

**MAGNITUDE AND DETERMINANTS OF RISKY SEXUAL
BEHAVIOURS AMONG YOUTHS ATTENDING HIV CARE AND
TREATMENT CLINICS IN DAR-ES-SALAAM REGION,
TANZANIA**

By

Aisa Pendo Mhalu (MD)

**A dissertation submitted in Partial Fulfillment of the Requirements for the
Degree of Master of Public Health of the Muhimbili University of Health
and Allied Sciences**

Muhimbili University of Health and Allied Sciences

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CERTIFICATION

The undersigned certify that he has read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled “**Magnitude and Determinants of Risky Sexual Behaviors Among Youths Attending HIV Care and Treatment Clinics in Dar-es-Salaam, Tanzania**”, in (Partial) fulfillment of the requirements for the degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences.



.....
Elia. J. Mmbaga (MD, PhD)

(Supervisor)

Date..... 26th October 2010

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I, **Mhalu, Aisa Pendo**, declare that this **dissertation** is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

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DEDICATION

This work is dedicated to my beloved parents (Fred and Esther) who sacrificed so much for my education and made me who I am today.

ABSTRACT

Introduction

Risky sexual behaviors are mainly the focal point of programmes on HIV prevention. Little interest has been given to sexual behaviors among HIV positive youths. Sexual behaviors of HIV infected youth have not been described. The intention of this study was to determine the magnitude and determinants of risky sexual behaviors among HIV infected youths.

Methods

A cross-sectional study was conducted in June 2010 in selected Care and Treatment Clinics (CTCs) in the three municipalities of Dar-es-Salaam. A total of 282 eligible HIV infected youths aged 15-24 years were interviewed using a structured questionnaire to obtain data from study participants. Data was analyzed using the SPSS version 15.0.

Results

Prevalence of unprotected sex was found to be 40.0% among males and 37.5% among females ($p < 0.001$) with 38.7% of males and 29.1% of females reporting to not use condom consistently. More than 50% of the participants didn't know HIV status of their sexual partners. A large proportion (46.7% males versus 60.4% females) of youth had low knowledge on STI prevention and STI transmission (65.3% for males and 73.4% for females). Multiple sexual partnership was reported by 10.6% of males and 15.9% of females ($p < 0.005$). Independent predictors of condom use in this population was poor attitude towards condom (Adjusted Odds Ratio 0.23, 95% Confidence Interval (CI): (0.06-0.81) and not being on ARV (AOR, 0.38, 95% CI: 0.17-0.85). While those in young age group (15-19 years) were almost 3 times more likely to report multiple sexual partnerships and those not using alcohol was associated with 62% less likely to report to do so.

Conclusions

Practice of unprotected sex and multiple sexual partnerships was prevalent among youth living with HIV/AIDS in Dar-es-Salaam. Low STI knowledge and low HIV disclosure status increased the vulnerability and risk for transmission of HIV infection among youth. Specific intervention measures including integrating reproductive health counseling in routine CTC should be a priority. Intervention measures should take into account age, location, ARV use status and other individual related behaviors such as alcohol consumption and condom use.

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ABBREVIATIONS

ABC	Abstinence, Be Faithful and Condom use
AIDS	Acquired Immune Deficiency Syndrome
ART	Anti-retroviral Therapy
ARV	Anti-retroviral drugs
AKC	Amtulabahi Karimjee Clinic
CTC	Care and Treatment Centre/Clinic.
CDC	Centers for Disease Control.
CD4	Clone of Differential group 4
FHI	Family Health International
GIPA	Greatest Involvement of People Living with HIV
HAART	Highly Active Anti-retroviral Therapy.
HIV	Human Immunodeficiency Virus.
IDC	Infectious Disease Centre.
IDU	Injecting Drug Users
IPPF	International Planned Parenthood Federation
MARPs	Most at Risk Populations
MUHAS	Muhimbili University of Health and Allied Sciences
NACP	National AIDS Control Programme

NMSF	National Multi-Sectoral Framework
NIAID	National Institute of Allergy and Infectious Disease
PI	Principal Investigator
PLWHA	People Living with HIV/AIDS
PMTCT	Prevention of Mother to Child Transmission
STDs	Sexually Transmitted Diseases
STIs	Sexually Transmitted Infections
SPSS	Statistical Package For Social Sciences
TACAIDS	Tanzania Commission For AIDS
TDHS	Tanzania Demographic and Health Survey
THMIS	Tanzania HIV/AIDS and Malaria Indicator Survey
TRCHS	Tanzania Reproductive and Child Health Survey
UKIMWI	Upungufu wa Kinga Mwilini
UNAIDS	Joint United Nations Program on HIV/AIDS
UNFPA	United Nations Fund For Population Activities
VCT	Voluntary Counseling and Testing
VVU	Virusi Vya Ukimwi
WHO	World Health Organization

DEFINITION OF TERMS

Determinants of risk behaviors: in the context of this study refers to the range of personal, social, economic and environmental factors which determine the risk behavior of individuals or populations.

Health status: In this study is the current state of patient self-assessed or self-reported perception of a person with respect to his or her health condition which includes the status of their wellness, fitness, and any underlying diseases/condition. It also includes such influencing factors as: weight, nutrition, smoking, alcohol consumption, compliance with prescribed medications, treatments, activity, and diet.

HIV infected youths: These are youths aged 15-24 years, who are infected with HIV through sexual contact, from mother to child transmission, blood transfusion and traditional practices such as male and female circumcision and scarifications.

Magnitude of risky sexual behaviors: in the context of this study, refers to the extent of risk sexual behaviors practiced by HIV infected youths.

Medical status: In this study it describes as a patient current state as seen from medical standpoint. It is associated with specific symptoms and signs which may be caused by external or internal factors, where in this study antiretroviral treatment and CD4 count were among the medical status observed.

Risky sexual behaviors among HIV infected youths: In this study is defined as engaging in unprotected sex (anal, vagina and oral) with someone whose HIV status is unknown, also exchange sex for money or drugs. These risky sexual behaviors among HIV infected youths are those which continue or are occurring among HIV infected youths during the past 6 months after knowing their HIV status.

Youths: In the context of this study it's a boy or girl who is in transition from childhood to adulthood aged between 15-24 years.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

More than two and half million adults and children became infected with HIV worldwide in 2008. It is estimated that 33.4 million people were living with HIV/AIDS in 2008 (UNAIDS, 2009). This means that HIV infection remains to be the major cause of mortality and morbidity especially in Sub Saharan Africa, accounting for about 71% of HIV infected and 75% AIDS deaths (UNAIDS report, 2009).

About 1 billion youths live in the world today, of which 14% live in Africa. It is estimated that 45% of all new HIV infections world-wide occur among youth aged 15-24 years (UNAIDS, 2008), while 63% of HIV infected youth live in Sub Saharan Africa and 21% live in the Asia-Pacific countries (UNAIDS, 2004).

Preventing HIV transmission among youth is urgent in Sub Saharan Africa, where youth comprises 40% of all new HIV infections (WHO, 2006) and 6,000 youths are being infected with HIV everyday (UNAIDS, 2004).

In Tanzania the overall youths (15-24 years) HIV prevalence is 2% for the mainland while it is 1% percent for Zanzibar. There is a substantial difference in HIV prevalence by sex, where the prevalence in females aged 15-24years is 4% while that in men of the same the age group is only 1%. Urban youths are twice likely to be infected compared to youths in rural areas with 4% and 2% respectively (THMIS - 2007-2008).

While youth of 15 to 24 years represent only 25% of the sexually active population, they account for nearly 50% of all new STDs including HIV, (CDC, 2008). A number of experts

believe that the needs of HIV-infected youth are often neglected in favor of approaches that focus on younger children and adults. (WHO, UNICEF, 2008)

In poor communities, high STIs and HIV infection rates may be due to early sexual initiation. For example, the Tanzania HIV Malaria Indicator Survey 2007-2008 indicated that the median age at first sexual intercourse was 17.3 years for female while it was 18.5 years for males. In western Kenya a study by Amornkul et al in 2009, indicated that the median age of sexual debut was 16.5 years and 15.5 years for males and females respectively. This means that most of sexual activities begin in the youth period.

Despite reduction in HIV prevalence in Tanzania, youth are still engaging themselves in risky sexual behaviors. HIV in Tanzania is mainly transmitted through heterosexual contact (THMIS-2007-2008). Youths contract HIV infection most often through sexual contact and injecting drug use, while others have been infected through mother to child transmission. However, with improved care and treatment for AIDS and prevention of mother to child transmission (PMTCT), these services have enabled many children to live into their youth and beyond, (Dallao, 2009).

In Tanzania and Sub Saharan Africa countries 80% of HIV transmission in youths is accounted for by sexual contact (TACAIDS, 2003) while injecting drug use and perinatal transmission (through mother to child transmission) contribute to the remaining proportion.

Currently the number of HIV infected youth has increased and programs are required to provide age specific care and treatment with psychosocial support and reproductive health counseling. This will include both HIV infected and negative youths (Dallao, 2009).

Risky sexual behaviors are mainly the focal point of programmes on HIV prevention although little interest has been given to sexual behaviors among HIV positive individuals. There is a need to intensively understand HIV positive young people sexual behavior concerns and the challenges they face.

Young people living with HIV are overlooked, but they have the right to participate in programmes which in one way or another affect their daily quality of life including gender equality and the right to have information and able to access health care services. This right among HIV infected individual is recognized as “GIPA (Greatest Involvement of People Living with HIV)”. This right aims to enhance the quality and effectiveness of the AIDS response (UNAIDS 2007).

1.2 Problem Statement.

Practice of risky sexual behaviors continues to be the primary route of HIV transmission among youths. HIV positive youths have been reported to have a higher prevalence of sexual risky behaviors than the general population even after diagnosis (Murphy et al, 2001; Rotheram- Borus et al., 1997).

Youths are in a stage of development which makes them highly vulnerable physically, biologically and psychologically, causing them to take actions which can lead to the acquisition of HIV. HIV infected youth appeared to have delayed onset of sexual risk behaviors compared to HIV negative youths (Wiener et al, 2007). This delay may be as a result of delayed emotional maturity, resulting from expectation of survival and independent function (Battles and Wiener, 2002). HIV infected youth are normally facing a lot of challenges, since most preventive programs target the HIV negative individuals and this makes them feel isolated from their communities. HIV infected youths do perceive themselves as being culprits of their own wrongdoing and thus may not see the need of protecting themselves from acquiring new infections. In most countries, there is shortage of specifically designed programs for people living with HIV (UNAIDS, 2009).

Sexual behaviors of HIV infected youth are of paramount importance for HIV transmission as most infection occurs in this group. Estimates from different studies has shown that, at least one-third of HIV positive youths may continue their risky behaviors and continue transmitting HIV infection even after learning their serostatus (Wilson et al 1999, Hays et al, 1997, Diamond and Buskin, 1999). Many studies have been done on risky sexual behaviors in Tanzania, but these studies have focused on the general population. Little is known about the magnitude and determinants of risky behaviors among HIV infected youth in Dar es Salaam and Tanzania at large. Therefore, this study intends to address this gap by examining the magnitude and determinants of sexual risky behaviors among HIV infected youths in Dar-es-Salaam, Tanzania.

1.3 Rationale

Practice of risky sexual behaviors among HIV positive individuals is the most effective driver of the HIV epidemic. It is therefore important to address risky sexual behavior among HIV infected youths in order to prevent the spread of the disease and to minimize its negative health consequences in this vulnerable population and the community at large.

Understanding the magnitude and determinants of risky sexual behavior among HIV infected youths, is crucial for intervention design and development. The interventions will provide HIV infected youths with information and skills to protect themselves from being infected with new HIV-strains and from other STIs agents as well as protect the community from acquiring HIV thereby reducing transmission of HIV in the community.

Also the information gained will enable the preventive programs to include HIV positive youth in preventive programs since most of preventive programs target HIV negative youth.

1.4 OBJECTIVES:

1.4.1 Broad objective:

To determine the magnitude and determinants of risky sexual behaviors among HIV infected youths in Dar-es-Salaam region.

1.4.2 Specific objectives:

1. To determine the magnitude of risky sexual behaviors among HIV infected youths in Dar-es-Salaam region.
2. To assess the level of knowledge on HIV/STI among HIV infected youths in Dar-es-Salaam region.
3. To assess attitude towards condom use among HIV infected youths in Dar-es-Salaam region.
4. To assess the social factors contributing to practice of risky sexual behaviors among HIV infected youths in Dar-es-Salaam region.
5. To determine the relationship between patient medical status and risky sexual behaviors among HIV infected youths in Dar-es-Salaam region.
6. To explore the association between perceived health status and practice of risky sexual behaviors among HIV infected youths in Dar-es-Salaam region.

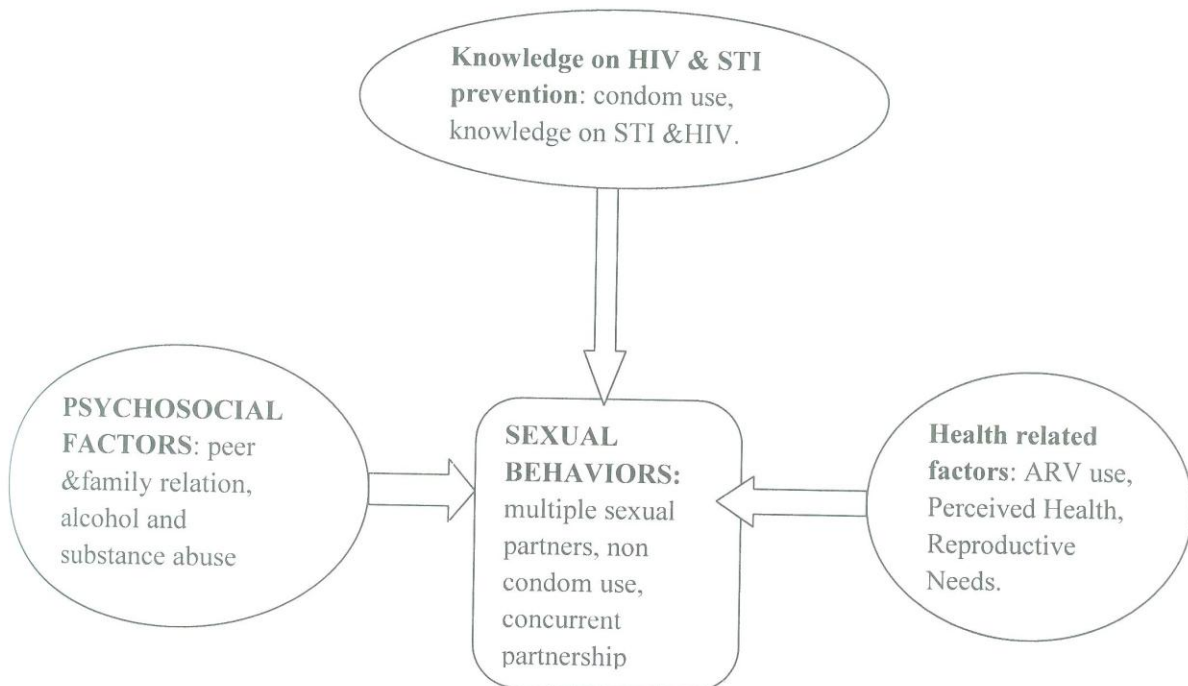
1.5 Research questions:

1. What proportion of HIV infected youths involve in sexual risky behaviors?
2. Which risky sexual behaviors do HIV infected youths engage in?
3. What are the determinants of risky sexual behaviors among HIV infected youths?

1.6: Conceptual Framework

This study was conducted basing on a problem diagram shown

Figure 1: Determinants of risky sexual behaviors among youths attending CTC



CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Overview of HIV infection among youths

Youths are the main centre of HIV/AIDS epidemic. Out of the 1.7 billion young people worldwide, it is estimated that 5.4 million youths aged 15 and 24 years are living with HIV, 59% are female and 41% are male (UNAIDS,2007). Globally about 45% of new HIV infections are among young people (UNAIDS 2008). About 80% of HIV transmission in Tanzania and in Sub-Saharan Africa is through sexual contact (TACAIDS, 2008). Perinatal transmission in Tanzania is estimated to account for 18% of new infections. An additional 1.8% of HIV infected youths aged 15-24 years reported to never have practiced sex before, suggesting that the virus was also contracted through unsafe injections, traditional practices such as male and female circumcision and blood transfusion (TACAIDS, 2008).

Southern Asia and the Pacific have 1.27 million youths who are living with HIV, making the region with the second highest prevalence. Of those infected, 70% are male and the primary mode of infection is through injecting drug users (UNFPA, 2008). Around 420,000 youths living with HIV are in Latin America and the Caribbean, where men are three times as likely to be infected with HIV. The primary modes of transmission are through men having sex with men (homosexual). The primary mode of transmission is through injecting drug users in Central and Eastern Europe, whereby 340,000 youths are expected to be infected with HIV infection. (UNAIDS, 2007). Russian federation and Ukraine reported to have the fastest epidemic growing worldwide where young population contributed to the largest proportion of people living with HIV (UNFPA, 2008).

Sub Saharan Africa is a home of 3.2 million youths living with HIV, 76% of whom are female, making a ratio of three women infected with HIV for each one man. The primary mode of transmission is through heterosexual contact, which accounts for 80% of the transmission. (UNAIDS, 2007)

The global statistics of HIV infection among youths shows no common mode of transmission among youths from different parts of the world, which indicates that not all youth have the same HIV vulnerabilities (Fransen-dos-Santos, 2009).

2.2 Tanzania response to HIV/ AIDS

Since 1983 when the first 3 HIV/AIDS cases were reported in Tanzania, numerous approaches have been taken in the last 27 years to slow the spread of HIV infection and reduce its impact on individuals, communities and the nation in general. In general, Tanzania has made progress in a range of ways where the national response developed into phases of different activities since the 1985 National AIDS Control Program (NACP). The program identified major determinants of the epidemic and prioritized areas that make people vulnerable. The determinants of the epidemic have been identified as economic, social, cultural, biological and anatomical reasons.

Tanzania Commission for AIDS (TACAIDS) was established in 2001 to provide planned leadership on national multispectral initiatives to HIV/AIDS by formulation of policies, coordination HIV/AIDS response, resources mobilization and advocacy. Management of health sectors on HIV/AIDS responses were care and treatment and preventive services including voluntary counseling and testing (VCT) which is carry out by NACP under the Ministry of Health and Social Welfare.

The government of Tanzania in July 2007 launched its second National Multi-sectoral Framework (NMSF) on HIV & AIDS to cover the period from 2008 to 2010. The concerned areas addressed in the second NMSF includes the Most at Risk Populations (MARPs) including those most vulnerable due to gender inequality, sexual abuse, socio-cultural factors, women engaging in commercial as well as transactional sex, sexually abused children, widows and divorcees, men having sex with men (MSM), prisoners, refugees and displaced people, people with disabilities and intravenous drug user. The main concern on MARPs is the reduction of HIV infection among risky groups (TACAIDS, 2007).

2.3 HIV infected youths and practice of risky sexual behaviors

In Tanzania poverty, gender inequality, lack of information and prevention services, among youths in particular, are exposing youths to the risks of acquiring secondary HIV infection and other STIs. A greater risk of Hepatitis C & HIV co-infection can potentiate the prognosis and disease progression of both infections, leading to liver diseases in 70% of chronically infected people and rapid progression of end-stage liver decomposition, cirrhosis and death (Soriano et al, 2009, Cichocki, 2009).

Most HIV positive youth are asymptomatic, do not know they are infected, and are not enrolled in treatment (Futterman, 2003, Henry, 2003). Often the very psychosocial and socioeconomic factors that place young people at high risk for acquiring HIV are the same ones that leave them at the margins of disease prevention and health care systems. A survey by Henry in 2003 found that among sexually active young people who have not been tested for HIV, half do not consider themselves at risk.

HIV infection progression to AIDS occurs more slowly in youth as compared to other age groups, including children. CDC, 2008 presented data of proportion of people in an age group where HIV infection did not progress to AIDS within 1 year after being diagnosed with HIV infection were 81% of youths aged between 15-24 years, 70% of 13-14 years, 61% of the rest of the people.

HIV infected youths and adults are both twice as likely to engage and continue engaging in risky behaviors including sex and needle sharing, even after being diagnosed with HIV (Diamond and Buskin, 1999). It has been estimated that at least one-third of HIV positive youths may continue their risky behaviors and continue transmitting HIV infection even after learning their serostatus (Wilson et al 1999, Hays et al, 1997, Diamond and Buskin, 1999). HIV infected youths continuing with their risky sexual acts or injection drug use may put themselves at risk of becoming re-infected with new viral strains of HIV and other STIs and infect others (Rotheram – Borus, 1997).

In a study on behavior change in HIV infected youths by Rotheram-Borus, 1997, reported one third of youths have abstained from having sex. For those who were sexually active the majority had multiple sexual partners and 72-77% used condom. Alcohol, marijuana, hard drugs, injecting drugs use was 63%, 41%, 36% and 12% respectively. Gender differences was noted where by females had lesser sexual and substance use risky behaviors compare to the men.

In HIV infected person combination of heavy use of alcohol and HIV infection has been associated with increased medical and psychiatric complications (Samet et al, 1998). In the study by Naar-King and Wright et al, 2006 reported that 65% of HIV infected youths were sexually active and out of those 71% were practicing unprotected sex. Alcohol use was reported among 88% of HIV infected youths and 30% of HIV infected youths used marijuana. Study variable was neither associated with gender nor age.

A study done on how sexual partner behaviors, for the secondary HIV transmission may differ between women who have sex with men (WSM) and men who have sex with men (MSM), reported lower condom use among WSM with 61% and 78% among MSM. Use of hard drugs was high among MSM with 18% compared to 4% WSM (Jennings et al 2009). In a study by Urassa et al 2008 reported 7% of male youths and 17% of female youths were practicing penile anal sex.

Condom use among youths still reported to be lower as reported in TDHS 2005 and TRCHS 1999, however sex before age of 18 years reports to be 62.5% among female and 43.2 % of among male youth (TDHS 2005). A study conducted in Thailand (Rongkavilit et al, 2007) showed consistent condom use among HIV infected youths with 55.6% and 58.3% usage for the past 1 month and 3 months respectively. Of the sample, 25% used alcohol in between 1 month and 3 months, but substance abuse was uncommon among HIV infected youths. The risk of transmission of STIs including secondary HIV transmission is associated with the fact

that youths deny any risky behaviors by believing that they are invisible and this lead to involve themselves to risky behaviors (Rogers, 2010).

Studies in Tanzania by Urassa et al 2008 and Hinda et al , 2007 suggested HIV infections associated with STIs, whereby the HIV prevalence which exceed 50% among STI infected youths (Buve et al 2001), is a positive indication of (Weiss et al 2001) early sign for raising a response on HIV and STI prevention. Individuals who are infected with STIs are at least two to five times more likely than uninfected individuals to acquire HIV infection if they are exposed to the virus. Pregnant women and individuals who contracted STI are considered engaging in risky sexual behaviors (Mwakagile et al 1996, Diamond et al 1999).

Substance use is a contributing factor to sexual risk -taking, as it weakens individual judgment and decision making. Casual and chronic substance users are more expected to engage in high risk behaviors, such as unprotected sex, when they are under the influence of alcohol and drugs (Yan et al, 2007). Injection drug use is no longer unusual in Sub –Saharan Africa, where the most common injecting drug in Africa countries is heroin, cocaine and speedball which is a combination of cocaine and heroin (Adelekan et al 2006). It's estimated that 0.2% of African adults were using Heroin (Dewing et al 2006). A study in Vietnam by Duong, 2009 among HIV infected IDU reported a readiness to share injections and have sex without using condoms with other partners. By practicing unprotected sex and needle sharing, these put the infected youths at risk of STIs including secondary HIV acquisition with new viral strains.

2.4 Knowledge on HIV/STI

HIV infected youths has the right to sexual pleasure (IPPF, 2010). However, secondary transmission and Sexually Transmitted Diseases still continue to be a concern among HIV-infected youth (Jennings et al, 2009). Whatever their circumstances, in order to protect

themselves, young people need information, skills and youth-friendly health services (UNFPA, 2007).

Risky for HIV transmission is not only associated with having sexual intercourse, but lack of knowledge and skills on prevention of STIs and HIV transmission among youth (TDHS 2005). Knowledge and misconception are significant requirements for prevention intervention programmes by prevailing over the misconception that portray as discouragement to change of behaviors (UNAIDS, WHO 2004).

Trends of STIs among young people depend on several factors including basic knowledge on disease and its preventive measure. Knowledge they receive regarding disease and reproductive health its fundamental important, because it's empowering young people not only to change the attitudes and increase knowledge but also ability to overcome consequences of sexual behaviors and practices.

Regardless of the range of source of information on STIs and reproductive health young people still have breach of information exist as seen in trends of HIV/AIDS knowledge on STI prevention .Several studies in urban and rural areas in Africa reported lower STI knowledge among youths (Mmbaga et al, 2008; Mbizuo, 2003), also according to TRCH and TDHS 200-2005 Tanzania surveys indicates, A similar problem can be observed in South Africa whereby in spite of all the communication campaigns to create more awareness which reached more than 90% of youths, general knowledge on STI/HIV is still generally low.

2.5 Attitudes towards condom use

Condom is the most important weapon in the battle against HIV infection. The HIV prevention by use of condom has proved to be one of the most effective methods of engulfing the spread of HIV /AIDS. Countries that praised the use of condom had a significant drop of the rate of HIV infections and other STIs example in Uganda HIV incidence dropped from 8.0 per 1000 in 1990 to 5.2 per 1000 in 1999 Mbulaiteye et al 2002), 100% condom campaign in Thailand resulted in a significant drop of HIV prevalence among sex workers from 30 % in 1993 to 18% in 1995(HIV in South Asia, 1998). Condom stands a better chance of reducing STIs

including HIV because it does not involving people to change their sexual behavior, people can still have sex but the only change is now they have to use condom. Findings of Sonenstein Fl et al 1989 study reported few proportions of female youths reported to use condom consistently, although frequency of condom use was reported to decrease with age when comparing male of 15 to 17 years and those with older age of above 18 years.

Attitudes are learned not occurring natural, which means altitudes towards condom use are formed behaviors as a result of direct exposure to condom use, or through acquiring information from media and from other source of information. Behaviors reflect the established beliefs and attitudes (Ford-Martin 2001), somebody who strongly beliefs effectiveness of condom will most likely use it consistently.

2.6 Psychosocial Factors

HIV infection affects all aspect of human heath, socially, spiritually, psychologically and physically. Sense of invulnerability among HIV infected youths may cause barrier to HIV prevention measure hence involving themselves to risky behaviors (Shears 2005).HIV infected youths are more likely to respond well to the pressure of being infected and unlikely to develop depression and other serious mental problems, when receive adequate support from family member and community surrounding them (WHO, 2010).

Social support plays also an important role in youth risk behavior (Evans et al., 2004). Emotional distress can have a harmful effect on change which can even affect the confidence of an individual in the face of temptation (Prochaska et al., 1998). Household and family members standards of living are the factors associated with sexual risk behaviors (Mburano Rwenge, 2000).

A study by Tanushree Banerjee.2007 in behavior disorder among HIV infected youths in India reported high prevalence on behaviors change among HIV infected youths whereby the primary cause was disturbed family environment of the young people. Studies by Piagent, 1952 and Koocher, 1974 reported that youth with chronic ill problem who are able to discuss

their disease with adults and others have less behavioral problem hence developing good social performance and adherence to medications. Although a contradicting results from studies by Elkind, 1985.and Stambrook, Parker ,1987 shown an increase in behavioral and stress problems after disclosure.

One of the reasons of disclosure of any illness is a need of social support of a diseased to cope with a diagnosis. And HIV status disclosure was associated with increased social support and good relationship and decrease of depression (WHO, 2004).

Parents or guardians rarely talk to young people about sexuality .A study in Uganda reported one third of youths ever talked with their parents/guardian about sexuality and reproductive health (Birungi et al 2008).

2.7 Relationship between health status and risky sexual behaviors

Use of Highly Active Antiretroviral Drugs (HAART) on eligible HIV infected individual have a significant impact on patient morbidity and mortality on HIV infection (Detels et al 1998, Palella et al, 1998). HAART lower plasma HIV RNA levels in blood and genital secretion and so reduce the risk of HIV transmission. In contrast HAART use could lead to increase risk of transmission, by improving quality of life among people on therapy give rise to increase sexual practices. (Kelly et al 1998, Dilley et al, 1997). For those HIV infected individuals who have not reach criteria to start HAART are put on preventive therapy (isonizide and cotrimozole) for prophylaxis of opportunistic infections. A study in Kenya by Sarna et al 2008 on sexual risk behavior and HAART reported participants on preventive therapy were more likely to have multiple sexual partners and practicing unprotected sex with regular partner(odds ratio [OR]: 3.9; 95% confidence interval [CI]: 1.8-8.4).More than 40% of all participants did not know the HIV-status of regular partners. HAART was not associated with increase sexual risk behaviors though great risk of HIV transmission remains.

In recent studies which found a reduction in preventive and protective behaviors among HIV infected individuals once the physical condition improved in response to antiretroviral therapy (HAART) (Chen et al. 2002; Katz et al. 2002; Van der Ven et al. 2002).

2.8 Perception towards STIs and secondary HIV infection

Majority of youths do not consider their behavior and their sexual partner to be risky. This lack of perception is more challenging when unlikable outcome are immediate effect (Thompson and Tashakkori, 1993). Risk perception may be due to lack of information (Kiragu and Zabin (1995) which is based on young people lacking knowledge and misconception rather than a balanced thoughtfulness of the consequences. Youth may not have ability to act on the information they have on prevention in vision of several economic, social and cultural constrains facing them. In this case an increase of incidence of youths being infected with HIV and STIs.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study design

This research used a descriptive cross-sectional study design to collect information that aimed at addressing the objectives of this study. The design was chosen because it was considered appropriate for determining magnitude and determinants of risky behaviors of the participants. Data was gathered from early June to July 2010.

3.2 Study area

The study was conducted in Dar-es -Salaam region which is divided into three districts: Temeke, Ilala and Kinondoni. Dar-es-Salaam is the largest city in Tanzania with a population of 2.8 million with an increase in a population rate of 4.39% annually.

Dar-es-Salaam is among the leading regions with high HIV prevalence 8.9 after Iringa with 14.7 (TACAIDS, 2008).

Kinondoni district is the northernmost of the three districts in Dar-es-Salaam, with Temeke located to the far south of the city and Ilala being located in the downtown Dar-es-Salaam.

Temeke is the largest among three districts with area of 786.5 km² with a population of 771,500, followed by Kinondoni with area coverage of 531 km² with a population of 1,083,913 and smallest is Ilala with area of 273 km² with a population of 634,924 as per 2002 National Population Census.

Temeke district is divided into 3 divisions (Chang'ombe, Mbagala and Kigamboni) and 24 wards, Kinondoni is broken into 4 district (Magomeni, Kinondoni, Kibamba and Kawe) and 27 wards while Ilala is divided into 3 division and 22 wards.

3.3 Study population

The targeted population was youth aged 15-24 years who were attending HIV Care and Treatment Clinics in the three municipalities of Dar-es-Salaam region from early June to July 2010.

3.4 Sample size

Sample size was estimated by using single proportion formula below;

$$n = \frac{z^2 p (100-p)}{\epsilon^2}$$

Where by n=sample size

Z=confidence level which is 1.96

ϵ = margin error taken as 6%

P= (is the proportion of magnitude of risky sexual behavior practiced by HIV infected youths which is 35%. This is based on study conducted in Kampala, Uganda by Bateganya et al 2005 among HIV infected individuals whom reported to have 35% of one or more casual sexual partners in addition to main partners)

$$n = \frac{1.96^2 \times 35(100-35)}{6^2}$$

$$n = 242.8$$

By adding 10% of 242.8 which is 24 in case of non response; thus 266 youths were interviewed.

3.5 Sampling method

Multistage random sampling method was carried out where;

Stage 1: HIV Care and Treatments Clinics (CTC) in Dar-es-Salaam region were listed, due to limited resources, a sample of health facilities was obtained in guidance from WHO recommendation in assessing health services in essential obstetric care which suggests that 30% of the facilities available/eligible should be included in the study (UNICEF/WHO/UNFPA, 1997). In this study 30% of the CTC were selected.

- Total number of initiating public CTC in Dar-es-Salaam region in three municipalities was twenty six (28) hence 8 CTC sites were involved.

Selection of the CTC was according to number of youths seen daily in the clinic (CTC), whereby the daily numbers of youths were listed in all sites and the clinics which see more than 3 youths per day was included in the study.

IDC, AKC, Amana, Buguruni, Temeke, Mbagala, Mwananyamala and Sinza CTC were selected.

Stage 2: HIV infected youth who met inclusion criteria were listed from the daily clinic registers list with the help of CTC staff. The list of youths registered at each CTC was obtained and the schedules of their attendance were examined. Given the number of clients scheduled per week and time allocated for data collection, study participants were recruited by convenience sampling.

Inclusion criteria:

Youth included in the study were those who met the following criteria:

- HIV infected youths in HIV Care & Treatment Clinics in the three municipalities of Dar-es-Salaam region.
- HIV infected youths who had attended in the HIV Care & Treatment Clinics for more than 6months.
- Youth aged between 15-24 years.
- Those who accepted to give written informed consent

Exclusion criteria

HIV positive youths with age range (<15years or >24years); newly enrolled HIV infected youths and those who were severely sick; were excluded.

3.6 Data collection methods

A structured questionnaire developed in English and translated into Swahili was used to obtain data from the study participants. Data on socio-demographic characteristics, sexual behaviors, knowledge on HIV&STI, psychosocial factors and perceived health status was collected from the eligible population of consenting HIV infected youths.

Secondary data from patients clinic file looking at treatment status (CD4 counts, anti-retroviral therapy, WHO staging) was obtained from youth case note in the CTC.

Data from the participants was collected from CTC. Participants were asked to participate in the study by the nurse counselor in the last desk (last point for a patient in the clinic before leaving the CTC) and will be directed to a room which was prepared for the interview. Participants were recruited during their routine scheduled clinics at the CTC.

3.7 Study variables

Dependent variables

1. Sexual behaviors (Multiple sexual partners and concurrent partnership, practice of unprotected sex).

Independent variables

1. Social factors (peer influence, education level, partner communication, family communication substance use, sexual abuse).
2. Socio-demographic characteristics (age, sex of participants, marital status, religion status,
3. Prevention knowledge (STI knowledge on prevention, knowledge on condom use)
4. Medical conditions (ARV use, perceived health status, HIV/AIDS staging, and level of CD4)

3.8 Recruitments of research assistants

The principal investigator recruited two research assistants with counseling skills on HIV/AIDS and STIs background. Preliminary training was conducted by the principal investigator on the familiarization of research purpose and tools; which include how to conduct interviews and how to administer the tools in order to obtain accurate data within the granted time.

3.9 Pre-testing of the questionnaire

Pre testing of the questionnaire was done using a sample of youth who met study criteria. CTC in Mnazi Mmoja health centre in Ilala Municipal Council, Dar-es-Salaam region was used as a piloting site, in order to find how well the data collection tool was understood by the targeted population. On completion of pre-testing the data was reviewed and necessary modifications were made in the questionnaire in-order to have a well tested instrument. Participants were interviewed in the Care and treatment clinics after completing there are activities in CTC.

3.10 Data processing and analysis

Data was double entered into SPSS version 15.0 statistical software. Categorical data were summarized by using frequencies and difference between proportions assessed using χ^2 test. Continuous variables were summarized by calculating the mean and standard deviation and students t-test was used to test for differences between means.

Knowledge on STIs was analyzed by constructing scales from participants responses. Based on responses obtained knowledge was assessed by scoring correct answers, whereby all correct responses were scored 1 and incorrect and do not know responses were scored 0. Scores of correct answers from each respondent were added, whereby maximum score was found in each knowledge item. Minimum and maximum scores were marked for each item, cut-off points were selected and the scales categorized into low, median and high knowledge. There were 5 categories of knowledge on STIs which were examined on the respondents (transmission, prevention, symptoms, types and complication of STIs. Chronbachs alpha calculated to test for internal consistence of the items.

Logistic regression was used to determine the independent determinants of risky sexual behaviors among HIV infected by controlling for confounders. Adjusted odds ratios and P values were calculated and presented. P-value of <0.05 was considered statistically significant.

3.11 Ethical clearance

Ethical clearance was obtained from the research and publication committee of the Muhimbili University of Health and Allied Sciences as indicated on the appendix 5 and permission to collect data was obtained from district medical officer from three Municipalities councils. Permission was also sought from the head of the CTC sites. Youth who met the criteria to participate in the study who accepted to participate in the study were asked for written informed consent before the data collection began, for the participants who did not know how to read research assistant read for them and they use finger prints for accepting to participate in the study.

Confidentiality was maintained by interviewing each one of the youths privately in a clinic counseling room and participants were assured of confidentiality as indicated on the consent form (appendix 3).

CHAPTER FOUR

4.0 RESULTS

4.1: Socio-demographic profile of the participants

During the period of data collection, a total number of 282 HIV infected youths aged 15-24 years attending Care and Treatment Clinics (CTC) in Dar-es-Salaam region were recruited in the study. Of those who participated, 207(73.4%) were female. The mean age of the respondents was 20.5 (SD=3.1) years. Majority of youths reported completing primary 139(49.3%), secondary level of education 118(41.8%) and less than 7(2.5%) had reached university and collage level of education. A large proportion of the respondents were from Ilala 134 (47.5%) and most of the respondents reported to be single 195(69.1%).

Information on the occupation of the respondents indicated that 89 (30.9%) of youths were students and minorities who were working as casual laborer 17 (6.1%).The social-demographic characteristics of the respondents are shown in Table 1.

Table 1: Distribution of the HIV infected youths by Social-Demographic characteristics (N= 282)

Characteristics	n	(%)
Sex		
Female	207	73.4
Male	75	26.6
Age group(years)		
15-19	107	38.2
20-24	175	61.8
Educational level		
No formal education	18	6.4
Primary education	139	49.3
Secondary education	118	41.8
University /college	7	2.5
Religion		
Muslim	147	52.1
Christian	135	47.9
Place of residence		
Temeke	80	28.4
Ilala	134	47.5
Kinondoni	68	24.1
Marital status		
Married	41	14.5
Single	195	69.1
Cohabiting	26	9.2
Divorced/separated/widowed	18	7.1
Occupation		
Business	61	21.7
Casual labor	17	6.1
Student	87	30.9
Housewife	49	17.4
Employed	18	6.4
Others	50	17.7

4.2: Magnitude of risk sexual behaviors

Practice of unprotected sex during their last sexual act by youths was reported to be 14(40.0%) male and 63(37.5%) female counterparts, ($p<0.01$). Majority of female respondents 174 (84.1%) reported to have 0-1 sex partner, however 15.9 % of female and 10.6% male respondents, reported to have multiple sexual partners ($p<0.01$). Vaginal ($P<0.01$) and oral ($p=0.019$) sex was practiced by a higher proportion of female (81.6%, 40.6%) than male respondents (45.3%, 25.3%). Practice of risky sexual behaviors of the respondents is shown in Table 2.

Table 2: Practice of risky sexual behaviors

Risky behaviors		Male		Female		P value
Variables	Category	n	(%)	n	(%)	
Unprotected sex on last sexual intercourse	Yes	14	(40.0)	63	(37.5)	0.000
	No	21	(60.0)	105	(62.5)	
Number of sexual partners	0-1	67	(83.4)	174	(84.1)	0.000
	≥2	8	(10.6)	33	(15.9)	
Age of sexual debut	10-14years	28	(84.8)	116	(68.0)	0.639
	≥15years	5	(15.2)	55	(32.3)	
Sexual practices						
Vaginal	Yes	34	(45.3)	169	(81.6)	0.000
	No	41	(54.7)	38	(18.4)	
		75		207		
Anal	Yes	4	(5.3)	14	(6.8)	0.664
	No	71	(94.7)	193	(93.2)	
		75		207		
Oral	Yes	19	(25.3)	84	(40.6)	0.019
	No	56	(74.7)	123	(59.4)	
		75		207		

*Unprotected sex on last sexual act and age of sexual debut includes only those youths who reported to ever have practice sexual intercourse.

4.3 STIs prevention knowledge

The level of knowledge on STIs prevention was found to be low since a high proportion (60.4%) of females and of males (46.7%) were found to have low level of STI prevention knowledge. This difference between sex attained a borderline significance ($P=0.073$).

Knowledge on STI transmission among HIV infected youths was generally low where 65.3% of male and 73.4% of female participants were found to have low knowledge about STI transmission.

Likewise, participants knowledge on STIs symptoms was relatively high (92% and 92.7%) of males and females respectively, while only 7.3% of female respondents reported to have low STI symptoms knowledge.

Significantly large proportions (65.3% of males and 74.9% of females) of respondent were found to be knowledgeable about STIs complications. About half of the respondents (male 56% and female 52.2%) had moderate knowledge on types of STIs. However 3.9% of the female respondents and 2.7% of the male respondents were found to have low knowledge on types of STIs. The sex difference in knowledge of the type of STI did not attain significance at 5% level (Table 3).

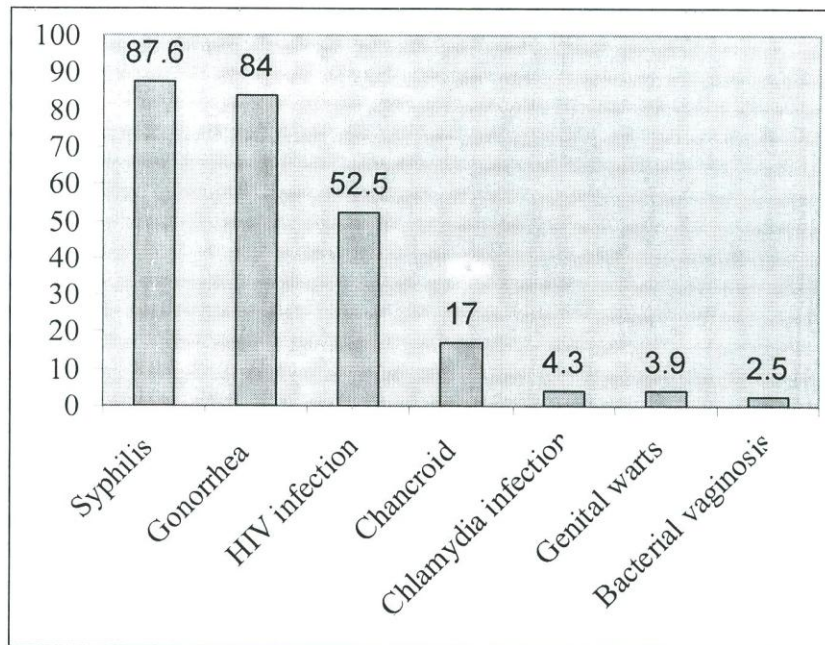
Table 3: Distribution of HIV infected youths according to knowledge level

Knowledge levels	Male	(N=75)	Female	(N=207)	P value
	n	(%)	n	(%)	
Knowledge on STI prevention					0.073
Low	35	(46.7)	125	(60.4)	
Moderate	32	(42.7)	71	(34.3)	
High	8	(10.7)	11	(5.3)	
Knowledge on STIs transmission					0.279
Low	49	(65.3)	152	(73.4)	
Moderate	22	(29.3)	50	(24.2)	
High	4	(5.3)	5	(2.4)	
Knowledge of STI symptoms					0.874
Low	6	(8.0)	15	(7.3)	
Moderate	34	(45.3)	101	(48.8)	
High	35	(46.7)	91	(44.0)	
Knowledge of STI complication					0.277
Low	4	(5.3)	7	(3.4)	
Moderate	22	(29.3)	45	(21.7)	
High	49	(65.3)	155	(74.9)	
Knowledge on types of STIs					0.794
Low	2	(2.7)	8	(3.9)	
Moderate	42	(56.0)	108	(52.2)	
High	31	(41.3)	91	(44.0)	

4.4. Knowledge about types of STIs

When respondents were asked to mention any sexually transmission infections they knew 247 (87.6%) mentioned Syphilis, 237 (84%) mentioned gonorrhea infections while 148 (52.5%) mentioned HIV infection, where none of the respondents mentioned Hepatitis. Response on knowledge on STI types is summarized in Figure 2.

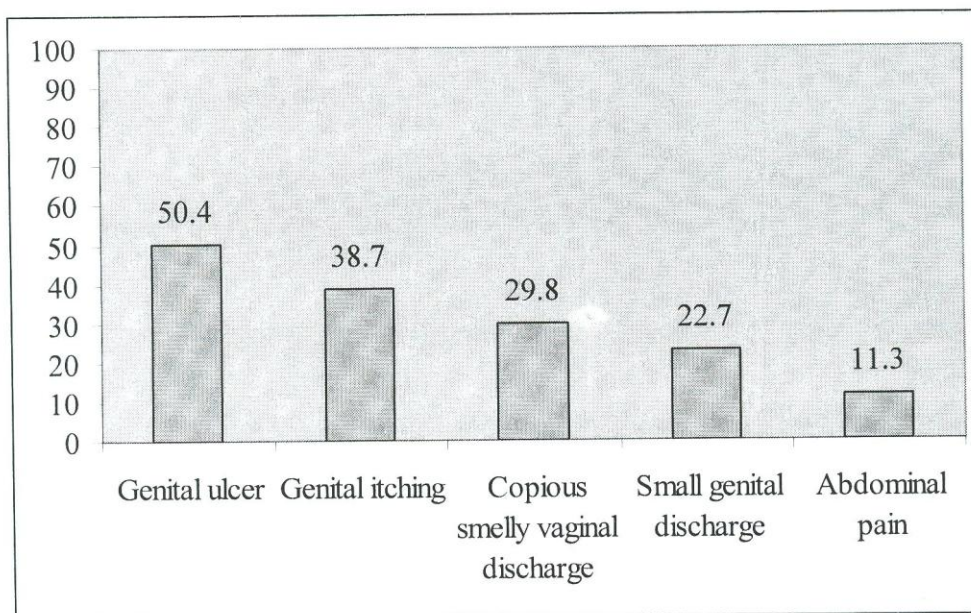
Figure 2: Percentage of youths with knowledge about different types of STIs



4.5. Knowledge of respondents on STIs symptoms

The response of the respondents when they were asked to mention any STIs symptoms they knew, 50.4% responded to genital ulcer, 38.7% responded to genital itching, while only 11.3% of the respondents mentioned abdominal pain. (Figure 3)

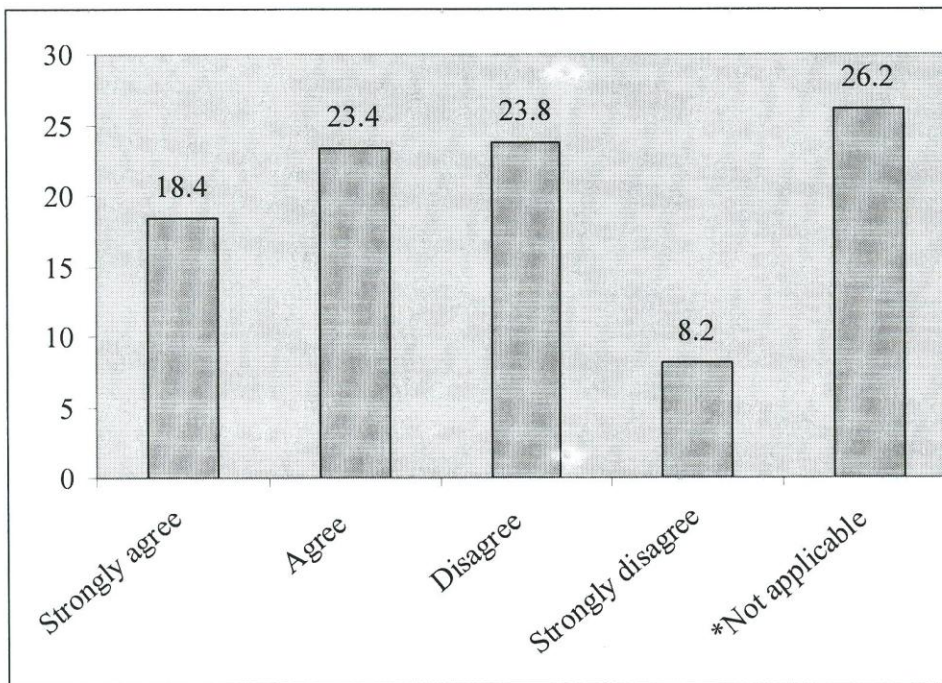
Figure 3: Knowledge of STIs symptoms among the respondents



4.6. Attitudes towards condom use

About a quarter of the respondents (23.8%) admitted that use of condom was not enjoyable (Figure 4).

Figure 4: Altitude towards condom use among the study participants

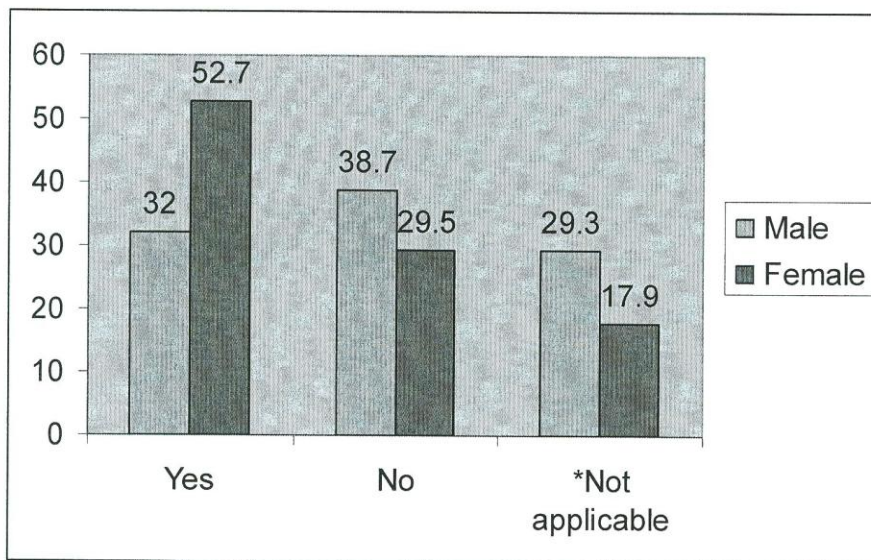


*Not applicable were those respondents who reported to be virgin and those who never used a condom in their lifetime.

4.7 Practices on prevention

When respondents were asked if they use condom for each sexual act, 29 (38.7%) of male and 61(29.5%) of female respondents reported not to use condom consistently. More than half of female respondents 109(52.7%) reported to use condom for each sexual act. Summary is shown in Figure 5.

Figure 5: Consistent use of condom



* Not applicable were those respondents who reported to be virgin and those who never used a condom in their lifetime.

4.8 Family support and risky sexual behaviours of the respondents

Family support among respondents is summarised in Table 4. A substantially large proportion (87.4%) of the respondents with family support reported having 0-1 sexual partners as compared to those without family support (75.0%) ($p=0.005$).

Table 4: Family support and evolvement of risky sexual behaviors

Risky sexual behaviors	How supportive are people in your family about your HIV status				P value
	Supportive		Not supportive		
	n	%	n	%	
Use of condom for each sexual act					0.259
Yes	99	(58.6)	15	(60.0)	
No	70	(41.4)	10	(40.0)	
Number of sexual partners					0.005
0-1	194	(87.4)	45	(75.0)	
>2	28	(12.6)	15	(25.0)	
Alcohol use after HIV diagnosis					0.194
Yes	49	(22.0)	8	(29.6)	
No	173	(78.0)	19	(70.4)	
Substance use					0.676
Yes	5	(2.3)	1	(3.7)	
No	217	(97.7)	26	(96.3)	
Ever had sex since HIV diagnosis					0.012
Yes	131	(59.0)	22	(81.5)	
No	91	(41.0)	5	(18.5)	

4.9 Use of antiretroviral and practice of risky behaviors among HIV infected youth In Dare s salaam

Youth respondents who were not on antiretroviral drugs were significantly more likely to report not using condom during their last sexual intercourse (44.6% versus 33.3%), using alcohol (31.5% versus 20.7%) , practicing vagina sex (95.5% versus 61.1%) and practicing oral sex (51.7% versus 29.5%) as compared to those who were on ARV, respectively(Table 5).

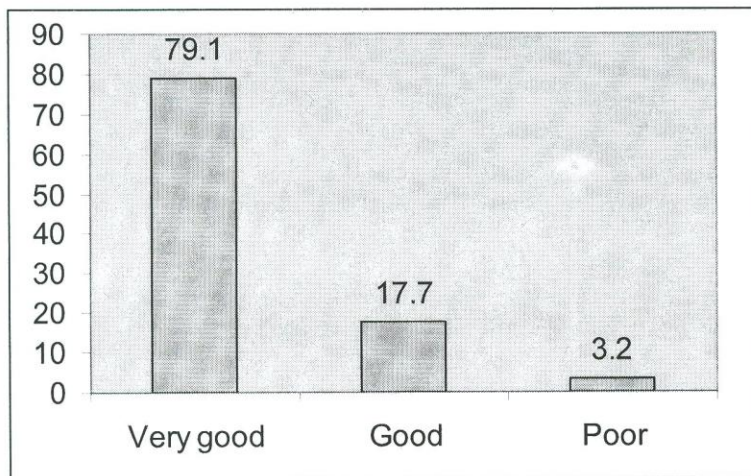
Table 5: Antiretroviral therapy and risky behaviors

Risky behaviors	On ARV's		Not on ARV's		P value
	n	(%)	n	(%)	
Condom use last sexual intercourse					0.000
Yes	80	(66.7)	46	(55.4)	
No	40	(33.3)	37	(44.6)	
Substance use					0.907
Yes	6	(3.1)	3	(3.4)	
No	187	(96.9)	86	(96.6)	
Alcohol use					0.050
Yes	40	(20.7)	28	(31.5)	
No	153	(79.3)	61	(68.5)	
Vagina sex					0.000
Yes	118	(61.1)	85	(95.5)	
No	75	(38.9)	4	(4.5)	
Anal sex					0.721
Yes	13	(6.7)	5	(5.6)	
No	180	(93.3)	84	(94.4)	
Oral sex					0.000
Yes	57	(29.5)	46	(51.7)	
No	136	(70.5)	43	(48.3)	

4.10 Perceived health status and risky behaviors

When the respondents were asked what they would say about their health status in general 79% report being in very good health status while 3.2% perceived to have satisfactory health status. Summary of the health status responses is shown in Figure 6.

Figure 6: Respondents perception on their health status



4.11 Perceived health status and practice of risky behaviors

The association between patient perception on their health status and practice of risky behaviors indicated that respondents who had sexual debut ≥ 16 years perceived themselves to have good health (82.9%) as compare to those reporting sexual debut ≤ 15 years. This difference was statistically significant. (P value 0.035). Table 6 depicts the relationship between perceived health status and practice of risky sexual behaviors.

Table 6: Association between perceived health status and practice of risky behaviors

Risky behaviors		Perceived health status				P-value
Variables	Category	Good		Poor		
		n	(%)	n	(%)	
Condom use						
	Yes	175	(64.1)	3	(33.3)	0.060
	No	98	(35.9)	6	(66.7)	
Multiple sexual partners						
	0-1	234	(85.7)	7	(77.7)	0.402
	≥2	39	(14.3)	2	(22.2)	
Sexual practices						
Anal	Yes	17	(6.2)	1	(11.1)	0.555
	No	256	(93.8)	8	(88.9)	
Vaginal	Yes	197	(72.2)	6	(66.7)	0.718
	No	76	(27.8)	3	(33.3)	
Oral	Yes	100	(36.6)	3	(33.3)	0.840
	No	173	(63.4)	6	(66.7)	
Age of sexual debut						
	<15	34	(17.1)	1	(16.7)	0.035
	≥16	164	(82.9)	5	(83.3)	
Alcohol use						
	Yes	66	(24.2)	2	(22.2)	0.977
	No	207	(75.8)	7	(77.8)	
Substance use						
	Yes	7	(2.6)	0	(0)	0.646
	No	266	(97.4)	8	(100)	

4.12 Multivariate analysis on determinants of condom use on the last sexual practice

Respondents who stay in Kinondoni district were 62% less likely to use condom as compare to other respondents who stay Temeke (p=0.051).

Participants who have negative attitude towards use of condom were 77% less likely to use condom on the last sexual practice as compared to those with good attitude

Not being on ARV's was associated with a 62% less likelihood of reporting use of condom on the last sexual practice as compared to youth on ARV.

Not knowing their partner HIV status was associated with a 2.6 times likelihood of reporting not use condom on last sexual practice (Table 7, 8).

Table7: Logistic regression analysis on Social-demographic characteristic and practice of unprotected sex on the last sexual act among respondents

Characteristic	Practice of unprotected sex on the last sexual act	
	Adjusted OR(95%CI)	P value
Age group		
20-24	1	
15-19	1.236(0.412-3.708)	0.705
Age of sexual debut		
≤15	1	
≥16	0.73(0.33-1.63)	0.443
Sex		
Male	1	
Female	1.06(0.49-2.29)	0.884
Educational status		
No formal education	1	
Primary education	0.97(0.29-3.17)	0.953
Secondary education	1.87(0.42-5.52)	0.515
University/collage	0.57(0.08-3.97)	0.571
District of residence		
Temeke	1	
Kinondoni	0.38(0.14-1.00)	0.051
Ilala	1.07(0.30-3.90)	0.913

Table 8: Logistic regression analysis of selected predictor variables associated with practice of unprotected sex the on last sexual act among respondents

Characteristic	Practice of unprotected sex on the last sexual act	
	Adjusted OR(95%CI)	P value
Attitudes towards condom use		
Strongly agree	1	
Agree	0.43 (0.12-1.58)	0.202
Disagree	0.23 (0.06-0.81)	0.022
Strongly disagree	0.45 (0.91-2.22)	0.326
Knowledge on STIs prevention		
Knowledgeable	1	
Not knowledgeable	1.38 (0.560-3.41)	0.483
Family support		
Supportive	1	
Not supportive	1.04 (0.39-2.75)	0.943
ARV status		
On ARV's	1	
Not on ARV's	0.38 (0.17-0.85)	0.018
Knowing partner HIV status		
Yes	1	
No	2.62 (1.14-5.10)	0.023

4.13 Multivariate analysis on determinants of number of sexual partners

Respondents with age group 15-19 years are 2.8 times more likely to report multiple sexual partners as compare to those with age 20-24 years.

Not use of alcohol is associated with 62% less likely of reporting multiple sexual partners as compare to those respondents who use alcohol (Table9, 10)

Table 9: Logistic regression analysis on Social- demographic factors associated with practice of sex with multiple partner among HIV infected youths

Characteristic	Multiple Sexual practice	
	Adjusted OR(95%CI)	P value
Age group		
20-24	1	
15-19	2.76(1.05-7.27)	0.040
Age of sexual debut		
≤15	1	
≥16	1.84(0.62-5.46)	0.274
Sex		
Male	1	
Female	0.83(0.35-1.96)	0.613
Educational status		
Informal education	1	
Primary education	2.81(0.50-15.72)	0.24
Secondary education	3.15(0.49-20.46)	0.23
University education	0.00(0.00)	1.00
District of Residence		
Ilala	1	
Kinondoni	1.00(0.46-2.19)	0.993
Temeke	0.65(0.23-1.79)	0.400

Table 10: Logistic regression analysis of selected predictor variables associated with practice of sex with multiple partners among respondents

Characteristics	Multiple Sexual practice	
	Adjusted OR(95%CI)	Adjusted OR(95%CI)
Attitudes towards condom use(use of condom is enjoyable)		
Strongly agree	1	
Agree	0.74(0.25-2.22)	0.587
Disagree	2.06(0.80-5.30)	0.136
Strongly disagree	1.63(0.46-5.75)	0.447
Knowledge on STIs prevention		
Knowledgeable	1	
Not knowledgeable	0.44(0.13-1.40)	0.188
Family support		
Supportive	1	
Not supportive	1.13(0.35-3.64)	0.844
ARV status		
On ARV's	1	
Not on ARV's	1.25(0.56-2.81)	0.583
Use of alcohol after knowing HIV status		
Yes	1	
No	0.38(0.17-0.84)	0.017

CHAPTER FIVE

5.0 DISCUSSION

Poverty, gender inequalities, lack of access to health care, lack of information on prevention skills heighten youths vulnerability to the risk of acquiring STIs including HIV. This study intended to determine magnitude and determinants of risky sexual behaviors among HIV infected youths in Dar es Salaam region.

Practice of risky behaviors among HIV infected youth

Practice of unprotected sex among HIV infected youths reported to be high in this population (40.0% among male and 37.5% among female). A significant proportion of female as compared to male reported to have multiple sexual partners. This study indicates that despite knowing their HIV serostatus, risky behaviors is highly practiced among HIV infected youths. Several studies conducted elsewhere have estimated that at least one third of HIV positive youths may continue their risky behaviors and continue transmitting HIV infection even after knowing their HIV status (Hays et al 1997, Wilson et al 1999, Diamond and Buskin 1999). This show a need to continue advocating for prevention strategies and empowering youths with proper information, skills and tools (supplying male and female condoms) in order to prevent themselves and community.

More female participated in this study than male. This was because more females were seen at the CTC than male. These findings were expected as increasingly large numbers of females are testing for HIV through PMTCT services. Moreover, data indicates that more women are infected with HIV infection than men as reported by results of THMIS (2007-2008) with a prevalence of 4% among female youths and 1% among male youths. Women are often powerless in decision to have sex and use of condom, violence in their relationship with men resulting in unwanted coerced sexual intercourse. Girls have greater biological susceptibility to HIV infection due to the facts that male to female transmission is twice as likely compare to female to male transmission(UNAIDS,2004). Lesion and tears as a result of forced sexual intercourse increase the rate of HIV transmission (NIAID, 2004). Age at first sex is of

particular importance since in Tanzania HIV is mainly transmitted through heterosexual contact. The Tanzania HIV/AIDS Malaria Indicator Survey of 2008 reported age of sexual debut to be 17.3 years for female and 18.5 years for male which and the study results figures reported were 17.4 years and 17.0 respectively. These results indicate that sexual practices begin in the youth period.

About 80% of HIV transmission in Tanzania and in Sub-Saharan Africa is through sexual contact (TACAIDS, 2008). Youth are reported to be infected with HIV infection earlier compared to other age groups through unprotected sex (UNFPA, 2003). Vaginal sex was reported to be the most frequent sexual practice among youths which was reported by majority youth in this study. Anal and oral sex might be uncommon sexual practices according to Tanzania culture and with other social reason. Practice of oral sex was found to be second most practiced with 40.6% of female and 25.3% of male, however only 6.8% of female and 5.3% of males reported to have practice anal sex.

In general unprotected sex was prevalent among youths, whereby reports from UNAIDS 2008 revealed that almost half of all new HIV infections occur among youths. Results from this study show that more than 50% of youth used condom (male 60% and 62.5% of female) during their last sexual practice. A study by Rongkavilit et al, 2007 in Thailand reported 55.6% who consistently used condom, in the previous month at baseline to be 55.6% and 58.3% at 3rd month, similar results on regular use of condom among HIV infected youths although results were with different proportions. THMIS of 2007-2008 report indicated 43% of female and 53% of male young people reported to use condom on their last sexual practices. Consistent condom use was reported to be very low in this study especially among male respondents. Comparable results reported in the study from Thailand reported more than 40% of HIV infected young people reported practicing sexual intercourse, however only 16% and 11% of sexually active males and females reported consistently to use condom (Van-Griensven et al 2001)

In African societies it has been believed that women don't have a say in sexual activity, it is determined by their male sexual partners. In this study more than half of female respondents 109 (52.7%) reported to use condom in each sexual intercourse, this could be explained by the CTC facility which provides continuing counseling on prevention and care to each clients which empower and motivates clients to use condom consistently, also female clients might use condom, to please their partners.

Factors associated with risky sexual behaviors among youths.

The proportion of participants in this study which reported to have multiple sexual partners (Female 15.9%, Male 10.6%), is small compared to that observed in a study by Rotheram-Borus et al, on behavior change in HIV infected youth which reported that the majority of sexually active youths had multiple sexual partners. Findings of this study indicated that participants in this study who reported to have multiple partners are more likely to be with younger age 15-19 as compare to those with older age 20-24. This findings conforms to findings of Santelli et al 1998 who reported that individual who are young (14-21) majority of sexually experienced respondents had multiple sexual partners (15% female and 35%male). Younger youths 15-19 years may be experimenting with their sexuality and intimacy while, older youths (21-24) are involved in stable and long term dating relationships. Educating youths on reproductive health at younger age may play part in reducing and delaying sexual activity and also its negative health consequences.

Alcohol use was reported to be low among participants (26.6% of female and 17.3% of male); this finding differs greatly with the findings of Naar-King and Wright et al, 2006 in United State of America which reported 88% of HIV infected youths drinking alcohol. The noted difference can be explained by differences in socioeconomic, demographic and cultural characteristics of the two countries. Alcohol use is associated with adverse health effects, decreased antiretroviral adherence, virological suppression and high risk sexual behaviors as

noted in this study where use of alcohol among participants was associated with the likelihood of practicing sex with multiple sexual partners. Alcohol and drug use are linked to early sexual debut and increased risky sexual behaviors such as inconsistent condom use, multiple and high-risk partners among youths which increase the likelihood of HIV transmission. Emphasis should be made on screening to identify individual youths who hazardous consumer of alcohol in order to provide proper counseling, since alcohol use is a modifiable risk factor which can be changed with proper counseling section.

Majority of youths in this study didn't consider themselves at risk where by 64.1% of respondents perceive themselves to have good health and involved in risk sexual behavior. Furthermore low risk perception might be due to lacking of information. Low perception on susceptibility to STIs infection among HIV infected youth might lead continuation of involving in to sexual behavior, these is seen in this study were below 50% of respondents reported to have low susceptibility to STIs infection, (CDC, 2008).

Knowledge on STI/HIV

Previous study reported a significant low knowledge of STI among youths (Mmbaga et al 2008, TDHS 2004-2005, Mbizvo et al 2003), although at different proportions. The findings of this study reported a relatively high. This could be explained by the health facility nature of this study where most youth in these clinics could have been exposed to health education more frequently than those from the general population. Despite the fact that quality of counseling of HIV infected youth in CTC may be questionable due to the overloading of clinic and shortage of health care workers.

Attitude and frequency towards condom use

In general attitude towards condom use was positive to most of the respondents (41.8%), though about a quarter of respondents expressed negative views. This result is similar to the study results from South Africa by Maharaj in 2006 which reported favorable attitude towards

condom use in majority of the study respondents. The observed similarities can be explained by similarities in socio, cultural and some demographic characteristics of the two countries.

Social factors contributing to practice of risky behaviors

Family support appears to be predictor of youths to either involve themselves to risky sexual behaviors or not. In this study, those with good family support structures were found to be less likely to involve in risky behaviors as compared to those without family support. This could be due to the fact that youth without family support may find involving themselves in risky behaviors as a means of filling the gap or consoling themselves. Similar findings have been observed in the study of Banerjee et al 2007 among HIV infected young people where high prevalence of behaviors change was noted among youth with a disturbed family environment.

Disclosure among youths remain to be a concern, reports from this study reported that half of the respondents who have sexual partners reported not to know the HIV serostatus of their sex partners. Disclosure of HIV status is associated with increase social support and decrease depression (WHO 2004). Poor status disclosure is a recipe for risky sex as may facilitate poor preventive measures such as condom use.

Health status (ARV'S) and risky sexual behaviors

In this study not using antiretroviral treatment was associated with practicing of unprotected sex as compare to those on ARV's .This findings are in line with study from Kenya by Sarna et al 2008 reported that participants who were not on ARV's were more likely to have multiple sexual partners and practicing unprotected sex with regular partners. Explanation for this observation need to take in account reason for being on ARV's and impact of ARV's to an individual. People who receive ARV's most of them have advanced HIV disease and may perceive the seriousness of their illness differently which may result in less risky sexual behaviors. Study by Crepaz 2004 also concludes that HIV infected patients who are taking ARV's did not show increased sexual risk behaviors even when therapy reached undetectable viral load. Medical factors also plays important roll such as duration of ARV's

use and disease stage which might explain the findings, because patient initiating ARV's may have symptomatic illness /opportunistic infection that decreases the interest in sex .

Youth Perception towards their health status in relationship to risk behaviors

Despite of risky sexual behaviors observed in this study perceived susceptibility to STIs infection among HIV infected youths is low. More than half of respondent perceived themselves not to be at risk of contracting STIs infection in their life time. Low risky perception among youths put them at risky to STIs (CDC 2008). If somebody believes that he/she is safe or at low risk to contract STI they possibly care less about protected sex. These findings support the report of Thompson, Tashakkori, 1993 which reported low risk perception associated with involving into risky behaviors. Low perceived susceptibility by young people weakens their sense of self protection, this would persuade them to involve into risk sexual behaviors and practices.

5.1 Study limitations

Despite of our findings our results should be interpreted as following:

1. First the study was carried out in Care and Treatment Clinics, by involving 282 youths, hence making the research participants very selective. The health facility nature of the study population to some extent limits the external validity of the results presented.
2. Secondly the results were based on self-reports by youths which might lead to the under or over reporting, sexual behaviors and practices are sensitive topics that many youths are reluctant to talk about. Some participants may not provide an honest response regarding risk reduction behaviors because that response may not be socially desirable or may acquire disapproval. This may have introduced desirability bias. However research assistant were trained and had counseling skills which enabled them to collect and analyze information provided by the respondents. The interview was done by assuring youths confidentiality and the interview was done in a comfortable and in a closed room in order to minimize the chances of bias.
3. Thirdly, due to inherent weakness of cross sectional study, it's difficult to conclude whether the observed determinants of risky behaviors are causal. However these determinants have been described by others even with better study design.
4. Finally it is important to acknowledge the potential for recall bias associated with self-reported behaviors. Participants might have forgotten some behaviors such a condom use and number of sexual partners they have encountered. In addition, because the participants in our study were recruited from local HIV and AIDS clinics and an AIDS service organization, and so received specialty care and prevention counseling, they may have greater knowledge and awareness about HIV and disclosure issues than HIV negative youth.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1. Conclusions

Unprotected sex and multiple sexual partnerships are prevalent among youth living with HIV/AIDS in Dar es Salaam. This heightens the concern on the risk among HIV infected youths of transmitting HIV infection to sero-discordant partners and re-infecting themselves with new drug resistant HIV strains and STI infections. Practice of risk behaviors seems to be determined by location, young age, alcohol consumption, poor attitude towards condom use, not using ARV and not knowing sexual partners HIV status.

Low knowledge on various aspects of STI's threaten risk perception hence facilitating practice of risk behaviors consequently leading to HIV transmission HIV prevention programmes have been paying attention on high risk groups such as truck drivers, sex workers and homosexuals were less emphasis on HIV infected people and their discordant partners. Counseling in HIV/AIDS Care and Treatment Clinics has been directed towards treatment adherence.

6.2 Recommendations

1. The need to develop appropriate IEC tools for educating HIV infected youths on prevention of STIs and prevention of secondary HIV transmission. These IEC tools needs to take in to account various determinants of risk behaviors such as age, ARV use status and alcohol consumption.
2. HIV positive youths are sexually active and those who are not sexually active soon are becoming sexually active, a need to educating youths on sexual and reproductive health in order to assist youths to delay sexual initiations for youths who are virgins and for those who are sexually active to consistently use condom and encourage disclosure of their HIV status with their sexual partners.
3. HIV/AIDS intervention programs should not only focus on ABC (abstinence, avoiding multiple sexual partners, consistent use of condoms) but also emphasis should be put on changing youths perception by educating youths on the diseases (STDs) transmission, treatments and prevention, since low risk perception might be due to lacking of information.
4. Further studies are needed to further our understanding of how other environments and biological factors influence behavior of HIV infected youths in this population.
5. Distinct risk behaviors may exist among youth within different developmental stages that require unique intervention approaches to be effective. e.g., the initiation of sexual intercourse may be a much less normative behavior for younger youths than for older adolescent populations. Therefore, it would be beneficial for future studies to examine HIV-positive youth while taking into account their developmental stage.

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