudes towards PLA) can be predicted based on the predictor variables (social capital, and age). According to Mertler & Vannatta, "the stronger the relationship [between the IV and the DV], the higher the degree of predictability between them" (2001, p.166). Second, a multiple linear regression was performed in order to narrow down to which specific element/s of social capital (human sc, family sc, emotional sc, community sc, physical sc, and economic sc) were the significant predictors. This "procedure examines the significance of each IV to predict DV as well as the significance of the entire model to predict

the DV” (Mertler & Vannatta, 2001, p.194). One threat to this statistical analysis is multicollinearity. Multicollinearity is considered a “problem that arises when there exists moderate to high intercorrelations among predictor variables (IVs)” (Mertler & Vannatta, 2001, p.169).

An Univariate Analysis of Variance (ANOVA) was used to find out if there is a significant difference in subjects’ STI, HIV/AIDS, and sexual knowledge, risky behavior knowledge, and their attitudes towards PLA, based on their sex/gender, and educational differences. The Univariate Analysis of Variance (ANOVA) was chosen due to the fact that this statistical analysis is “a hypothesis testing procedure that simultaneously evaluates the significance of mean differences on a DV between two groups” (Agresti & Finlay, 1997, cited in Mertler & Vannatta, 2001, p.67).

4.5 Reliability and Validity of the Study Design

4.5.1 Reliability

The instrument used for the original study was not tested for reliability (consistency) due to the fact that it was newly developed by ADRA International in collaboration with ADRA Kenya, and ADRA Tanzania, and used for the first time in this study.

4.5.2 Validity

Due to the broad variety of ways in which social capital is viewed and measured, predominantly by social scientists and economists, the effort to develop a cross sectional common set of indicators to measure social capital across disciplines is non-existent. As a result, in order to operationalize the social capital indicators, several pre-existing individual Social Capital measures are usually used (e.g., young adult social support inventory [YA-SSI]). This ensures the validity and reliability of the measurement instruments used. Unfortunately, the data

collected for the *Support to HIV/AIDS Prevention through Abstinence and Behavioral Change for Youth* (ABY) Program did not use an instrument already tested for validity and reliability (reliability being the quality of measurement [its consistency], while validity is the degree to which a variables used in this study measured what they were designed to measure).

There are four types of validity—statistical conclusion validity, internal validity, constructs validity, and external validity. Statistical control validity refers to the validity of inferences made based upon the statistical analyses used. Construct validity refers to the validity of inferences made based upon the measures employed. Internal validity is the appropriateness, meaningfulness, and usefulness of the specific inferences made from test scores. External validity refers to the validity of inferences made to a larger population (Cook & Campbell, 1979).

Statistical construct validity. The use of the wrong statistical analyses methods, or a small “n” could violate the statistical construct validity of the study. This could lead to type I error (an error made by wrongly rejecting a true “null hypothesis”), and type II error (an error made by wrongly accepting a false “null hypothesis”). However, in this study, the statistical construct validity can be controlled through the power of the statistical test used, and through the use of a data set with a high enough N - 326.

Construct validity. The construct validity of a study is very important, due to the fact that it grants the ability to infer or interpret the data based on the measure used. Given that the original research did not used validated instruments, construct validity could be considered a threat for this dissertation study.

Internal validity. The study design is of great importance in the case of internal validity, due to the fact that internal validity refers to the generalization of conclusions within a given study itself. There are several threats to internal validity:

1. History—does not apply to this dissertation study due to the nonexperimental nature of the original study (no pre- post tests). As a result, historical events that usually could occur during the course of an experimental study threatening to confound the experimental results will not apply to this study.

2. Maturation—due to the nonexperimental nature of the original research design, the participants' continual growing and changing did not affected the results of the study, thus maturation is not considered a threat to the internal validity of this study.

3. Testing—this threat does not apply to this dissertation study due to the fact that the nonexperimental nature of the original study the does not require testing and retesting, which otherwise could have influenced people's behavior, thereof confounding the experimental results.

4. Instrumentation—can be considered a threat to internal validity of this dissertation study due to the nonexperimental nature of the original study and the lack of measurement in pre-testing and post-testing. As a result, various problems of measurement (e.g., conceptualization) that could have been identified during pre- post testing, were not identified and addressed.

5. Regression towards the mean (RTM)—is not a threat to this study due to the nonexperimental nature of the original study; due to the lack of pre- post test, a participant's response will not vary;

6. Selection—could be considered a threat to the internal validity of this dissertation study due to its lack of random selection.

7. Experimental Attrition—is not a threat to this study, since this threat has to do with participant dropping out of the project. Usually the threats to internal validity can be controlled through the use of a good experimental design and random assignment. Given that this dissertation study is based on a secondary data analysis, the researcher had no control regarding the original study design; therefore, she is not able to control for the two identified threats to the internal validity, instrumentation and selection.

External validity. External validity refers to generalizability of findings to or across target populations, settings, or times. It is considered that an experimental research design has a better external validity due to several factors (e.g., random assignment). Since this dissertation study is using a data set generated by a nonexperimental study, it can be concluded that the external validity of this dissertation study is threatened by the use of convenient sampling and by the use of an instrument not tested for validity and reliability. In the case of this study, the threat to the external validity could be controlled through the use of a large N, decrease error, and increase sensitivity of the statistical analysis.

4.6 Advantages and Disadvantages of Secondary Data Analysis

4.6.1 Advantages of Secondary Data Analysis.

According to Kiecolt and Nathan (1985), a secondary data analysis offers several advantages. Among them, it presents the researcher with an opportunity for saving resources such as time and money. The researcher can also complete the research project/dissertation independently, eliminating the need for research assistants in the field. The data set may provide the benefits of nationally representative samples and validated instruments. A secondary data

analysis could be used for a variety of research designs (i.e., trend, cohort, time-series, comparative studies). This data set provided the investigator of this study with all of the above stated advantages.

4.6.2 Limitations of Secondary Data Analysis.

In spite of the numerous advantages of a secondary data analysis, there are several limitations as well. Some of them are as follow: (1) due to the fact that errors made in original surveys often are no longer observable, it is not possible to single out interviewing, and coding errors, (2) data quality may be questionable given that the survey could present measurement issues, (3) the researcher must deal with measures that are not precisely those most wanted, and (4) the original study could lack variables that the researcher may consider essential for the present study (Kiecolt & Nathan, 1985). These listed limitations are absolutely true for the present dissertation study as well. If the investigator of this dissertation study had had the opportunity to design the original study, she would have used already validated instruments as well as more comprehensive questions such as those applied to social capital.

CHAPTER 5

STUDY FINDINGS

Following the discussion regarding the methodology proposed for this study, the data was introduced in SPSS® (Statistical Package for Social Sciences). This chapter will review the statistical findings of this study, divided in several sections: first an overview of the studied population will be presented through the descriptive statistics; then the chapter will conclude with the results of the logistic regression analysis and Univariate Analysis of Variance (ANOVA) which were performed for the four predictor variables: social capital, age, sex/gender and education.

5.1 Descriptive Statistics

Three hundred and twenty six individuals, from three different regions of the country of Tanzania (Mwanza 43.9%, Mara 25.5%, and Killimanjaro 30.7%), completed the interview questionnaire administrated by ADRA Tanzania. Among the respondents 53.4% were male, and 46.0% were female. Subjects ranged in age from 16 years old to 24 years old. At the time of the interview, 59.2% of the subjects were still in school; 82% of them have never been married, while 13.8% were married at the time or sometime before the interview; 15.6% preferred English as a language of communication; a majority of them (45.7%) had completed Upper Primary (K68)/(T6-7); and 60.7% were living with both biological parents. Table 5.1 summarizes the main demographic characteristics for the sample of this study.

Table 5. 1 Main demographic characteristics

Variables	N	(%)
Province		
Mwanza	143	43.9
Mara	83	22.5
Killimanjaro	100	30.7
Sex/Gender		
Male	174	53.4
Female	150	46.0
Ever Been Married		
Yes	45	13.8
No	269	82.5
Currently in School		
Yes	193	59.2
No	129	40.1
Preferred Language of Communication		
English	51	15.6
Kiswahili	263	80.7
Other	4	1.2
Level of Education		
Never Attended School	8	2.5
Lower Primary (K1-3)/(T1-3)	13	4.0
Middle Primary (K4-5)/(T6-8)	16	4.9
Upper Primary (K6-8)/(T6-7)	149	45.7
Secondary (F1-2)	47	14.4
Secondary (F3-4)	73	22.4
Secondary (F5-6)	13	4.0
Age		
16	69	21.2
17	47	14.4
18	58	17.8
19	30	9.2
20	32	9.8
21	15	4.6
22	27	8.3
23	17	5.2
24	30	9.2

5.2 Predictor Variable: Social Capital

5.2.1 Hypothesis # 1

There is a positive relationship between participants' social capital and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA)?

5.2.2 Sub-hypotheses 1.1 – 1.5

H1.1 The higher the level of social capital, the higher the knowledge regarding sexually transmitted infections (STI)

In order to test if the prediction, that higher the participants' level of social capital, the higher the knowledge regarding STI is supported, a simple linear regression was calculated (Table 5.2). A significant regression equation was found ($F(1, 324) = 125.120, p < .05$), with an $R^2 = .279$. Thus it can be concluded that social capital in general accounts for 27.9% of the variance in STI knowledge. Subjects' predicted STI knowledge is $2.349 + .490$ (SC). Hence subjects' average STI knowledge increased by .490 for each unit of social capital.

Table 5.2 Simple linear regression – Social capital (IV) & STI knowledge (DV)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	B	Std. Error
1 (Constant)	2.394	1.333		1.795	.074
Social Capital	.490	.044	.528	11.186	.000

Furthermore, to identify which specific element/s of social capital (human sc, family sc, emotional sc, physical sc, economic sc, community sc, and/or education sc) are responsible for the increase in STI knowledge, a multiple linear regression was performed. A significant model emerged ($F(7, 265) = 49.548, p < .05$), with an $R^2 = .567$. Within this model, the predictor variable beta identifies only human sc ($\beta = .534, p < .05$), family sc ($\beta = .323, p < .05$), physical sc ($\beta = 2.876, p < .05$), and community sc ($\beta = .478, p < .05$), as being significant predictors. Thus 56.7% of the variation in STI knowledge can be explained by differences in human, family, physical, and community social capital. Due to the fact that the values of the variation inflation factor (VIF) for all social capital elements are lower than ten, and that the tolerance values are not close to zero, multicollinearity is not considered a threat to this model. Furthermore, since

R^2_{adj} is above 50%, it proves that there is a good model ($R^2_{adj} = .555$). Emotional, economic and education social capital were not significant predictors in this model, as shown in Table 5.3.

Table 5.3 Multiple linear regression – Elements of social capital (IV) & STI knowledge (DV)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	6.625	.994		6.662	.000		
	Human SC	.534	.131	.264	4.062	.000	.388	2.576
	Family SC	.323	.124	.115	2.602	.010	.832	1.202
	Emotional SC	.064	.082	.033	.782	.435	.932	1.073
	Physical SC	2.876	.254	.505	11.326	.000	.824	1.214
	Economic SC	-.791	.470	-.074	-1.683	.094	.847	1.181
	Community SC	.478	.149	.170	3.206	.002	.584	1.712
	Educational SC	-.145	.203	-.052	-.716	.474	.307	3.254

1.2 The higher the level of social capital, the higher the knowledge regarding HIV/AIDS

With the purpose of finding out if the prediction that higher the participants' level of social capital, the higher the knowledge regarding HIV/AIDS is accurate, a simple linear regression was carried out. A significant regression equation emerged ($F(1, 324) = 135.266, p < .05$), with an $R^2 = .295$. Consequently, social capital in general accounts for 29.5% of the variance in HIV/AIDS knowledge. As summarized in Table 5.4, subjects' predicted HIV/AIDS knowledge is $4.736 + .532$ (SC). Hence subjects' average HIV/AIDS knowledge increased by .532 for each unit of social capital.

Table 5.4 Simple linear regression – Social capital (IV) & HIV/AIDS knowledge (DV)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.736	1.393		3.400	.001
	Social Capital	.532	.046	.543	11.630	.000

In addition, to identify which specific element/s of social capital (human sc, family sc, emotional sc, physical sc, economic sc, community sc, and/or education sc) are responsible for the increase in HIV/AIDS knowledge, a multiple linear regression statistical analysis was used. A good model emerged ($F(7, 265) = 25.682, p < .05$), with an $R^2 = .404$. Within this model, the

predictor variable beta identifies only human sc ($\beta = 1.074, p <.05$), physical sc ($\beta = 2.713, p <.05$), and community sc ($\beta = .483, p <.05$), as being significant predictors. Thus 40.4% of the variation in HIV/AIDS knowledge can be explained by differences in human, physical, and community social capital. Due to the fact that the values of the variation inflation factor (VIF) for all social capital elements are lower than ten, and that the tolerance values are not close to zero, multicollinearity is not considered a threat to this model. Furthermore, since R^2_{adj} is between 50% and 25%, there is an acceptable model ($R^2_{adj} = .388$). Family, emotional, economic, and education social capital were not significant predictors in this model (see Table 5.5).

Table 5.5 Multiple linear regression – Elements of social capital (IV) & HIV/AIDS knowledge (DV)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	8.394	1.541		5.446	.000		
	Human SC	1.074	.204	.401	5.268	.000	.388	2.576
	Family SC	.011	.193	.003	.060	.952	.832	1.202
	Emotional SC	.228	.126	.089	1.803	.073	.932	1.073
	Physical SC	2.713	.394	.360	6.892	.000	.824	1.214
	Economic SC	-1.230	.729	-.087	-1.687	.093	.847	1.181
	Community SC	.483	.231	.130	2.089	.038	.584	1.712
	Educational SC	-.537	.315	-.146	-1.707	.089	.307	3.254

H1.3 The higher the level of social capital, the higher the sexual knowledge

To find out whether the premise that the higher the participants' level of social capital, the higher the sexual knowledge is supported, a simple linear regression was computed. A significant regression equation was found ($F(1, 324) = 202.664, p <.05$), with an $R^2 = .385$. Thus it may be concluded that social capital in general accounts for 38.5% of the variance in STI knowledge. Subjects' predicted sexual knowledge is $2.064 + .447 (SC)$. Hence subjects' average sexual knowledge increased by .447 for each unit of social capital (see Tale 5.6).

Table 5.6 Simple linear regression – Social capital (IV) & sexual knowledge (DV)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.064	.956		2.159	.032
Social Capital	.447	.031	.620	14.236	.000

Additionally, to identify which specific element/s of social capital (human sc, family sc, emotional sc, physical sc, economic sc, community sc, and/or education sc) are responsible for the increase in sexual knowledge, a multiple linear regression was calculated. A significant model emerged ($F(7, 265) = 41.267, p < .05$), with an $R^2 = .522$. Within this model, the predictor variable beta identifies only human sc ($\beta = .581, p < .05$), emotional sc ($\beta = .233, p < .05$), physical sc ($\beta = 1.652, p < .05$), economic sc ($\beta = -1.711, p < .05$), and community sc ($\beta = 1.085, p < .05$), as being significant predictors. Thus 52.2% of the variation in STI knowledge can be explained by differences in human, family, physical, economic and community social capital. Due to the fact that the values of the variation inflation factor (VIF) for all social capital elements are lower than ten, and that the tolerance values are not close to zero, multicollinearity is not considered a threat to this model. Furthermore, since R^2_{adj} is above 50%, it is proven that this is a good model ($R^2_{adj} = .509$). Family and education social capital were not significant predictors in this model (see Table 5.7).

Table 5.7 Multiple linear regression – Elements of social capital (IV) & sexual knowledge (DV)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	4.134	1.083		3.817	.000		
Human SC	.581	.143	.227	4.055	.000	.388	2.576
Family SC	.263	.153	.090	1.943	.053	.832	1.202
Emotional SC	.233	.089	.115	2.622	.009	.932	1.073
Physical SC	1.652	.277	.280	5.975	.000	.824	1.214
Economic SC	-1.711	.512	-.154	-3.341	.001	.847	1.181
Community SC	1.085	.162	.372	6.683	.000	.584	1.712
Educational SC	-3.336	.221	-.116	-1.519	.130	.307	3.254

H1.4 The higher the level of social capital, the higher the knowledge regarding risky behavior

To test whether the prediction that the higher the participants' level of social capital, the higher the knowledge regarding risky behaviors is accurate, a simple linear regression analysis was conducted (Table 5.8). A significant regression equation emerged ($F(1, 323) = 152.814, p < .05$), with an $R^2 = .321$. Thus the conclusion is that social capital in general accounts for 32.1% of the variance in risky behavior knowledge. Subjects' predicted risky behavior knowledge is $-.466 + .321(SC)$. Hence subjects' average risky behavior knowledge increased by .321 for each unit of social capital.

Table 5.8 Simple linear regression – Social capital (IV) & risky behavior knowledge (DV)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.466	.792		-.588	.557
Social Capital	.321	.026	.567	12.362	.000

Furthermore, in order to identify which specific element/s of social capital (human sc, family sc, emotional sc, physical sc, economic sc, community sc, and/or education sc) are responsible for the increase in risky behavior knowledge, a multiple linear regression was calculated. A good model emerged ($F(7, 265) = 41.267, p < .05$), with an $R^2 = .567$. Within this model, the predictor variable beta identifies only human sc ($\beta = .608, p < .05$), physical sc ($\beta = 1.321, p < .05$), economic sc ($\beta = -1.133, p < .05$), community sc ($\beta = .870, p < .05$), and education sc ($\beta = -.484, p < .05$), as being significant predictors. Thus 56.7% of the variation in risky behavior knowledge can be explained by differences in human, physical, economic community and education social capital. Due to variation values of the inflation factor (VIF) for all social capital elements are lower than ten, and that the tolerance values are not close to zero, multicollinearity is not considered a threat to this model. Since R^2_{adj} is between 50% and 25%,

this is an acceptable model ($R^2_{adj} = .455$). Family and emotional social capital were not significant predictors in this model (see Table 5.9).

Table 5.9 Multiple linear regression – Elements of social capital (IV) & risky behavior knowledge (DV)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.433	.912		1.572	.117		
	Human SC	.608	.121	.362	5.044	.000	.388	2.576
	Family SC	.211	.114	.091	1.855	.065	.832	1.202
	Emotional SC	.034	.075	.021	.454	.650	.932	1.073
	Physical SC	1.321	.233	.280	5.674	.000	.824	1.214
	Economic SC	-1.133	.431	-.128	-2.627	.009	.847	1.181
	Community SC	.870	.137	.373	6.366	.000	.584	1.712
	Educational SC	-.484	.186	-.210	-2.604	.010	.307	3.254

H1.5 The higher the level of social capital, the more positive the attitude towards people living with AIDS (PLA)

To verify if the statement that the higher the participants' level of social capital, the more positive attitude towards PLA is proved true, a simple linear regression was calculated. As shown in Table 5.10, a significant regression equation was found ($F(1, 324) = 45.586, p < .05$), with an $R^2 = .123$. Thus it is proven that social capital in general accounts for 12.3% of the variance in attitudes towards PLA. Subjects' predicted attitude towards PLA is $.638 + .057(SC)$. Hence subjects' average attitudes towards PLA increased by $.057$ for each unit of social capital.

Table 5.10 Simple linear regression – Social capital (IV) & attitudes towards PLA (DV)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.638	.255		2.502	.013
	Social Capital	.057	.008	.351	6.752	.000

Moreover, to identify which specific element/s of social capital (human sc, family sc, emotional sc, physical sc, economic sc, community sc, and/or education sc) are responsible for a more positive attitude towards PLA, a multiple linear regression was computed. A poor model

emerged ($F(7, 265) = 5.589, p < .05$), with an $R^2 = .129$. Within this model, the predictor variable beta identifies only physical sc ($\beta = .117, p < .05$), and education sc ($\beta = .145, p < .05$), as being significant predictors. Thus only 12.9% of the variation in subjects' positive attitudes towards PLA can be explained by differences in physical, and education social capital. Due to the fact that the values of the variation inflation factor (VIF) for all social capital elements are lower than ten, and that the tolerance values are not close to zero, multicollinearity is not considered a threat to this model. Furthermore, since R^2_{adj} is below 25%, the conclusion is that this is a poor model ($R^2_{adj} = .106$). Human, family, emotional, economic, and community social capital were not significant predictors in this model (Table 5.11).

Table 5.11 Multiple linear regression – Elements of social capital (IV) & attitudes towards PLA (DV)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.741	.325		2.281	.023		
	Human SC	.056	.043	.120	1.306	.193	.388	2.576
	Family SC	-.050	.041	-.077	-1.232	.219	.832	1.202
	Emotional SC	.033	.027	.073	1.225	.222	.932	1.073
	Physical SC	.177	.083	.135	2.135	.034	.824	1.214
	Economic SC	.121	.145	.049	.787	.432	.847	1.181
	Community SC	-.020	.049	-.031	-.413	.680	.584	1.712
	Educational SC	.145	.066	.226	2.188	.030	.307	3.254

5.3 Predictor Variable: Age

5.3.1 Hypothesis # 2

Is there a positive relationship between participants' age, and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA)?

Sub-hypotheses 2.1 – 2.5:

H2.1 The older the participants, the higher the level of sexually transmitted infections (STI) knowledge

To verify the sub-hypothesis that the older the participants', the higher the knowledge regarding STI, a simple linear regression was considered. A significant regression equation emerged ($F(1, 323) = 8.154, p < .05$), with an $R^2 = .025$. Thus the conclusion is that age in general accounts for 2.5% of the variance in STI knowledge. Subjects' predicted STI knowledge is $8.816 + 422(SC)$. Hence subjects' average STI knowledge increased by .025 for each unit of age. These findings are summarized in Table 5.12.

Table 5. 12 Multiple linear regression – Age (IV) & STI knowledge (DV)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	8.816	2.838		3.107	.002		
	Age	.422	.148	.157	2.856	.005	1.00	1.00

H2.2 The older the participants, the higher the level of HIV/AIDS knowledge

A simple linear regression was used to predict subjects' HIV/AIDS knowledge based on age. The regression equation showed no significance ($F(1,323) = 1.075, p > .05$), with an $R^2 = .003$. Therefore, it is proven that age cannot predict participants' HIV knowledge.

H2.3 The older the participants, the higher the level of sexual knowledge

The same statistical analysis (simple linear regression) was once again utilized to predict subjects' sexual knowledge based on age. The regression equation showed no significance ($F(1,323) = 3.592, p > .05$), with an $R^2 = .011$. Consequently, it is demonstrated that age cannot predict participants' sexual knowledge.

H2.4 The older the participants, the higher the level of risky behavior knowledge

Through a simple linear regression test, the subjects' risky behavior knowledge based on age was computed. The regression equation showed no significance ($F(1,322) = 1.020, p > .05$), with an $R^2 = .000$. Thus it is demonstrated that age cannot predict participants' risky behavior knowledge.

H2.5 The older the participants, the more positive the attitude toward people living with AIDS (PLA)

To find out if the premise that the older the participants, the more positive attitude towards PLA is supported, a simple linear regression statistical analysis was used (Table 5.13). A significant regression equation was found ($F(1, 323) = 11.886, p < .05$), with an $R^2 = .035$. Consequently it is demonstrated that age in general accounts for 3.5% of the variance in attitudes towards PLA. Subjects' predicted attitude towards PLA is $.641 + .088(SC)$. Hence subjects' average attitudes towards PLA increased by .088 for each unit of age.

Table 5.13 Simple linear regression – Age (IV) & attitudes towards PLA (DV)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.641	.489		1.311	.191		
	Age	.088	.025	.188	3.448	.001	1.00	1.00

5.4 Predictor Variables: Sex/Gender

5.4.1 Hypothesis # 3

Is there a positive relationship between participants' sex/gender and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA)?

Sub-hypotheses 3.1 – 3.5:

H3.1 Young women are more knowledgeable in regard to sexually transmitted infections (STI) than young men

A Univariate Analysis of Variance (ANOVA) was calculated to find out the differences between young men and women regarding knowledge of sexual transmitted infections (STI). No significant difference was found between men and women's STI knowledge ($F(1, 322) = 2.741; p > .05$).

H3.2 Young women are more knowledgeable in regard to HIV/AIDS than young men

The same ANOVA test was conducted to find out the differences in HIV/AIDS knowledge between young men and women. No significant difference was found between men and women's HIV/AIDS knowledge ($F(1, 322) = 1.055; p > .05$).

H3.3 Young women have more sexual knowledge than young men

To find out the differences in sexual knowledge between young men and women, a Univariate Analysis of Variance (ANOVA) was conducted. No significant difference was found between men and women's sexual knowledge ($F(1, 322) = 2.947; p > .05$).

H3.4 Young women are more knowledgeable in regard to risky behavior than young men

Once again, no significant difference was found between men and women's risky behavior knowledge ($F(1, 321) = 1.322; p > .05$) when conducting a Univariate Analysis of Variance (ANOVA) to find out the differences in risky behavior knowledge between young men and women.

H3.5 Young women demonstrate more positive attitude toward people living with AIDS (PLA)

After conducting a Univariate Analysis of Variance (ANOVA) to find out whether there are differences between young men and women's attitudes towards PLA, it was concluded that no significant difference was found between men and women's attitudes towards PLA ($F(1, 322) = .060; p > .05$).

5.5 Predictor Variable: Education

5.5.1 Hypothesis # 4

There is a positive relationship between participants' education and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA)?

Sub-hypotheses 4.1 – 4.5:

H4.1 The higher the level of education, the higher the knowledge regarding sexually transmitted infections (STI)

A Univariate Analysis of Variance (ANOVA) was conducted to find out the differences in sexual transmitted infections (STI) knowledge between the various educational levels of the subjects. A significant difference was found between the STI knowledge and education ($F(6, 312)=5.258; p=.000<.05$). As a result, a Tukey's HSD was conducted to determine the nature of the differences in STI knowledge between different levels of education (using the Post-Hoc). The Post Hoc Test revealed statistically significant mean differences ($p<.05$) in STI knowledge only between: (a) Middle Primary K4-5/T4-5 and Secondary F1-2 ($m=-5.9255, p=.04$); and Middle Primary K4-5/T4-5 and Secondary F3-4 ($m= -7.3219, p=.002$). Students enrolled in Secondary F1-2 ($m=18.426$) and Secondary F3-4 ($m=19.822$), had a higher level of STI knowledge than Middle Primary K4-5/T4-5 students (12.500); and (b) Upper Primary K6-8/T6-7 and Secondary F3-4 ($m= -4.2246, p=.000$). Thus students enrolled in Secondary F3-4 ($m=19.822$) had a higher level of STI knowledge than the students enrolled in the Upper Primary K6-8/T6-7 ($m=15.597$)

The homogenous subsets show that the STI knowledge of the Middle Primary K4-5/T4-5 ($m=12.5$) is significantly different (lower) than the STI knowledge of the other educational levels, and the STI knowledge of the Secondary F3-4 is the highest ($m=19.8219$)

H4.2 The higher the level of education, the higher the knowledge regarding HIV/AIDS

Through an ANOVA analysis it was demonstrated that there is a significant difference between HIV/AIDS knowledge and education of the research participants ($F(6, 312)=3.530$; $p=.002<.05$). Consequently, a Tukey's HSD was conducted to determine the nature of the differences in HIV/AIDS knowledge between different levels of education (using the Post-Hoc). The Post Hoc Test revealed statistically significant mean differences ($p<.05$) in HIV/AIDS knowledge only between Upper Primary K6-8/T6-7 and Secondary F3-4 ($m= -3.9555$, $p=.003$). Thus students enrolled in Secondary F3-4 ($m=23.123$) had a higher level of STI knowledge than the students enrolled in the Upper Primary K6-8/T6-7 ($m=19.168$)

H4.3 The higher the level of education, the higher the sexual knowledge

To find out whether education is a factor in a higher sexual a Univariate Analysis of Variance (ANOVA) was computed. A significant difference was found between sexual knowledge and education ($F(6, 312)=5.915$; $p=.000<.05$). For that reason, a Tukey's HSD was conducted to determine the nature of the differences in sexual knowledge between different levels of education (using the Post-Hoc). The Post Hoc Test revealed statistically significant mean differences ($p<.05$) in sexual knowledge only between: (a) Middle Primary K4-5/T4-5 and Secondary F3-4 ($m= -4.6010$, $p=.029$). Students enrolled in Secondary F3-4 ($m=17.726$), had a higher level of sexual knowledge than students enrolled in Middle Primary K4-5/T4-5 ($m=13.125$); and (b) Upper Primary K6-8/T6-7 and Secondary F3-4 ($m=-3.8670$, $p=.000$).

Students enrolled in Secondary F3-4 ($m=17.726$), had a higher level of sexual knowledge than students enrolled in Upper Primary K6-8/T46-7($m=13.859$)

H4.4 The higher the level of education, the higher the knowledge regarding risky behavior

By conducting an ANOVA to find out the differences in risky behavior knowledge between the various educational levels of the participants, a significant difference was found among the participants ($F(6, 311)=5.330$; $p=.000<.05$). Accordingly, a Tukey's HSD was conducted to determine the nature of the differences in risky behaviors knowledge between different levels of education (using the Post-Hoc). The Post Hoc Test revealed statistically significant mean differences ($p<.05$) in risky behavior knowledge only between: (a) Upper Primary K6-8/T6-7 and Secondary F1-2 ($m= -2.1544$, $p=.032$). Hence students enrolled in Secondary F1-2 ($m=10.000$) had a higher level of risky behavior knowledge than the students enrolled in the Upper Primary K6-8/T6-7 ($m=7.846$): and (b) Upper Primary K6-8/T6-7 and Secondary F3-4 ($m= -3.0859$, $p=.000$). Thus students enrolled in Secondary F3-4 ($m=10.932$) had a higher level of risky behavior knowledge than the students enrolled in the Upper Primary K6-8/T6-7 ($m=7.846$)

H4.5 The higher the level of education, the more positive the attitude toward people living with AIDS (PLA)

Using ANOVA, a significant difference was found between the subjects' attitudes towards PLA and education ($F(6, 312)=4.540$; $p=.000<.05$). Accordingly, a Tukey's HSD was conducted to determine the nature of the differences in subjects' attitudes towards PLA and different levels of education (using the Post-Hoc). The Post Hoc Test revealed statistically significant mean differences ($p<.05$) in subjects' attitudes towards PLA only between: (a) Never

attended school and Secondary F3-4 ($m=1.3784$, $p=0.30$). Thus students enrolled in Secondary F3-4($m=2.753$) had a more positive attitude towards PLA than the subjects who never attended school ($m=1.375$); (b) Never attended school and Secondary F5-6 ($m= -1.7019$, $p=.024$). Thus students enrolled in Secondary F5-6($m=3.077$) had a more positive attitude towards PLA than the subjects who never attended school ($m=1.375$); and (c) Upper Primary K6-8/T6-7 and Secondary F3-4 ($m= -.6259$, $p=.004$). Thus students enrolled in Secondary F3-4($m=2.753$) had a more positive attitudes towards PLA than the students enrolled in the Upper Primary K6-8/T6-7 ($m=2.128$). The homogenous subsets shows that the attitudes towards PLA of the Middle Primary K4-5/T4-5($m=1.8750$) is significantly different (lower) than the attitudes towards PLA of the other educational levels, and the attitudes towards PLA of the Secondary F5-6 is the highest ($m=3.0769$)

Although statistically significant differences were found between IV (education) and the different DVs (STI knowledge; HIV knowledge; sexual knowledge, risky behavior knowledge, and attitudes towards PLA), a grouping of educational levels was performed. This was due to the fact that several educational groups were comprised of less than 30 participants (never attended school $n = 8$; lower primary (K1-3)/(T1-3) $n = 13$; middle primary (K4-5)/(T4-5) $n = 16$; and secondary (F5-6) $n = 13$). The new educational groupings followed the main educational levels (primary and secondary), incorporating under each one of them their educational subgroups (primary = lower primary (K1-3)/(T1-3) + middle primary (K4-5)/T(4-5) + upper primary (K6-8)/T(6-8), and secondary = secondary (F1-2) + secondary (F3-4) + secondary (F5-6)). After the grouping, the n of each group is as follows: (a) never attending school ($n=8$); Primary ($n=178$); and Secondary ($n=133$). There is still concern regarding the never attending school section,

which could not be grouped with any other subgroups and therefore remained very low. A Univariate Analysis of Variance (ANOVA) for the new educational groups was conducted.

Hypotheses for the new educational groups:

H4.1 The higher the level of education, the higher the knowledge regarding sexually transmitted infections (STI)

In order to establish a significant statistical difference in sexual transmitted infections (STI) knowledge between the three new educational groups of the subjects, an ANOVA was conducted (Table 5.14). A significant difference emerged between the STI knowledge and education ($F(2, 316) = 13.423; p < .05$).

Table 5.14 Univariate Analysis of Variance (ANOVA) between education (IV) and STI knowledge (DV)

Test of Between-Subjects Effects						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1242.029 ^b	2	621.015	13.423	.000	.078
Intercept	18327.448	1	18327.448	396.135	.000	.556
Education (recoded)	1242.029	2	621.015	13.423	.000	.078
Error	14619.958	316	46.266			
Total	107002.000	319				
Corrected Total	15861.987	318				

b. R Squared = .078 (Adjusted R Squared = .072)

Therefore, a Tukey's HSD was conducted to determine the nature of the differences in STI knowledge between different levels of education (using the Post-Hoc). The Post Hoc Test revealed statistically significant mean differences ($p < .05$) in STI knowledge between Primary and Secondary ($m = -4.0252, p = .000$). Students enrolled in Secondary had a higher level of STI knowledge than students enrolled in Primary. The homogenous subsets show that the STI knowledge of the Primary ($m = 15.208$) is significantly different (lower) than the STI knowledge of the other educational levels, with STI knowledge of the Secondary being the highest ($m = 19.233$). These findings are summarized in Table 5.15.

Table 5.15 Univariate Analysis of Variance (ANOVA) between education (IV) and STI knowledge (DV)

Multiple Comparison						
Tukey HSD						
(I) education level	(J) education level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00 never attended school	2.00 primary	.6671	2.45828	.960	-5.1216	6.4559
	3.00 secondary	-3.3581	2.47610	.365	-9.1888	2.4727
2.00 primary	1.00 never attended school	-.6671	2.45828	.960	-6.4559	5.1216
	3.00 secondary	-4.0252*	.77960	.000	-5.8610	-2.1894
3.00 secondary	1.00 never attended school	3.3581	2.47610	.365	-2.4727	9.1888
	2.00 primary	4.0252*	.77960	.000	2.1894	5.8610

*. The mean difference is significant at the .05 level

H4.2 The higher the level of education, the higher the knowledge regarding HIV/AIDS

As shown in Table 5.16, an ANOVA was conducted to find out the differences in HIV/AIDS knowledge between the three new educational groups of the subjects. A significant difference was found between the HIV/AIDS knowledge and level of education ($F(2, 316)=9,665; p<.05$).

Table 5.16 Univariate Analysis of Variance (ANOVA) between education (IV) and HIV/AIDS knowledge (DV)

Test of Between-Subjects Effects						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	997.3050 ^b	2	498.675	9.665	.000	.058
Intercept	25910.028	1	25910.028	502.180	.000	.614
Education (recoded)	997.350	2	498.675	9.665	.000	.058
Error	16304.055	316	51.595			
Total	151792.000	319				
Corrected Total	17301.404	318				

b. R Squared = .058 (Adjusted R Squared = .052)

Subsequently, a Tukey's HSD was conducted to determine the nature of the differences in HIV/AIDS knowledge between different levels of education (using the Post-Hoc). The Post Hoc Test revealed statistically significant mean differences ($p<.05$) in HIV/AIDS knowledge between Primary and Secondary ($m=-3.5323, p=.000$). Thus students enrolled in Secondary

($m=22.6156$) had a higher level of HIV/AIDS knowledge than the students enrolled in the Primary ($m=19.0843$). The homogenous subsets show that the HIV/AIDS knowledge of the Primary ($m=19.0843$) is significantly different (lower) than the HIV/AIDS knowledge of the other educational levels, and the HIV/AIDS knowledge of the Secondary is the highest of all groups ($m=22.6156$) (see Table 5.17).

Table 5.17 Univariate Analysis of Variance (ANOVA) between education (IV) and HIV/AIDS knowledge (DV)

Multiple Comparison							
Tukey HSD							
(I) education level	(J) education level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
					Lower Bound	Upper Bound	
1.00 never attended school	2.00 primary	-.9593	2.59601	.928	-7.0724	5.1538	
	3.00 secondary	-4.4915	2.61483	.200	-10.6490	1.6659	
2.00 primary	1.00 never attended school	.9593	2.59601	.928	-5.1538	7.0724	
	3.00 secondary	-3.5323*	.82328	.000	-5.4709	-1.5936	
3.00 secondary	1.00 never attended school	4.4915	2.61483	.200	-1.6659	10.6490	
	2.00 primary	3.5323*	.82328	.000	1.5936	5.4709	

*. The mean difference is significant at the .05 level

H4.3 The higher the level of education, the higher the sexual knowledge

Using ANOVA to find out the differences in sexual knowledge between the three new educational groups of the subjects, a significant difference surfaced between the participants' sexual knowledge and education ($F(2, 316)=16.705$; $p<.05$) (see Table 5.18).

Table 5.18 Univariate Analysis of Variance (ANOVA) between education (IV) and sexual knowledge (DV)

Test of Between-Subjects Effects						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	924.744 ^b	2	462.372	16.705	.000	.096
Intercept	14251.146	1	14251.146	514.866	.000	.620
Education (recoded)	924.744	2	462.372	16.705	.000	.096
Error	8746.660	316	27.679			
Total	83958.000	319				
Corrected Total	9671.404	318				

b. R Squared = .096 (Adjusted R Squared = .090)

As a next step, a Tukey's HSD was conducted to determine the nature of the differences in sexual knowledge between different levels of education (using the Post-Hoc). The Post Hoc Test revealed statistically significant mean differences ($p < .05$) in sexual knowledge between Primary and Secondary ($m = -3.4224$, $p = .000$). Thus students enrolled in Secondary ($m = 17.2707$) had a higher level of sexual knowledge than the students enrolled in the Primary ($m = 13.8483$). The homogenous subsets show that the sexual knowledge of the Primary ($m = 13.8483$) is significantly different (lower) than the sexual knowledge of the other educational levels, and the sexual knowledge of the Secondary is the highest ($m = 17.2707$) (Table 5.19).

Table 5.19 Univariate Analysis of Variance (ANOVA) between education (IV) and sexual knowledge (DV)

Multiple Comparison						
Tukey HSD						
(I) education level	(J) education level	Mean Difference (I-J)	Std. Error	Sig	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00 never attended school	2.00 primary	-.5983	1.90142	.947	-5.0758	3.8792
	3.00 secondary	-4.0207	1.91521	.092	-8.5306	.4893
2.00 primary	1.00 never attended school	.5983	1.90142	.947	-3.8792	5.0758
	3.00 secondary	-3.4224*	.60301	.000	-4.8423	-2.0024
3.00 secondary	1.00 never attended school	4.0207	1.91521	.092	-.4893	8.5306
	2.00 primary	3.4224*	.60301	.000	2.0024	4.8423

*. The mean difference is significant at the .05 level

H4.4 The higher the level of education, the higher the knowledge regarding risky behavior

By conducting a Univariate Analysis of Variance (ANOVA), a significant difference was found (see Table 5.20) between the survey participants' risky behavior knowledge and education ($F(2, 315) = 14.996$; $p < .05$).

Table 5.20 Univariate Analysis of Variance (ANOVA) between education (IV) and risky behavior knowledge (DV)

Test of Between-Subjects Effects						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	508.079 ^b	2	254.040	14.996	.000	.087
Intercept	5453.901	1	5453.901	321.937	.000	.505
Education (recoded)	508.079	2	254.040	14.996	.000	.087
Error	5336.389	315	16.941			
Total	31837.000	318				
Corrected Total	5844.469	317				

b. R Squared = .087 (Adjusted R Squared = .081)

Based on this result, a Tukey's HSD was conducted to determine the nature of the differences in risky behavior knowledge between the different levels of education (using the Post-Hoc). The Post Hoc Test revealed statistically significant mean differences ($p < .05$) in risky behavior knowledge between Primary and Secondary ($m = -2.5866$, $p = .000$). Thus students enrolled in Secondary ($m = 10.518$) had a higher level of risky behavior knowledge than the students enrolled in the Primary ($m = 7.9322$). The homogenous subsets show that the risky behavior knowledge of the Primary ($m = 7.9322$) is significantly different (lower) than the risky behavior knowledge of the other educational levels, and the risky behavior knowledge of the Secondary is the highest ($m = 10.5188$) (Table 5.21).

Table 5.21 Univariate Analysis of Variance (ANOVA) between education (IV) and risky behavior knowledge (DV)

Multiple Comparison						
Tukey HSD						
(I) education level	(J) education level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00 never attended school	2.00 primary	1.0678	1.48773	.753	-2.4356	4.5712
	3.00 secondary	-1.5188	1.49833	.569	-5.0471	2.0095
2.00 primary	1.00 never attended school	-1.0678	1.48773	.753	-4.5712	2.4365
	3.00 secondary	-2.5866*	.47232	.000	-3.6988	-1.4744
3.00 secondary	1.00 never attended school	1.5188	1.49833	.569	-2.0095	5.0471
	2.00 primary	2.5866	.47232	.000	1.4744	3.6988

*. The mean difference is significant at the .05 level

H4.5 The higher the level of education, the more positive the attitude toward people living with AIDS (PLA)

An ANOVA test was conducted to find out the differences in subjects' attitudes towards people living with AIDS (PLA) between the three new educational groups of the subjects. A significant difference was found between the subjects' attitudes towards PLA and education ($F(2,316)=11.082; p<.05$) as summarized in Table 5.22.

Table 5.22 Univariate Analysis of Variance (ANOVA) between education (IV) and attitudes towards PLA (DV)

Test of Between-Subjects Effects						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	30.764 ^b	2	15.382	11.082	.000	.066
Intercept	273.217	1	273.217	196.836	.000	.384
Education (recoded)	30.764	2	15.382	11.082	.000	.066
Error	438.621	316	1.388			
Total	2186.000	319				
Corrected Total	469.386	318				

b. R Squared = .066 (Adjusted R Squared = .060)

Consequently, a Tukey's HSD was conducted to determine the nature of the differences in subjects' attitudes towards PLA and different levels of education (using the Post-Hoc). These findings are found in Table 5.23. The Post Hoc Test revealed statistically significant mean differences ($p<.05$) in subjects' attitudes towards PLA between Primary and Secondary ($m=-.5549, p=.000$), and never attended school and Secondary ($m=-1.2867, p=.008$). Thus students enrolled in Secondary ($m=2.6617$) had a more positive attitude towards PLA than the students enrolled in the Primary ($m=2.1067$). Also, students enrolled in Secondary had a more positive attitudes towards PLA than subjects who never attended school ($m=1.3750$). The homogenous subsets show that the attitudes towards PLA of the never attended school group ($m=1.3750$) is significantly different (lower) than the attitudes towards PLA of the other two

educational levels (Primary and Secondary), and that the attitudes towards PLA of the Secondary is the highest ($m=10.5188$).

Table 5.23 Univariate Analysis of Variance (ANOVA) between education (IV) and attitudes towards PLA (DV)

Multiple Comparison						
Tukey HSD						
(I) education level	(J) education level	Mean Difference (I-J)	Std. Error	Sig	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00 never attended school	2.00 primary	-.7317	.42580	.200	-1.7344	.2709
	3.00 secondary	-1.2867*	.42888	.008	-2.2966	-.2767
2.00 primary	1.00 never attended school	.7317	.42580	.200	-.2709	1.7344
	3.00 secondary	-.5549*	.13503	.000	-.8729	-.2369
3.00 secondary	1.00 never attended school	1.2867	.42888	.008	.2767	2.2966
	2.00 primary	.5549*	.13503	.000	.2369	.8792

*. The mean difference is significant at the .05 level

The following tables will summarize the main findings of this study:

Table 5.24 Findings for Research Hypothesis #1 – Social Capital

There a positive relationship between participants' social capital and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA).			
	Sub-hypotheses	Findings	Significant Elements of SC
H1.1	The higher the level of SC, the higher the knowledge regarding sexually transmitted disease (STI)	- SC accounts for 27% of the variance in STI knowledge - Subjects' average STI knowledge increased by .490 for each unit of SC	* Human, family, physical, and community SC are significant predictors for this model
H1.2	The higher the level of SC, the higher the knowledge regarding HIV/AIDS	- SC accounts for 29.5% of the variance in HIV/AIDS knowledge - Subjects' average HIV/AIDS knowledge increased by .325 for each unit of SC	* Human, physical, and community SC are significant predictors for this model
H1.3	The higher the level of SC, the higher the sexual knowledge	- SC accounts for 38.5% of the variance in sexual knowledge - Subjects' average sexual knowledge increased by .447 for each unit of SC	* Human, emotional, physical, economic, and community SC are significant predictors for this model
H1.4	The higher the level of SC, the higher the knowledge regarding risky behavior	- SC accounts for 32.1% of the variance in risky behavior knowledge - Subjects' average risky behavior knowledge increased by .321 for each unit of SC	* Human, physical, economic, community, and educational SC are significant predictors for this model
H1.5	The higher the level of SC, the more positive attitude towards people living with AIDS (PLA)	- SC accounts for 12.3% of the variance in subject's attitudes towards PLA - Subjects' average attitudes towards PLA increased by .057 for each unit of SC	* Physical and educational SC are significant predictors for this model

Table 5.24, shows that the outcome related to Hypothesis 1, demonstrates for each sub-hypothesis that there is a significant relationship between social capital and the various aspects of STI, HIV/AIDS, sexual, and risky behavior knowledge, represented by each sub-hypothesis. The results further show that there is a significant and positive relationship with social capital in each case. Therefore, all aspects tested were significant. However, in the case of the variable for attitudes towards PLA, even though tests reveal statistically significant results, the size of the effect is not large enough to conclude that in this case SC indeed made a difference in the levels of participants' attitudes towards PLA. Table 5.24 also presents which elements of social capital (human, family, emotional, physical, economic, community, and education) are significant for each sub-hypothesis.

Table 5.25 Findings for Research Hypothesis #2– Age

There a positive relationship between participants' age, and participants' sexually transmitted infections (STI) knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA).	
Sub-hypotheses	Findings
H2.1 The older the participants, the higher the level of STI knowledge	- Age accounts for 2.5% of the variance in STI knowledge - Subjects' STI knowledge increased by .025 for each unit of age
H2.2 The older the participants, the higher the level of HIV/AIDS knowledge	- Age cannot predict participants' HIV/AIDS knowledge
H2.3 The older the participants, the higher the level of sexual knowledge	- Age cannot predict participants' sexual knowledge
H2.4 The older the participants, the higher the level of risky behavior knowledge	- Age cannot predict participants' risky behavior knowledge
H2.5 The older the participants, the more positive the attitudes toward PLA	- Age accounts for 3.5% of the variance in STI knowledge - Subjects' STI knowledge increased by .088 for each unit of age

Table 5.25 illustrates that only two of the outcome related to Hypothesis 2 are statistically significant (STI knowledge, and attitudes towards PLA). However, it is concluded that although the results for STI knowledge and attitudes towards PLA are statistically significant, the size of the effect is not large enough to conclude that in this case age indeed made a difference in the level of participants' STI knowledge and their attitudes towards PLA.

Table 5. 26 Findings for Research Hypothesis #3 – Sex/gender

Sub-hypotheses		Findings	
H3.1	Young women are more knowledgeable in regard to STI than young men	-	No significant difference was found between young women and young men’s STI knowledge
H3.2	Young women are more knowledgeable in regard to HIV/AIDS than young men	-	No significant difference was found between young women and young men’s HIV/AIDS knowledge
H3.3	Young women have more sexual knowledge than young men	-	No significant difference was found between young women and young men’s sexual knowledge
H3.4	Young women are more knowledgeable in regard to risky behavior than men	-	No significant difference was found between young women and young men’s risky behavior knowledge
H3.5	Young women demonstrate more positive attitude toward PLA than young men	-	No significant difference was found between young women and young men’s attitudes towards PLA

Table 5.26 summarizes all the outcomes related to Hypothesis 3 that are not statistically significant. It was found that sex/gender is not considered a statistically significant predictor for STI, HIV/AIDS, sexual, and risky behavior knowledge, nor for the participants’ attitudes towards PLA.

Table 5. 27 Findings for Research Hypothesis #4 – Education

Hypotheses		Findings	
H4.1	The higher the level of education, the higher the level of STI knowledge	-	Participants enrolled in Secondary had a higher level of STI knowledge than participants enrolled in Primary
H4.2	The higher the level of education, the higher the level of HIV/AIDS knowledge	-	Participants enrolled in Secondary had a higher level of HIV/AIDS knowledge than participants enrolled in Primary
H4.3	The higher the level of education, the higher the level of sexual knowledge	-	Participants enrolled in Secondary had a higher level of sexual knowledge than participants enrolled in Primary
H4.4	The higher the level of education, the higher the level of risky behavior knowledge	-	Participants enrolled in Secondary had a higher level of risky behavior knowledge than participants enrolled in Primary
H4.5	The higher the level of education, the more positive the attitudes toward PLA	-	Participants enrolled in Secondary had a more positive attitude towards PLA than participants enrolled in Primary - Participants enrolled in Secondary had a more positive attitude toward PLA than participants who never attended school

Table 5.27 points out the outcomes related to Hypothesis 4, all demonstrated for each sub-hypothesis. Participants enrolled in Secondary had a higher level of STI, HIV/AIDS, sexual, and risky behavior knowledge, as well as a more positive attitudes towards PLA. A more in-depth discussion of all the above presented findings will be presented in the next chapter.

CHAPTER 6

DISCUSSION

This dissertation study is based on a secondary data analysis of a data set provided by the Adventist Development and Relief Agency (ADRA) International. The purpose of the study was to assess participants' knowledge of basic facts about sexually transmitted infections (STI), human immunodeficiency virus (HIV) transmission, sex, risky behavior, as well as their attitude towards people living with AIDS (PLA), based on their level of social capital, age, sex/gender and level of education. In order to make sure that no incorrect conclusions were drawn in regards to the relationships between the predictor and criterion variables, multicollinearity diagnostics were computed through SPSS® for all logistic regressions. Due to the fact that all the values of variation inflation factor (VIF) were much lower than ten, and that the tolerance values were not closed to zero, it was concluded that multicollinearity is not an issue for this study, thus the inferences made in regard to the relationship between the predictor and criterion variables, are not only statistically significant, but also accurate. Overall, this chapter will discuss the statistical findings, delineate the limitations of the study and present some of the implications of this research to social work practice, policy and research.

6.1. Discussion of Findings by Predictor Variable

6.1.1 Discussion of Social Capital

Hypothesis 1. There is a positive relationship between participants' social capital and participants' STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS (PLA)?

Simple linear regressions were calculated predicting that the higher participants' social capital, the higher their STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as the more positive their attitudes toward people living with AIDS (PLA). Statistical significant results were obtained for each analysis. As a result, it was concluded that social capital was considered a good predictor for all criterion variables (DVs). In order to identify which specific element/s of social capital (human, family, emotional, physical, economic, community, and/or education) were responsible for the increase in the STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as in the positive their attitudes toward people living with AIDS (PLA), multiple linear regressions were calculated for each of them.

The multiple linear regressions showed that: (1) for STI knowledge, human, family, physical, and community social capital were found to be significant predictors; (2) for HIV/AIDS knowledge, human, physical, and community social capital were found to be significant predictors; (3) for sexual knowledge, human, physical, economic, and community social capital were found to be significant predictors; (4) for risky behavior knowledge, human, physical, economic, community, and educational social capital were found to be significant predictors; and (5) for participant's attitudes towards PLA, physical and educational social capital were found to be significant predictors.

The statistical analysis findings identified human, physical, and community social capital as the main predictors for this study. These predictors were found significant for each type of knowledge considered in this study (STI, HIV/AIDS, sexual, and risky behavior), thus they should be regarded as the most important elements of social capital for this study. Physical social capital was also found a good predictor for participants' attitudes towards people living with AIDS. Human social capital is identified by Coleman (1990) as being composed by acquired knowledge, intelligence, commonsense, personal abilities and talents. Putnam (1993) considers physical social capital as shaped by technology and material resources. He also presents community social capital as quality, structure, strength, and density of social networks; number of voluntary groups and associations; and formal and informal institutions (Putnam, 1993, 1993Spring).

Economic social capital was found to be good predictor only for sexual and risky behavior knowledge. As defined by Coleman (1988), economic social capital is comprised of the physical and material resources that a family has. Education social capital was found a good predictor for risky behavior knowledge and participants' attitude towards PLA. Putnam (1993) presents education as having two main components (a) informal education (groups, clubs, organizations, and peers); and (b) formal education (schools and colleges). However, due to limited information collected for the original study, only formal education was taken under consideration for this study. Emotional social capital was found to be a significant predictor only for sexual knowledge, while family social capital was found to be a significant predictor only for STI knowledge. According to Nowotny (1981), emotional social capital includes relationships, and strengths. Family social capital on the other hand, includes parents and family investment in children (Coleman, 1988). Family social capital can be further divided into (a) Internal family

social capital: parents (time, efforts, resources, and energy invested in children; other family members within the household (Furstenberg, Frank & Hughes, 1995; Johnson, 1999; Techman, Paasch & Carver, 1997); and (b) External family social capital or extra-familial relationships – the social relationships between parents and community (Stevenson, 1998). Unfortunately, due to the lack of richness of the data, not all elements of family social capital identified in the literature as summarized above could be analyzed in this study.

In conclusion, it can be stated that social capital plays an important role in participants STI, HIV/AIDS, sexual and risky behavior knowledge. Furthermore, human, physical and community social capital can be seen as the common thread that brought knowledge and awareness to the participants in this study.

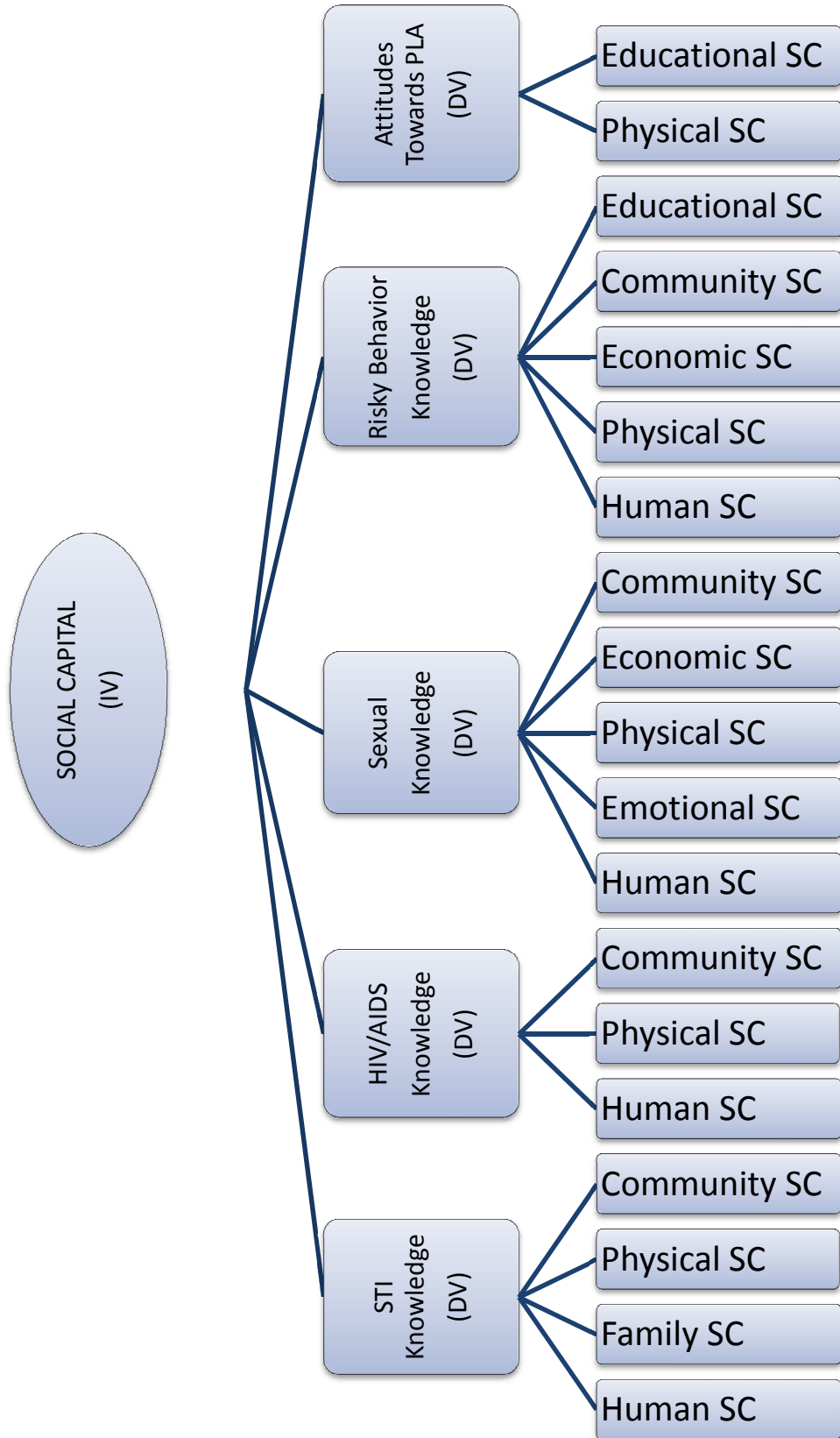


Figure 6.1 Tested model for social capital framework

6.1.2 Discussions Regarding Age

Hypothesis 2. There is a positive relationship between participants' age, and participants' STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS?

Linear regressions were calculated to test the Hypotheses H2.1 to H2.5. Only STI knowledge and participants' attitudes towards PLA were found to be significant. However, age accounts for only 2.5% of the variance in participants' STI knowledge (subjects' average STI knowledge increased by .025), and that age only accounts for 3.5% of the variance in attitudes towards PLA (subject's average attitudes towards PLA increased by .088 for each unit of age). Therefore, although we have statistical significant results for STI knowledge and attitudes towards PLA, the size of the effect is not large enough to conclude that in this case age made indeed a difference in the level of participants' STI knowledge and their attitudes towards PLA.

Not identifying age as a significant predictor is a surprising finding. Since only 2.5% of the 326 participants never attended school, it was expected that the older the participants the more knowledge they had due to the higher level of education to which they could identify. If not for anything else, it was anticipated that age will make a difference due to the fact that it is commonly accepted that the older people get, the broader the knowledge base they acquire from life experiences. However, these results can be explained by the small age range (16-24). Therefore, the participants in the study did not have enough time to experience life and learn from it. This issue can be address by changes in sex education.

6.1.3 Discussion Regarding Sex/gender

Hypothesis#3. There is a positive relationship between participants' sex and participants' STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS.

Univariate analyses of variance (ANOVA) were conducted to test the hypotheses H 3.1 to H 3.5. No statistical significance was found between participants' sex/gender and their STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS. As a result, it was concluded that in this case, young women did not possess more STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, than young men, and that their attitudes toward PLA were not more positive than men's. This is another surprising finding. It was expected that men would show a higher level of knowledge than women. One of the reasons for this assumption was that women have less access to formal education. Two of the factors that hinder women's access to education are: (a) socio-cultural factors (e.g., large families, household chores as the domain of women and girls, early marriages, lack of parental encouragement for girls' education); and (b) socio-economic factors (e.g., poverty, the direct and opportunity costs of education) (Obanya, 2004). Another reason for the assumption came from the fact that, "prevailing norms about sexuality and manhood suggest that young men should be knowledgeable, aggressive, and experienced regarding sexuality and reproductive health issues." Barker & Ricardo, 2005, p.vi) The lack of significance for gender (men more knowledgeable than women), could be alarming if we look at this finding from a perspective in which men's knowledge was lower than expected, thus no statistical difference for gender. This is due to young men's unequal social power and influence in sexual and intimate relationship with women, which "combined with the patterns of risk

behaviors among young men, suggest responsibility and potential for young men to play a role in shaping the future of [HIV] epidemic.” (Barker & Ricardo, 2005, p.vii) However, if we look at this finding from a perspective in which the statistical insignificance is due to the fact that women had more knowledge than expected, this could be considered a positive finding. In order to find out what explanation is the most accurate, more research needs to be done on the issue of gender.

6.1.4 Discussion Regarding Education

Hypothesis 4. There is a positive relationship between participants’ education and participants’ STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS.

The original study looked at seven categories of education levels: people who never attended school, and six levels of education. The levels of education were as follow: Lower Primary (K1-3)/(T1-3); Middle Primary (K4-5)/(T4-5); Upper Primary (K6-8)/(T6-7); Secondary (F1-2)/(TF1-2); Secondary (F3-4)/(TF3-4); and Secondary (F5-6)/(TF5-6). Although statistically significant differences were found between education and participants’ STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS, concerns were raised regarding the fact that some of the categories had less than 30 participants ($n < 30$). As a result, the seven categories were grouped into three, following the main educational levels: primary and secondary in addition to the group who never attended school. There is still concern regarding the never attending school category which could not be grouped with any other category, and had a smaller sub-sample ($n=8$).

Univariate analyses of variance (ANOVA) for the new educational groups were conducted. All these ANOVAs showed statistical significance, thus the hypotheses H4.1 to H4.5

were accepted as true. In order to determine which level/s of education were making a difference in participants' STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, as well as their attitudes toward people living with AIDS, Tukey's HSD tests were conducted. The Post Hoc Tests revealed statistically significant mean differences between all predictor and criterion variables. Further more, the homogenous subsets showed that in all five cases, the participants enrolled in Secondary, or who had a secondary education had a higher level of knowledge regarding STI, HIV/AIDS, sexual and risky behavior knowledge, as well as a more positive attitude towards PLA than participants enrolled in Primary or had only primary education.

The fact that participants enrolled in Secondary, or who had a secondary education had a higher level of knowledge and a more positive attitudes towards PLA, can be explained by cognitive changes that occur as individuals mature, which can enable them to read and interpret the questions posed by the original survey more appropriately. It can also be explained by the fact that the higher the educational level attained, the more individuals have access to information regarding PLA, STI, HIV/AIDS, sexual, and risky behaviors.

6.2 Implication for Social Work Practice, Policy, and Research

6.2.1 The Importance for Social Work Practice

From the beginning of the epidemic in the early 1980s, the HIV interventions used a framework of cognitive behavioral models of behavior change. Since HIV/AIDS is mainly transmitted through heterosexual contact, behavioral education models emphasizing "reduction in the number of sexual partner, abstinence, use of condoms, and treatment of STDs" were used (Takyi, 2003, p. 123). Although these interventions have produced some changes in various populations' behavior, these changes were not significant (see the rapid increase of the pandemic

since 1980) (Beeker, Guenther-Gray, & Raj, 1998). As a result, numerous social scientists considered that it was time for a paradigm shift, thus using a “community building and empowerment” framework instead (Parker, 1996). Rappaport (1984) defines empowerment as the process through which individuals, organizations and communities at large gain control over their lives and destiny. The empowerment strategies used by social capital are “operationalized [by some social scientists] as AIDS education, partner negotiation training, community organizing, case management, outreach, self-help groups, consciousness raising, organizational networking, leadership training, and individual and group-based problem solving” (Beeker, Guenther-Grey & Raj, 1998, p. 831).

Since social capital elements were proven significant factors in the increasing of HIV/AIDS knowledge, attitudes, and related behaviors among young people in Tanzania, the social work profession should focus on extensive research and policy development in these areas in order to improve social work practice at the micro and mezzo levels. This will further make an impact at the macro, and ultimately, the global level.

The literature also indicates that social workers should design and use culturally specific materials and resources when designing successful prevention strategies (Mize, Robinson, Bockting & Scheltema, 2002). They also should also train qualified volunteers and paid community health workers to assist women in their care giving efforts.

6.2.2 The Importance for Social Work Policy

Although social capital is not a concept extensively used in the social work profession, nevertheless this study gives some indication that the potential of a social capital framework for social work practice could have a greater contribution to the profession than what is recognized. Additionally, it is very important for social workers to help local and state governments

formulate specific regulations that will enable health service providers to make available mobile health clinics, reduce or eliminate treatment fees, and supply child care at health centers. Social workers should also work with federal governments in designing policies that would help to keep girls in school by offering free education and protecting them from sexual harassment (UNAIDS, UNFPA, UNIFEM, 2004). Furthermore, social workers should be involved in lobbying to politicians and heads of state to propose, vote and help implement legislation that would help empower women (e.g., legal reforms that would challenge cultural norms, increase the age of marriage for women, ensure women's inheritance and propriety rights; invest in a female method controlled of prevention, female condoms), and to assist in developing women's human, physical and community social capital. Social workers should connect with international organizations and governments to design legislation that will promote women's human rights. And last, but not least, social workers should work in tandem with local and global policy makers on developing poverty alleviation policies:

Since poverty plays an important role in creating an environment in which individuals are particularly susceptible and vulnerable to HIV/AIDS . . . at the global level there is a positive correlation between HIV prevalence and poverty, whether it is measured by gross domestic product per person, income inequality, or Human Poverty Index. (Fenton, 2004, p. 1186)

6.2.3 The Importance for Social Work Research

Since the cognitive behavioral models of behavior change did not prove to be successful in their attempt to prevent or contain the spread of the HIV/AIDS in Sub-Saharan Africa, a sustained effort should be made by the social work profession to find new ways to achieve this goal. Only further in-depth research can attest if the new proposed paradigm shift towards a

community building and empowerment framework would work, or if the elements of social capital (human, physical, and community), identified as being significant at all levels (STI, HIV/AIDS, sexual, and risky behavior knowledge, and attitudes towards PLA), could prove to be the key to this problem at national and international levels. In other words, further studies could help identify and recommend successful avenues in which girls and young women could be empowered to deal with the HIV/AIDS issues through the use of available social capital (human, family, emotional, physical, economic, community, and education), thus preventing them as much as possible from contracting the disease in the first place.

Further research should focus on: (1) identifying which types of social capital have the best chance of being successful in other countries, and why; (2) evaluating the methods used and their successes; and (3) duplicating the effective methods in other parts of the world for validity and reliability purposes. Based on the results, the medical field could be advised which social work aspects to include in their effort to combat/reduce HIV/AIDS.

Based on the possible results of further study, if necessary, additional steps could be taken such as: (1) educational interventions to rectify false notions of and correct information on HIV transmission; (2) avenues to reduce negative attitudes towards people living with AIDS; (3) a sex education curriculum to cover STI prevention; and (4) culturally appropriate sex education and HIV transmission training programs for teachers and parents.

6.3 Study Limitations

Given that the data collection done by ADRA lacked sampling randomization (convenience sample), the generalization of the study findings is very limited. The instrument used for this study was developed by the ADRA research team, and it was not tested for validity

and reliability before the actual study. The data set also lacks variables that the researcher considered necessary for a more holistic approach of the present study.

However, given that this study is unique in its endeavor to identify if there is a relationship between social capital and STI knowledge, HIV/AIDS knowledge, sexual knowledge, risky behavior knowledge, and attitudes towards PLA, it will help open the door to more in-depth research into this issue. Furthermore, although the above stated limitations which tells us to look at the results of this study with caution, there seems to be sufficient evidence that could support the need for policy makers, program developers and educators to develop and implement more effective and gender sensitive HIV/AIDS interventions among youths, interventions that should involve different elements of social capital.

6.4 Conclusions

The rapid increase of HIV infection among women is facilitated by: (1) biological factors, (2) social factors (e.g., inequality between men and women, women's lack of power, limited education for women, discrimination and violence against women, poverty, stigma, women's lack of access to contraceptive and health services, and poverty), and (3) cultural factors (e.g., female genital cutting, marriage at a very young age, practice of polygamy) (see Türmen, 2003; Takyi, 2003; Caldwell & Caldwell, 1996). These factors are lowering women's capacity to negotiate safe sex with their husbands or with any other men, thus putting themselves in great danger for HIV infection (Takyi, 2003).

Since the framework of cognitive behavioral models of behavior change used at the beginning of the HIV/AIDS epidemic did not prove successful, a paradigm shift towards a social capital framework in addressing the prevention and containing the HIV is proposed. Since the results of this study, as limited as they are, showed statistical significance for all elements of

social capital, with emphasis on human, physical, and community social capital, it is suggested that programs addressing technology, material resources, structural and community level factors and programs that encourage individual and community participation should be given priority (Gregson et al., 2004). According to Putnam (1993), the social capital of one individual or a society can be reduced or finished, interestingly enough, not as a result of its extensive use, but rather, due to its lack of use. In this situation, young women should be encouraged to make use of the social capital avenues to which they have access.

In conclusion, based on the literature review, it is reasonable to state that in contrast to men, women are very likely to contract HIV through various sexual activities in which they do not engage usually by choice, but because of poverty and fear of physical and sexual violence. Unfortunately, once they have contracted the disease, women are less likely than men to access health services to obtain effective treatment and interventions, or to access social and community services in order to be able to cope with the disease. However, this study shows that the red thread that links all of the presented behaviors and attitudes are the presence and extent of different social capital elements to which individuals have access. This indicates the imperative need for further in-depth research to identify and recommend avenues in which girls and young women will be able to access as many as possible elements of social capital (human, family, emotional, physical, economic, community and education), thus empowering them to deal with the HIV/AIDS issues through the use of available social capital, and as a result, preventing them as much as possible from contracting the disease in the first place.

APPENDIX A
Original Survey

ABSTINENCE & BEHAVIOR CHANGE QUESTIONNAIRE FOR YOUTH (16 -24)

Hello. My name is _____ and I am working with the ABY project. We are conducting a management survey about the level of knowledge regarding abstinence and behavior change. This interview will take about one hour to complete. The information you provide will remain confidential. Participation in this survey is voluntary. We request that you participate in this survey since your views are important.

Please answer the questions below as honestly as possible. Your answers will help us educate your community more effectively to prevent the spread of HIV/AIDS.

(USE ONLY BLACK INK)

Name And Signature Of Interviewer: _____

Name Of Interview Site: _____

Village/Town Code: _____ Location/Ward Code: _____

Division Code: _____ District Code: _____

Province/Region Code: _____ Country Code: _____

Date Of Interview: _____

Section One: Demographic Characteristics

1. What is your age in years:

2. What is your sex?
A) Male
B) Female
3. Have you ever been married?
A. Yes
B. No
C. No response
4. Are you currently in school?
A. Yes
B. No
5. What is your level of education:

- A. Never attended school
- B. Lower primary (K 1-3) (T 1-3)
- C. Middle primary (K 4-5) (T 4-5)
- D. Upper primary (K 6-8) (T 6-7)
- E. Secondary (F 1-2) (T F 1-2)
- F. Secondary (F 3-4) (T F 3-4)
- G. Secondary (F 5-6) (T F 5-6)

6. What is your native language:
- A. Kalenjin
 - B. Kisii
 - C. Kikuyu
 - D. Luo
 - E. Kuria
 - F. Masai
 - G. Sukuma
 - H. Zinza
 - I. Sumbwa
 - J. Kerewe
 - K. Jita
 - L. Chagga
 - M. Pare
 - N. Others (specify) _____
7. What is your preferred language of communication?
- A. English
 - B. Kiswahili
 - C. Other (specify) _____

Section Two: Intergeneration Communication

1. Who are you primarily living with?
- A. Both biological parents.
 - B. Guardians/foster parents.
 - C. Father only
 - D. Mother only
 - E. Father and step mother
 - F. Mother and step father
 - G. Grand parents
 - H. Uncle
 - I. Aunt
 - J. Friend (specify whether boy/ girl)
 - K. Siblings
- Others (specify) _____
2. What are the responsibilities of person/s whom you are living *Multiple response*

with regarding your welfare? (check as applicable)

- A. Basic needs (food, shelter and clothing)
- B. Education
- C. Guidance
- D. Discipline
- E. Medical care
- F. Provision of security/ protection
- G. Sexual satisfaction
- H. None
- I. Don't know

3. With whom do you mainly discuss sexual issues?

- A. Both biological parents.
- B. Father only.
- C. Mother only
- D. Uncle only.
- E. Aunt only.
- F. Step mother
- G. Step father
- H. Grand parents.
- I. Guardian
- J. Friends
- K. Nobody
- L. Other (specify) _____

4. How often do you discuss?

- A. Weekly
- B. Monthly
- C. Bimonthly
- D. Quarterly
- E. Biannually
- F. Annually
- G. As needed

5. What is the discussion about?

- A. Abstinence.
- B. Safe sex.
- C. Drug abuse
- D. Abortion.
- E. Early pregnancy.
- F. Sexual relationships.
- G. Other (specify) _____

6. When you make decisions where do you seek advice from?

- A. Parent/guardian
- B. Teacher

- C. Friends/peers
- D. Relatives
- E. Professionals
- F. Other (specify) _____

7. If you had a choice, which person would you like to discuss with?
- A. Both biological parents
 - B. Father only
 - C. Mother only
 - D. Uncle only
 - E. Aunty only
 - F. Step mother
 - G. Step father
 - H. Grand parents
 - I. Guardian
 - J. Friends
8. What are the causes of misunderstandings between parents and children *Multiple response*
- A. Parents do not listen to their children
 - B. Children do not listen to their parents
 - C. Lack of trust
 - D. Parents do not respect the child's privacy
 - E. Withholding information
 - F. Parents favoring some siblings
 - G. Disharmony in the family
 - H. Peer group relationship strengthens
9. How does growth affect parental relationships? *Multiple response*
- A. Weakens relationship
 - B. Becoming independent of the parent
 - C. Peer group relationship strengthens
 - D. Economic interest
 - E. Brings stress to the family
 - F. Higher consumption of resources
10. What hinders communication between parents and children?
- A. Language
 - B. Culture
 - C. Technology
 - D. Distance
 - E. Attitude
 - F. Personality
 - G. Age

Section Three: Sex And Sexuality

1. What is sex?
 - A. Being male or female
 - B. Sexual intercourse between male and female
 - C. Other (specify) _____

2. What is sexuality?
 - A. Body image
 - B. Gender roles
 - C. Relationships
 - D. Intimacy
 - E. Love/affection
 - F. Sexual arousal
 - G. Social roles
 - H. Genitals

3. What is adolescence? *Multiple response*
 - A. A period between childhood and adulthood
 - B. A period of physical change
 - C. A period emotional change
 - D. A period of sexual development
 - E. A period of experimentation
 - F. A period of learning new ideas, values, information and skills
 - G. A time of finding out who one is
 - H. A period to experience sexuality
 - I. A period of demanding freedom

4. What are the characteristics of adolescent growth? **Boys** *Multiple response*
 - A. Development of the male sexual organs.
 - B. Ability to ejaculate.
 - C. Wet dreams.
 - D. Development of sweat glands.
 - E. Growth of armpit hairs
 - F. Growth of beards.
 - G. Growth of pubic hair.
 - H. Increase in height
 - I. Increase in weight.
 - J. Change in voice.
 - K. Development of muscles.
 - L. Possible development of pimples on the face.

5. What are the characteristics of adolescent growth? **Girls** *Multiple response*
 - A. Broadening of hips.

- B. Development of the breasts
- C. Skin develops extra fat
- D. Pimples may develop on the face
- E. Growth of pubic hair.
- F. Start of menstrual cycle.
- G. Increase in height and weight.
- H. Increase in vaginal fluids
- I. Development of sweat glands.
- J. Growth of armpit hairs
- K. Body shape takes on characteristic of adult pattern
- L. Skin problems (acne) may develop
- M. Other

6. What are the functions of penis? *Multiple response*
- A. Secretion/urination
 - B. Sexual pleasure
 - C. Sexual intercourse
 - D. Means to transfer sperm for procreation
7. What are the functions of vagina? *Multiple response*
- A. Secretion/urination
 - B. Sexual pleasure
 - C. Sexual intercourse
 - D. Means to receive sperm for procreation
 - E. Child delivery
8. How does growth affect sexual relationships? *Multiple response*
- A. Relationships may strengthen
 - B. Relationships may brake
 - C. Manifestation of sexual interest
 - D. Arousal of sexual desires toward the opposite sex
 - E. Being aware of how one dresses
9. How old were you when you **first** had sexual intercourse (if ever)
- A. Under 10 years
 - B. 10-12
 - C. 13-15
 - D. 16-18
 - E. Above 18
 - F. Never (go to section 4)
10. When was the **last** time you had sexual intercourse?
- A. Week ago
 - B. Month ago
 - C. Months ago

D. More than 6 months

11. The last time you had sexual intercourse with your non-regular partner, did you use a condom?
- A. Yes
 - B. No
 - C. Do not know
 - D. Never had sex with a non regular partner

Section Four: Relationship

1. Who are your friends? *Multiple response*
- A. Peers in the neighborhood
 - B. Class mates
 - C. Club members
 - D. Relatives
 - E. Work mates
 - F. I do not have a friend Go to q5

2. How do you select your friends? *Multiple response*
- A. Sharing same goals/aspiration/interest
 - B. Life styles
 - C. Kinship
 - D. Similar profession
 - E. Same neighborhood
 - F. Same school/colleges

3. In what ways are friends important to you? *Multiple response*
- A. Advising
 - B. Courtship
 - C. Chatting
 - D. Counseling/psychological support
 - E. Financial support
 - F. Religious identity
 - G. Professional support
 - H. Sharing experiences
 - I. Entertainment
 - J. Group/cultural activities

4. How does peer pressure affect one's life? *Multiple response*
- A. Drug use
 - B. Unsafe sex
 - C. Good grade in school
 - D. Good career
 - E. Healthful living

- F. Risky behaviors
- G. Unwanted pregnancy
- H. Abortion

5. What is the right time to start relationships with boy/girl?
- A. When one can make decisions
 - B. When parents allow
 - C. When one feels like it
 - D. Any time the opportunity presents itself
 - E. When one establishes financial security
 - F. When ready for marriage
 - G. When one reaches a given educational goal
 - H. In schools
 - I. In college
6. What characteristics do you prefer in a boy/girl friend relationship? *Multiple response*
- A. Decency
 - B. Sexy
 - C. Willing to have sex
 - D. Control of desire
 - E. Seductive
 - F. Spiritual
7. Where do girl/boy friends? *Multiple response*
- A. Public places (parks, beaches, market places, etc)
 - B. Movies
 - C. Discos
 - D. Home
 - E. Church/mosque
 - F. Public events
 - G. Hotels
 - H. Bars
 - I. School functions
 - J. A group outings
8. Are you currently involved in a relationship with boy/girl? *Multiple response*
- A. Yes
 - B. No go to q10
9. Have you experienced misunderstanding in your relationship?
- A. Yes
 - B. No
10. What causes misunderstandings in a boy/girl relationship?

- A. Unclear communication between the partners
- B. Dishonesty
- C. Lack of commitment
- D. Failure to honor commitment
- E. Difference of interest

11. How do you solve boy/girl misunderstanding? *Multiple response*
- A. Listening carefully
 - B. Identify the source of misunderstanding
 - C. Frank exchange of views
 - D. Avoid assumptions
 - E. Avoid imposing one's views
 - F. Being open for possible solution
 - G. Understanding the situation
 - H. Giving feedback
12. What is the right stage to start sexual intercourse?
- A. At marriage
 - B. While in primary school
 - C. While in secondary school
 - D. While in college
 - E. After completion of ones education
 - F. When in love
 - G. When one feels like having sex
 - H. When one has the right resource
 - I. When negotiated
13. What kinds of relationships are common among your peers? *Multiple response*
- A. Sexual relationship
 - B. Membership/organized
 - C. Support group
14. How does the community view the boy/ girl relationship? *Multiple response*
- A. Disapproves any premarital sexual relationship
 - B. Approves premarital sexual relationship
 - C. Approve nonsexual friendship
 - D. Disapprove nonsexual friendship
 - E. Approve dating
 - F. Disapprove dating
 - G. All relationships are arranged
 - H. No specified rules
 - I. Specified rules and regulation/rituals

Section Five: Healthful Living

1. What are the factors that can have a negative effect on one's reproductive (sexual) health? *Multiple response*

- A. Female genital cutting
- B. Underage marriage
- C. Substance abuse
- D. Not having sex regularly
- E. Stress
- F. Rape
- G. Cultural practices
- H. Not having sex at all
- I. Unsafe sex

2. How does one maintain healthy sexual life? *Multiple response*
- A. Avoiding substance abuse
 - B. Be faithful to partner
 - C. Avoid underage sex
 - D. Use of contraception
 - E. Undergo voluntary counseling and HIV testing.
3. What are the potential health consequences of underage sex? *Multiple response*
- A. Unsafe pregnancy
 - B. Unsafe delivery
 - C. Congenital complications
 - D. Educational interruption
 - E. Maternal complications
 - F. STI
 - G. Termination of pregnancy

Section Six: Responsible Behavior

1. Can a person control one's sexual urge?
- A. Yes
 - B. No
2. What do you do when you have sexual urge? *Multiple response*
- A. Find sex partner
 - B. Masturbate
 - C. Get involved in some diverting activities
 - D. Discuss with peer group
 - E. Practice self control
 - F. Get pornographic material
3. Identify risky sexual intercourse *Multiple response*
- A. Getting involved in commercialized sex
 - B. Practicing unsafe sex
 - C. Unfaithfulness to partner

Section Seven: STI / HIV and AIDS

1. Have you heard about sexually transmitted infections (sti)?
Yes
No _____ (go to 13)

2. Which STIs do you know? *Multiple response*
 - A. Gonorrhea.
 - B. Syphilis
 - C. Herpes
 - D. Chlamydia.
 - E. HIV/AIDS
 - F. Others (specify) _____

3. From where/whom did you hear? *Multiple response*
 - A. Radio
 - B. Newspapers/ magazine
 - C. TV
 - D. Parents
 - E. Teachers
 - F. Friends/peers
 - G. Health workers
 - Others (specify) _____

4. What are the signs/symptoms of STI? *Multiple response*
 - A. Body itching.
 - B. Body rash
 - C. Discharge from the penis/vagina.
 - D. Lower abdominal pains.
 - E. Sores on the penis/vagina.
 - F. Sores on the mouth.
 - G. Itching/ pain when urinating
 - H. Other (specify) _____

5. How is STI transmitted? *Multiple response*
 - A. Sexual intercourse.
 - B. Kissing
 - C. Sharing sharp objects
 - D. Sharing tooth brush
 - E. Blood transfusion.
 - F. Insects bites.
 - G. Mother to child.
 - H. Sharing bathing towels
 - I. Witchcraft
 - J. I don't know
 - K. Can not be transmitted

6. How can STI be prevented? *Multiple response*
- A. Abstinence
 - B. Using condoms
 - C. Having uninfected sexual partner
 - D. Non penetrative sexual activities.
 - E. I don't know
 - F. Can not be transmitted
7. What should a person infected with STI do?
- 1. Seek treatment
 - 2. Do nothing (go to q 13)
8. Where should a person go for treatment? *Multiple response*
- A. Health centers.
 - B. Traditional healers.
 - C. Self treatment.
 - D. Others
9. When should STI infected person seek treatment?
- A. Immediately after noticing the symptoms.
 - B. 4 weeks after noticing the symptoms.
 - C. 2 months after noticing the symptoms
 - D. Others
 - E. Don't know
10. What are the social responsibilities of a person infected with STI? *Multiple response*
- A. Inform the partner/s immediately.
 - B. Seek medical help with the partner/s.
 - C. Seek medical help alone.
 - D. Continue having sex
 - E. Don't know
 - F. Other (specify) _____
11. Have you heard about HIV/AIDS?
- A. Yes
 - B. No _____ (go to q28)
12. From where or whom did you hear/read about HIV/AIDS? *Multiple response*
- A. Radio
 - B. Newspapers/ magazine.
 - C. TV
 - D. Parents
 - E. Teachers
 - F. Friends/peers

- G. Health workers
- H. Pamphlets/brochures
- I. Other

13. Is it possible for a healthy-looking person to have the AIDS virus?
A. Yes
B. No
C. I do not know
14. Is it possible that a healthy looking person who has the AIDS virus could transmit it to his/her sexual partner?
A. Yes
B. No
C. I do not know
15. What are the symptoms of AIDS? *Multiple response*
A. Gradual loss of body weight
B. Gradual loss of hair
C. Frequent diarrhea
D. Herpes zoster
E. Prolonged fever
F. Body rash
G. Prolonged cough
H. Don't know.
I. Others specify
16. Who is at risk of being infected with HIV/AIDS? *Multiple response*
A. All
B. Youth
C. Women
D. Men
E. Those who get involved with commercial sex
17. How is HIV transmitted? *Multiple response*
A. Sexual intercourse
B. Kissing
C. Sharing sharp objects
D. Blood transfusion
E. Insects' bites
F. Mother to child
G. Substance abuse
H. Sharing bathing towels
I. Sharing of tooth brush
J. Direct contact with the fluid of infected corpse/dead person

K. Others (specify) _____

18. How can HIV be prevented? *Multiple response*
A. Abstinence
B. Using condoms
C. Being faithful to partner
D. Having no infected sexual partner.
E. Others
19. Where can people go to be tested for the virus that causes HIV? *Multiple response*
A. Hospital
B. Clinic
C. VCT center
D. Pharmacy
E. Mobile clinic
F. Fieldworker
G. I don't know
H. Other (specify) _____
20. I don't want to know the results, but have you ever been tested to see if you have the AIDS virus?
A. Yes
B. No
C. Don't know
21. Do you know or have you heard of any body who has died of AIDS in your community?
A. Yes
B. No
22. Would you be willing to care for a person suffering from AIDS?
A. Yes (go to q 25)
B. No
23. If no why? *Multiple response*
A. Fear of contracting HIV
B. Community stigma
C. Lack of necessary sanitation items
D. Lack of knowledge
E. Lack of compassion
F. Other (specify) _____
24. How would you care for a person infected with HIV/AIDS? *Multiple response*
A. Feeding

- B. Bathing
- C. Counseling/ encouragement.
- D. Sharing information
- E. Showing compassion.
- F. Sharing resource or donating resource
- G. Others (specify) _____
- H. Don't know

- 25. If a teacher has the AIDS virus but is not sick, should the teacher be allowed to continue teaching in the school?
 - A. Yes
 - B. No
 - C. Don't know

- 26. Do you agree or disagree with the following statement: people with the AIDS virus should be ashamed of themselves.
 - A. Agree
 - B. Disagree
 - C. Don't know

- 27. Do you agree or disagree with the following statement: people with the AIDS virus should be blamed for bringing the disease into the community.
 - A. Agree
 - B. Disagree
 - C. Don't know

- 28. Have you heard any abstinence and/or behavior change messages in the last six months?
 - A. Yes
 - B. No

- 29. If yes, where did you hear?

- 30. Have you read any abstinence and/or behavior change messages in the last six months?
 - A. Yes
 - B. No

- 31. If yes, where did you read?

Section Eight: Life Skills

- 1. What do you understand by the phrase "value oneself?"
 - A. Self control

- B. Understand healthful living
- C. Act from knowledge
- D. Know who you are
- E. Be aware of your environment

2. What challenges do you experience in life? *Multiple response*
- A. Economic
 - B. Family relationship
 - C. Peer pressure
 - D. Courtship
 - E. Reproductive health
 - F. General health maintenance
 - G. Educational access
 - H. Cultural demands
 - I. Generational gap
 - J. School
 - K. Other (specify)
-

3. What are your aspirations? *Multiple response*
- A. Complete education
 - B. Keep healthy
 - C. Start family
 - D. Get a job/make an independent living
 - E. Make sure to have a career
 - F. Be responsible
 - G. Have no aspiration/plan

Section Nine: Human Rights

1. What are human rights? *Multiple response*
- A. Right to protection under the law
 - B. Right to worship
 - C. Right to marriage
 - D. Right to own property
 - E. Right to movement
 - F. Right to express ones view
 - G. Right to privacy
 - H. Right to basic education
 - I. Right to form /join associations
 - J. Right to choose career
 - K. Right to life
2. Do you personally know someone who has been denied involvement in social events, religious services, or community events in the last 12 months because he or she is suspected to

have the AIDS virus or has the AIDS virus?

- A. Yes
- B. No
- C. Don't know

3. What is sexual abuse? *Multiple response*
- A. Verbal abuse
 - B. Physical violence
 - C. Rape
 - D. Lack of equality between men and women where one sex, have a low social status.
 - E. Forcing one's sexual desire over the opposite sex
 - F. Taking advantage of children
4. What are the effects of sex abuse? *Multiple response*
- A. Loss of self confidence
 - B. Loss of trust in the establishment
 - C. Distrust of the opposite sex
 - D. Running away from home
 - E. Psychological trauma
 - F. Physical trauma
 - G. STI
5. What are the effects of child abuse? *Multiple response*
- A. Psychological trauma
 - B. Physical trauma
 - C. Running away from home
 - D. Increased fear
 - E. Loss of confidence
6. Who decides on sexual rights?
- A. The male
 - B. The female
 - C. Both

Section Ten: Gender

1. What is gender? *Multiple response*
- A. Established male and female roles
 - B. Division of labor
 - C. Power relations
 - D. Sexual relations
2. How does respect for human right contribute to reduction of the spread of HIV? *Multiple response*
- A. Reduction of rape
 - B. Reduction of child abuse
 - C. Reduction of sexual exploitation

D. Protection of the individual rights

Section Eleven: Mass Media

1. What is your preferred radio station:

2. What is your most favorite radio program:

THANK YOU FOR YOUR TIME!

Appendix B

Instruments Developed Based On the Original Survey

		1. STI Knowledge		Label / Value	Score	Max. Score
Human Social Capital						
S7Q1	Have you heard about sexually transmitted infections (STI)?			Yes No Missing Value	1 2 9	1 0 0
S7Q2	Which STIs do you know? <i>Multiple Response</i>	1.	Gonorrhea.	Yes No	1 2	1 0
		2.	Syphilis	Yes No	1 2	1 0
		3.	Herpes	Yes No	1 2	1 0
		4.	Chlamydia.	Yes No	1 2	1 0
		5.	HIV/AIDS	Yes No	1 2	1 0
			Missing Value		9	0
S7Q4	What are the signs/symptoms of STI? <i>Multiple Response</i>	1.	Body itching.	Yes No	1 2	1 0
		2.	Body rash	Yes No	1 2	1 0
		3.	Discharge from the penis/vagina.	Yes No	1 2	1 0
		4.	Lower abdominal pains.	Yes No	1 2	1 0
		5.	Sores on the penis/vagina.	Yes No	1 2	1 0
		6.	Sores on the mouth.	Yes No	1 2	1 0
		7.	Itching/ Pain when urinating	Yes No	1 2	1 0
			Missing Value		9	0
S7Q5	How is STI transmitted? <i>Multiple Response</i>	1.	Sexual intercourse	Yes No	1 2	1 0
		2.	Kissing	Yes No	1 2	0 1
		3.	Sharing sharp objects	Yes No	1 2	1 0
		4.	Sharing tooth brush	Yes No	1 2	0 1

		1. STI Knowledge				
Question		Label / Value	Score	Max. Score		
	5. Blood transfusion.	Yes	1	1		
		No	2	0		
	6. Insects bites.	Yes	1	0		
		No	2	1		
	7. Mother to child.	Yes	1	1		
		No	2	0		
	8. Sharing bathing towels	Yes	1	0		
		No	2	1		
	9. Witchcraft	Yes	1	0		
		No	2	1		
	10. I don't know	Yes	1	0		
		No	2	0		
	11. Can not be transmitted	Yes	1	0		
		No	2	0		
	12. Missing Value		9	0		
S7Q6	How can STI be prevented? <i>Multiple Response</i>	1. Abstinence	Yes	1	1	4
			No	2	0	
		2. Using condoms	Yes	1	1	
			No	2	0	
		3. Having uninfected sexual partner	Yes	1	1	
			No	2	0	
		4. Non penetrative sexual activities.	Yes	1	1	
			No	2	0	
		5. I don't know	Yes	1	0	
			No	2	0	
		6. Can not be transmitted	Yes	1	0	
			No	2	0	
		Missing Value		9	0	
S7Q7	What should a person infected with STI do?	1. Seek treatment			1	1
		2. Do nothing			0	
		Missing Value		9	0	
S7Q8	Where should a person go for treatment? <i>Multiple Response</i>	1. Health centers.	Yes	1	1	1
			No	2	0	
		2. Traditional healers.	Yes	1	0	
			No	2	0	
		3. Self treatment.	Yes	1	0	
			No	2	0	
		Missing Value			0	
S7Q9	When should STI	1. Immediately after			1	1

		1. STI Knowledge			Label / Value	Score	Max. Score
Question							
infected person seek treatment?		noticing the symptoms.					
	2.	4 weeks after noticing the symptoms.				0	
	3.	2 Months after noticing the symptoms				0	
	4.	Don't know				0	
				Missing Value	9	0	
S7Q10 What are the social responsibilities of a person infected with STI? <i>Multiple Response</i>	1.	Inform the partner/s immediately.	Yes	1	1		2
			No	2	0		
	2.	Seek medical help with the partner/s.	Yes	1	1		
			No	2	0		
	3.	Seek medical help alone.	Yes	1	0		
			No	2	0		
	4.	Continue having sex	Yes	1	0		
			No	2	0		
	5.	Don't know	Yes	1	0		
			No	2	0		
				Missing Value	9	0	
Total Score:							31

*Missing Values:

- 9 - the response is one digit
- 99 - the response is two digits
- 999 - the response is three digits

		2. HIV/AIDS Knowledge					
Question			Label / Value	Score	Max. Score		
Human Social Capital							
S7Q11	Have you heard about HIV/AIDS?	Yes		1	1		
		No		0			
		Missing Value		9		0	
		<hr/>					
S7Q13	Is it possible for a healthy-looking person to have the AIDS virus?	Yes		1	1		
		No		0			
		I do not Know		0			
		Missing Value		9		0	
<hr/>							
S7Q14	Is it possible that a healthy looking person who has the AIDS virus could transmit it to his/her sexual partner?	Yes		1	1		
		No		0			
		I do not Know		0			
		Missing Value		9		0	
<hr/>							
S7Q15	What are the symptoms of AIDS? <i>Multiple Response</i>	1. Gradual loss of body weight	Yes	1	7	1	0
			No	2			
		2. Gradual loss of hair	Yes	1		1	
			No	2		0	
		3. Frequent diarrhea	Yes	1		1	
			No	2		0	
		4. Herpes zoster	Yes	1		1	
			No	2		0	
		5. Prolonged fever	Yes	1		1	
			No	2		0	
		6. Body rash	Yes	1		1	
			No	2		0	
		7. Prolonged cough	Yes	1		1	
			No	2		0	
		8. Don't know.	Yes	1		0	
			No	2		0	
Missing Value		9	0				
<hr/>							
S7Q16	Who is at risk of being infected with HIV/AIDS? <i>Multiple Response</i>	1. All	Yes	1	5	1	0
			No	2			
		2. Youth	Yes	1		1	
			No	2		0	
		3. Women	Yes	1		1	
			No	2		0	

		2. HIV/AIDS Knowledge				
Question		Label / Value	Score	Max. Score		
		4. Men	Yes No	1 2	1 0	
		5. Those who get involved with commercial sex	Yes No	1 2	1 0	
		Missing Value		9	0	
S7Q17	How is HIV transmitted? <i>Multiple Response</i>	1. Sexual intercourse	Yes No	1 2	1 0	7
		2. Kissing	Yes No	1 2	0 0	
		3. Sharing sharp objects	Yes No	1 2	1 0	
		4. Blood transfusion	Yes No	1 2	1 0	
		5. Insects' bites	Yes No	1 2	0 0	
		6. Mother to child	Yes No	1 2	1 0	
		7. Substance abuse	Yes No	1 2	1 0	
		8. Sharing bathing towels	Yes No	1 2	0 0	
		9. Sharing of tooth brush	Yes No	1 2	0 1	
		10. Direct contact with the fluid of infected corpse/dead person	Yes No	1 2	1 0	
		Missing Value		9	0	
S7Q18	How can HIV be prevented? <i>Multiple Response</i>	1. Abstinence	Yes No	1 2	1 0	4
		2. Using condoms	Yes No	1 2	1 0	
		3. Being faithful to partner	Yes No	1 2	1 0	
		4. Having no infected sexual partner.	Yes No	1 2	1 0	
		Missing Value		9	0	
S7Q19	Where can people go to be tested for the virus that causes HIV?	1. Hospital	Yes No	1 2	1 0	5
		2. Clinic	Yes No	1 2	1 0	
		3. VCT center	Yes	1	1	

		2. HIV/AIDS Knowledge					
Question		Label / Value	Score	Max. Score			
<i>Multiple Response</i>	4. Pharmacy	No	2	0			
		Yes	1	0			
	5. Mobile clinic	No	2	0			
		Yes	1	0			
	6. Fieldworker	No	2	1			
		Yes	1	1			
	7. I don't know	No	2	0			
		Yes	1	0			
	Missing Value			9	0		
	S7Q24	How would you care for a person infected with HIV/AIDS?					6
<i>Multiple Response</i>	1. Feeding	Yes	1	1			
		No	2	0			
	2. Bathing	Yes	1	1			
		No	2	0			
	3. Counseling/ Encouragement.	Yes	1	1			
		No	2	0			
	4. Sharing information	Yes	1	1			
		No	2	0			
	5. Showing compassion.	Yes	1	1			
		No	2	0			
6. Sharing resource or donating resource	Yes	1	1				
	No	2	0				
7. Don't know	Yes	1	0				
	No	2	0				
Missing Value			9	0			
S10Q2	How does respect for human right contribute to reduction of the spread of HIV?					4	
<i>Multiple Response</i>	1. Reduction of rape	Yes	1	1			
		No	2	0			
	2. Reduction of child abuse	Yes	1	1			
		No	2	0			
	3. Reduction of sexual exploitation	Yes	1	1			
		No	2	0			
	4. Protection of the individual rights	Yes	1	1			
		No	2	0			
	Missing Value			9	0		
	Total Score:						

*Missing Values:

- 9 - the response is one digit
- 99 - the response is two digits
- 999 - the response is three digits

		3. Sexual Knowledge			Label / Value	Score	Max. Score
Human Social Capital							
S3Q1	What is sex?	1.	Being Male or Female			1	1
		2.	Sexual intercourse between male and female			0	
		Missing Value				9	
S3Q6	What are the functions of penis? <i>Multiple Response</i>	1.	Secretion/urination	Yes	1	1	4
			No	2	0		
		2.	Sexual pleasure	Yes	1	1	
			No	2	0		
		3.	Sexual intercourse	Yes	1	1	
			No	2	0		
		4.	Means to transfer sperm for procreation	Yes	1	1	
No	2		0				
Missing Value				9	0		
S3Q7	What are the functions of vagina? <i>Multiple Response</i>	1.	Sexual pleasure	Yes	1	1	4
			No	2	0		
		2.	Sexual intercourse	Yes	1	1	
			No	2	0		
		3.	Means to receive sperm for procreation	Yes	1	1	
			No	2	0		
		4.	Child delivery	Yes	1	1	
No	2		0				
Missing Value				9	0		
S4Q12	What is the right stage to start sexual intercourse?	1.	At marriage			1	1
		2.	While in primary school			0	
		3.	While in secondary school			0	
		4.	While in college			0	
		5.	After completion of ones education			0	
		6.	When in love			0	
		7.	When one feels like having sex			0	
		8.	When one has the right resource			0	
		9.	When negotiated			0	
		Missing Value				99	

		3. Sexual Knowledge			Label / Value	Score	Max. Score
Question							
S5Q2	How does one maintain healthy sexual life? <i>Multiple Response</i>	1.	Avoiding substance abuse	Yes	1	1	5
				No	2	0	
		2.	Be faithful to partner	Yes	1	1	
				No	2	0	
		3.	Avoid underage sex	Yes	1	1	
				No	2	0	
		4.	Use of contraception	Yes	1	1	
				No	2	0	
		5.	Undergo Voluntary Counseling and HIV Testing.	Yes	1	1	
				No	2	0	
				Missing Value		9	0
S6Q1	Can a person control one's sexual urge?	1.		Yes	1	1	1
				No	2	0	
						Missing Value	
S6Q2	What do you do when you have sexual urge? <i>Multiple Response</i>	1.	Find sex partner	Yes	1	1	6
				No	2	0	
		2.	Masturbate	Yes	1	1	
				No	2	0	
		3.	Get involved in some diverting activities	Yes	1	1	
				No	2	0	
		4.	Discuss with peer group	Yes	1	1	
				No	2	0	
		5.	Practice self control	Yes	1	1	
				No	2	0	
6.	Get pornographic material	Yes	1	1			
		No	2	0			
				Missing Value		9	0
S9Q3	What is sexual abuse? <i>Multiple Response</i>	1.	Verbal abuse	Yes	1	0	2
				No	2	0	
		2.	Physical Violence	Yes	1	0	
				No	2	0	
		3.	Rape	Yes	1	1	
				No	2	0	
		4.	Lack of equality between men and women where one sex, have a low social status.	Yes	1	0	
				No	2	0	
		5.	Forcing one's sexual	Yes	1	1	
				No	2	0	

		3. Sexual Knowledge			Label / Value	Score	Max. Score
			desire over the opposite sex	No	2	0	
			Missing Value		9	0	
S9Q4	What are the effects of sex abuse? <i>Multiple Response</i>	1.	Loss of self confidence	Yes	1	1	6
				No	2	0	
		2.	Distrust of the opposite sex	Yes	1	1	
				No	2	0	
		3.	Running away from home	Yes	1	1	
				No	2	0	
		4.	Psychological Trauma	Yes	1	1	
				No	2	0	
		5.	Physical Trauma	Yes	1	1	
				No	2	0	
		6.	STI	Yes	1	1	
				No	2	0	
			Missing Value		9	0	
S9S6	Who decides on sexual rights?	1.	The male			0	1
		2.	The female			0	
		3.	Both			1	
			Missing Value		9	0	
Total Score							31

*Missing Values:

- 9 - the response is one digit
- 99 - the response is two digits
- 999 - the response is three digits

		4. Risky Behavior Knowledge					
Question			Label / Value	Score	Max. Score		
Human Social Capital							
S5Q1	What are the factors that can have a negative effect on one's reproductive (sexual) health? <i>Multiple Response</i>	1.	Female Genital Cutting	Yes	1	8	
				No	2		0
		2.	Underage marriage	Yes	1		1
				No	2		0
		3.	Substance abuse	Yes	1		1
				No	2		0
		4.	Not having sex regularly	Yes	1		1
				No	2		0
		5.	Stress	Yes	1		1
				No	2		0
		6.	Rape	Yes	1		1
				No	2		0
		7.	Cultural practices	Yes	1		1
		No	2	0			
8.	Not having sex at all	Yes	1	0			
		No	2	0			
9.	Unsafe sex	Yes	1	1			
		No	2	0			
Missing Value				9	0		
S5Q3	What are the potential health consequences of underage sex? <i>Multiple Response</i>	1.	Unsafe pregnancy	Yes	1	6	
				No	2		0
		2.	Unsafe delivery	Yes	1		1
				No	2		0
		3.	Educational interruption	Yes	1		1
				No	2		0
		4.	Maternal complications	Yes	1		1
				No	2		0
		5.	STI	Yes	1		1
				No	2		0
		6.	Termination of pregnancy	Yes	1		1
				No	2		0
		Missing Value					9
S6Q3	Identify risky sexual intercourse <i>Multiple Response</i>	1.	Getting involved in commercialized sex	Yes	1	3	
				No	2		0
		2.	Practicing unsafe sex	Yes	1		1
				No	2		0
		3.	Unfaithfulness to partner	Yes	1		1
				No	2		0
		Missing Value					9

4. Risky Behavior Knowledge			
Question	Label / Value	Score	Max. Score
		Total Score	17

*Missing Values:

- 9 - the response is one digit
- 99 - the response is two digits
- 999 - the response is three digits

5. Attitude Towards People Living with AIDS				
Question		Label / Value	Score	Max. Score
Human Social Capital				
S7Q22	Would you be willing to care for a person suffering from AIDS?	Yes No Missing Value	1 0 0	1
S7Q25	If a teacher has the AIDS virus but is not sick, should the teacher be allowed to continue teaching in the school?	Yes No Don't know Missing Value	1 0 0 0	1
S7Q26	Do you agree or disagree with the following statement: People with the AIDS virus should be ashamed of themselves.	Agree Disagree Don't know Missing Value	0 1 0 0	1
S7Q27	Do you agree or disagree with the following statement: People with the AIDS virus should be blamed for bringing the disease into the community.	Agree Disagree Don't know Missing Value	0 1 0 0	1
			Total Score:	4
*Missing Values:				
<ul style="list-style-type: none"> • 9 - the response is one digit • 99 - the response is two digits • 999 - the response is three digits 				

		6. Social Capital			Label / Value	Score	Max. Score
A. Human Social Capital							
S1Q5	What is your level of education:	1.	Never attended school			1	7
		2.	Lower Primary (K1-3) / (T1-3)			2	
	<i>One Answer</i>	3.	Middle Primary (K4-5)/ (T4-5)			3	
		4.	Upper Primary (K6-8)/ (T6-7)			4	
		5.	Secondary (F1-2)/(TF1-2)			5	
		6.	Secondary (F3-4)/(TF3-4)			6	
		7.	Secondary (F5-6) (TF5-6)			7	
			Missing Value			9	0
S8Q3	What are your aspirations?	1.	Complete education	Yes	1	1	6
				No	2	0	
	<i>Multiple Response</i>	2.	Keep healthy	Yes	1	1	
				No	2	0	
		3.	Start family	Yes	1	1	
				No	2	0	
		4.	Get a job/make an independent living	Yes	1	1	
				No	2	0	
		5.	Make sure to have a career	Yes	1	1	
				No	2	0	
		6.	Be responsible	Yes	1	1	
				No	2	0	
		7.	Have no aspiration/plan	Yes	1	0	
				No	2	0	
			Missing Value			9	0
B. Family Social Capital - Internal							
S2Q1	Who are you primarily living with?	1.	Both biological Parents.			1	1
		2.	Guardians/Foster parents.			1	
	<i>One Response</i>	3.	Father only			1	
		4.	Mother Only			1	
		5.	Father and step mother			1	
		6.	Mother and step father			1	
		7.	Grand parents			1	
		8.	Uncle			1	
		9.	Aunt			1	
		10.	Friend (specify whether boy/ girl)			1	

6. Social Capital						
Question			Label / Value	Score	Max. Score	
		11. Siblings			1	
		Missing Value		99	0	
S2Q2	What are the responsibilities of person/s whom you are living with regarding your welfare? (Check as applicable)	1. Basic needs (food, shelter and clothing)	Yes	1	1	7
			No	2	0	
		2. Education	Yes	1	1	
			No	2	0	
		3. Guidance	Yes	1	1	
			No	2	0	
		4. Discipline	Yes	1	1	
			No	2	0	
	<i>Multiple Response</i>	5. Medical care	Yes	1	1	
			No	2	0	
		6. Provision of security/ protection	Yes	1	1	
			No	2	0	
		7. Sexual satisfaction	Yes	1	1	
			No	2	0	
		8. None	Yes	1	0	
			No	2	0	
		9. Don't know	Yes	1	0	
			No	2	0	
		10. Missing Value		9	0	

C. Emotional Social Capital						
S2Q3	With whom do you mainly discuss sexual issues?	1. Both biological parents.	Yes		1	1
		2. Father only.	Yes		1	
		3. Mother only	Yes		1	
		4. Uncle only.	Yes		1	
	<i>One Response</i>	5. Aunt only.	Yes		1	
		6. Step mother	Yes		1	
		7. Step father	Yes		1	
		8. Grand parents.	Yes		1	
		9. Guardian	Yes		1	
		10. Friends	Yes		1	
		11. Nobody	Yes		0	
		Missing Value		99	0	
S2Q4	How often do you discuss?	1. Weekly	Yes		6	7
		2. Monthly	Yes		5	
		3. Bimonthly	Yes		4	
	<i>One Response</i>	4. Quarterly	Yes		3	

6. Social Capital						
Question			Label / Value	Score		Max. Score
		5.	Biannually	Yes		2
		6.	Annually	Yes		1
		7.	As needed	Yes		7
			Missing Value		9	0
S2Q6	When you make decisions where do you seek advice from?	1.	Parent/guardian	Yes	1	1
		2.	Teacher	Yes	1	1
		3.	Friends/peers	Yes	1	1
		4.	Relatives	Yes	1	1
		5.	Professionals	Yes	1	1
	<i>One Response</i>		Missing Value		9	0
D. Physical Social Capital – Technological						
S7Q12	From where or whom did you hear/read about HIV/AIDS? (only a, b, c)	1.	a. Radio	Yes	1	1
				No	2	0
		2.	b. Newspapers/magazine	Yes	1	1
				No	2	0
		3.	c. TV	Yes	1	1
				No	2	0
	<i>Multiple Response</i>		Missing Value		9	0
E. Economic Social Capital						
S8Q2	What challenges do you experience in life?	1.	Economic	Yes	1	0
				No	2	1
			Missing Value		9	0
F. Community Social Capital						
S4Q1	Who are your friends?	1.	Peers in the neighborhood	Yes	1	1
				No	2	0
		2.	Class mates	Yes	1	1
				No	2	0
		3.	Club members	Yes	1	1
				No	2	0
		4.	Relatives	Yes	1	1
				No	2	0
		5.	Work mates	Yes	1	1
				No	2	0
		6.	I do not have a friend	Yes	1	0

		6. Social Capital			Label / Value	Score	Max. Score
				No	2	0	
		7.	Missing Value		9	0	
S4Q2	How do you select your friends? <i>Multiple Response</i>	1.	Sharing same goals/aspiration/interest	Yes	1	1	6
				No	2	0	
		2.	Life styles	Yes	1	1	
				No	2	0	
		3.	Kinship	Yes	1	1	
				No	2	0	
		4.	Similar profession	Yes	1	1	
				No	2	0	
		5.	Same neighborhood	Yes	1	1	
				No	2	0	
		6.	Same school/colleges	Yes	1	1	
				No	2	0	
			Missing Value		9	0	
G. Education – Formal & Informal							
S1Q5	What is your level of education? <i>One Answer</i>	1.	Never attended school			1	7
		2.	Lower Primary (K1-3) / (T1-3)			2	
		3.	Middle Primary (K4-5)/ (T4-5)			3	
		4.	Upper Primary (K6-8)/ (T6-7)			4	
		5.	Secondary (F1-2)/(TF1-2)			5	
		6.	Secondary (F3-4)/(TF3-4)			6	
		7.	Secondary (F5-6) (TF5-6)			7	
			Missing Value			9	0
S4Q1	Who are your friends? <i>Multiple Response</i>	1.	Peers in the neighborhood	Yes	1	1	5
				No	2	0	
		2.	Class mates	Yes	1	1	
				No	2	0	
		3.	Club members	Yes	1	1	
				No	2	0	
		4.	Relatives	Yes	1	1	
				No	2	0	
		5.	Work mates	Yes	1	1	
				No	2	0	
		6.	I do not have a friend	Yes	1	0	

6. Social Capital				
Question		Label / Value	Score	Max. Score
		No	2	0
		Missing Value	9	0
Total Score:				57

*Missing Values:

- 9 - the response is one digit
- 99 - the response is two digits
- 999 - the response is three digits

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Mioara Diaconu, of Romanian background, is assistant professor of social work and international development on the campus of Andrews University, Berrien Springs, Michigan. She joined the Behavioral Sciences and Social Work faculty in the fall of 2007 as the Associate Director of Community and International Development Program. In 2002, she completed a Master's Degree in Social Work (MSW), and a Master's of Science in Administration Community and International Development (MSA) in 2004. Some of her research and teaching areas of interest are as follow: Disaster Response and Relief; International Social Work; Forced & Volunteer Migration; Health Issues - HIV/AIDS; Women's Issues - domestic violence, poverty, discrimination, etc.; Human Rights & Human Trafficking; Cultural Diversity/Multiculturalism; etc. She has been awarded numerous community and academic awards, scholarships, and fellowships. In 2007 she was inducted into Who's Who Among Students in American Universities and Colleges. Her two articles written in collaboration with Thomas Watts were published in 2005 in the New Global Development Journal of International and Comparative Social Welfare.