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Perception of AIDS Risk and Sexual Behaviour in Kenya

By

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To my daughters, Linda, Sheilla and Elsie

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ABSTRACT

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Perception of risk is important in the prevention of the spread of AIDS as it is the first stage towards adoption of preventive measures. The need to prevent further spread of HIV in Kenya is critical and, an examination of perceptions of HIV risk is important in understanding what determines people's estimates of HIV risk; how people receive and process AIDS information, and how people relate their sexual experiences to the risk of HIV.

This research uses quantitative data drawn from the 1998 Kenya Demographic and Health Survey (KDHS) and qualitative information collected in two communities in Kenya, to describe and to characterize perceptions of HIV risk and various aspects of sexual behaviour of women and men. More specifically, it investigates the levels, patterns, and the nature of the associations between perception of HIV risk and sexual behaviour in the context of AIDS in Kenya. To understand gender influences on sexual attitudes and behaviour, comparisons between women and men were examined as they relate to socio-demographic, psychosocial and behavioural characteristics. The nature and the social context in which HIV risk is perceived at the community and individual levels and at different stages of people's sexual lives were also examined. The multivariate statistical techniques used include ordered logit and binary logistic regression, and accounting for survey design effects.

The qualitative findings indicated broad agreement with quantitative results but with some differences in views at the community and individual levels. While AIDS was seen as a big threat at the community level, it was not necessarily perceived to be a threat at the individual level. Denial of HIV risk was common at the individual level and the partners' characteristics or one's own sexual behaviour informed these perceptions. Acknowledgement of HIV risk was mainly attributed to the possibility of infection from a partner's infidelity, self-engaging in casual sex, risky cultural practices and, to a lesser extent, non-sexual modes of HIV transmission. Behaviour change is hindered by gender differences and negative attitudes and misperceptions about condoms.

The quantitative findings suggest marked gender and sub-group differences in levels of self-perceived risk and risky sexual behaviour. Women were twice as likely as men to perceive themselves to be at high risk, even though fewer women as compared to men reported sexual behaviour classified as risky. For both women and men, young age, non-married status, and inaccuracy of specific knowledge about AIDS were associated with low perceptions of risk and high-risk sex. The level of education, region of residence, urban-rural residence, ethnicity, religion, source of AIDS information, and having had an HIV test also showed varying influences in self-perceived HIV risk and sexual behaviour. The results also demonstrate that although accurate knowledge is high among women and men, this does not deter risky sexual practices, particularly among men.

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To my family of childhood, thank you for being a pillar of strength; and to my adulthood family, I register my appreciation for your stoicism in bearing my absence while I pursued a future for you. Finally, I give praise and honour to God for the grace and mercy that keeps me going.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

ACU	AIDS Control Unit
AIDS	Acquired immune deficiency syndrome
CBO	Community-based organization
CBS	Central Bureau of Statistics
CACC	Constituency AIDS control committee
CPS	Contraceptive Prevalence Survey
DACC	District AIDS control committee
DASCO	District AIDS and STD co-ordinator
DfID	Department Fund for International Development
DHS	Demographic and Health Survey
FGD	Focus group discussion
FHI	Family Health International
IDI	Individual in-depth interview
IUSSP	International Union for the Scientific Study of Population
GPA	Global Programme on AIDS
GOK	Government of Kenya
HAPAC	HIV/AIDS prevention and care
HIV	Human immunodeficiency virus
KANCO	Kenya AIDS NGOs Consortium
KDHS	Kenya Demographic and Health Survey
KEMRI	Kenya Medical Research Institute
MI	Macro International Inc.
MOH	Ministry of Health
NACC	National AIDS Control Council
NASCOP	National AIDS and STDs control programme
NCPD	National council for population and development
NGO	Non-governmental organisation
OP	Office of the President
PACC	Provincial AIDS control committee
PLWHA	People living with HIV/AIDS
QSR Nudi*st	Qualitative solutions and research for non-numerical unstructured data indexing searching and theorizing

SSA	Sub-Saharan Africa
STD	Sexually transmitted disease
STI	Sexually transmitted infection
TB	Tuberculosis
VCT	Voluntary counselling and testing
UN	United Nations
UNAIDS	United Nations Joint Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
WFS	World Fertility Survey
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION

1.1 An Overview of the AIDS Situation in Sub-Saharan Africa

Acquired immuno-deficiency syndrome (AIDS), so far, remains the major health contention for developing countries as long as there is no cure. While remarkable efforts are being made to minimise the spread of HIV and its impact, the AIDS pandemic has continued unabated and has claimed millions of lives the world over, particularly in developing countries and more specifically, in sub-Saharan Africa (SSA). The rising prevalence rates and the rapid spread of HIV/AIDS suggests that the epidemic has not reached its equilibrium in most of SSA, hence the need for continued research and interventions into ways of minimising its spread and the social and economic impact.

At the onset of the epidemic, research and interventions for HIV/AIDS prevention largely focused on bio-medical consequences of the disease and ignored the varying geographical, behavioural, socio-cultural, and economic contexts underlying the course of the epidemic in SSA. Similarly, previous studies predominantly targeted groups considered at high risk of HIV infection thus leaving out a large group of people potentially at risk. The diffusion of HIV/AIDS from "core groups" to the general population is evident in widespread infections among most populations of SSA countries. The increasing spread and devastating socio-economic impact of the epidemic have stimulated a shift of research priorities from a bio-medical and "core groups" focus to the societal context of sexual behaviour and HIV/AIDS. The last two decades have seen a rise and a broadening of studies on HIV/AIDS and the antecedent sexual behaviour from epidemiological contexts to include population-based surveys, as well as small-scale qualitative studies focusing on attitudes and behaviour facilitating the spread of the disease.

The HIV/AIDS situation in SSA is of varied proportions among regions with equally large differences among countries and demographic groups within countries. The probable causes of this heterogeneity in the patterns of the HIV/AIDS spread include demographic, behavioural, biological and societal factors. The most affected countries in SSA are geographically concentrated along the East and Southern African belt, and include Botswana, Zimbabwe, Zambia, Malawi, Burundi, Rwanda, Tanzania, Uganda and Kenya. Côte d'Ivoire, Burkina Faso and Togo are the exception in West Africa. Estimated national HIV/AIDS prevalence rates in these countries range between 10% in Côte d'Ivoire to 35% in Botswana

(UNAIDS, 2000a). Prevalence rates are relatively lower in Central Africa and for the rest of West Africa, prevalence is less than 5% everywhere except in Côte d'Ivoire, Burkina Faso and Togo (Population Reference Bureau, 2000).

Heterosexual transmission accounts for at least 80% of adult HIV infections in SSA (UNAIDS, 2000a). The factors facilitating sexual transmission of HIV/AIDS in SSA may include: the age and sex structure of the population; gender roles, power and expectations; sexual access to young girls by older men; rapid urbanisation amidst high unemployment; poverty; transactional sex motivated by limited earning opportunities for women; socio-cultural beliefs and practices; and lack of access to health care exacerbated by social upheavals related to economic distress, political conflicts, and wars (UNAIDS, 2000a; Measure, 1999; Rivers and Aggleton, 1999; UN, 1998; Cohen and Trussell, 1996; Sweat and Denison, 1995).

The population of SSA is predominantly young, in sharp contrast with the age structure in developed countries. About 45% of the population in SSA is aged less than 15 years (UNAIDS, 2000a). Many of the behavioural factors associated with HIV transmission, such as early age at sexual debut and risky sexual activity, are common among young people. Using DHS data from various SSA African countries, Way and Blanc (1998) observed that a third of women aged 15-19 had their first sexual intercourse at or before age 15, and by age 18 over two-thirds of women were sexually experienced. An early age at sexual debut is associated with a longer period of risk exposure, propensity to have many sexual partners, high incidence of premarital and unprotected sex, and hence increased chances of contracting sexually transmitted diseases, including HIV/AIDS (Konings *et al.,* 1994; Dixon-Mueller and Wasserheit, 1990). Therefore, the large number of young people entering their sexual and reproductive lives are a potential AIDS reservoir who should form a priority group for AIDS research and prevention activities because their behaviour will determine the future course of the AIDS epidemic.

Women and men in their reproductive and economically productive ages are the most vulnerable to HIV since these are the groups most sexually active. However, the heterosexual nature of the HIV/AIDS epidemic and the unequal gender roles in sexual decision-making has resulted in women being more heavily affected in Africa than in other regions of the world. It is estimated that four out of five HIV-positive women in the world live in Africa (UNAIDS, 2000a; Reid, 1999). Women are considered more vulnerable because of lack of power and control over their sexual lives. Social and cultural factors promote the spread of

HIV among women and these include sexual subordination, rape, young women having sex with older infected men for sexual favours, men's double standards, widow inheritance, sexual abstinence practices, and the traditional socialisation that perpetuates a belief in male superiority (UNAIDS, 2000a; Family Health International (FHI), 1999; Cohen and Trussell, 1996).

A number of SSA countries face political instability, economic decline and military conflicts that consume a sizeable amount of resources meant for public health. As a result, most women have minimal access to reproductive health services. In addition, women's low socio-economic status keeps them dependent on men for economic support or forces them into commercial sex work (Rivers and Aggleton, 1999; International Center for Research on Women, 1996).

The rapid rate of urbanisation has led to migratory flows of working-age males to cities without their wives or families, providing such men with opportunities to have multiple sexual relationships (Measure, 1999; Brockerhoff and Biddlecom, 1999; Cohen and Trussell; 1996). Besides, STDs are considered high in urban areas because of the high concentration of people and relaxation of traditional social norms that would otherwise regulate sexual activity.

The devastating toll from AIDS is evident in increased infant, child and adult mortality and a concomitant decline in life expectancy at birth in most of SSA. In the worst hit SSA countries, life expectancy is currently estimated at 47 years and this is seven years less than what could have been expected in the absence of AIDS (United Nations, 1998). Yet, the demographic impact of the epidemic is expected to intensify even further in the future. Moreover, discovery of an effective treatment may not be the solution because of cost implications. Cohen and Trussell (1996:3) conclude, "the many of the millions of people already infected with HIV virus are unaware of their status and so represent a pool capable of passing the virus to new cohorts. Thus, changing human behaviour to slow the speed or to limit the extent of transmission will remain for the foreseeable future the first and probably the most important line of defence against HIV/AIDS in SSA."

1.2 Background

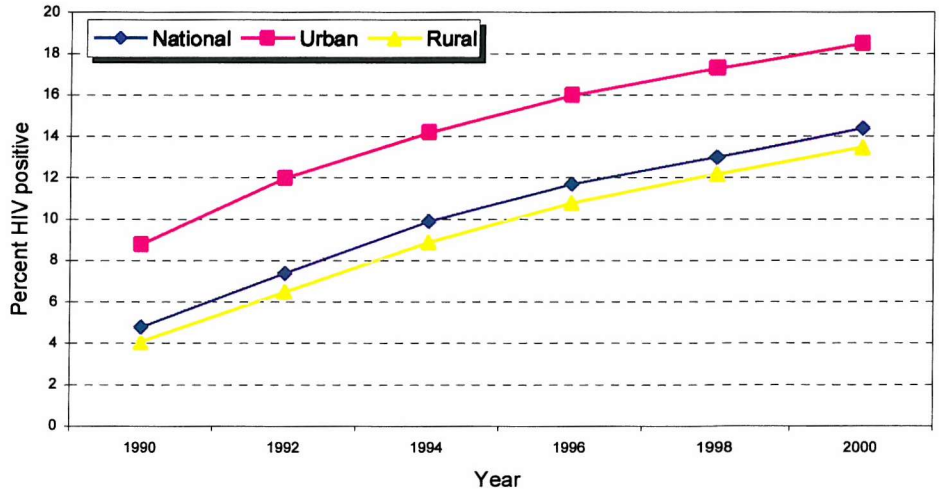
1.2.1 The AIDS Situation in Kenya

Kenya is one of the countries in SSA most affected by the AIDS epidemic. The AIDS situation in Kenya, like in many Eastern and Southern African countries, has been

progressive: from one reported case in 1984 to over 300,000 reported new cases by 2000 (GOK/ACU, MOH, and NACC, 2001; Baltazar *et al.,* 1999). But the figure could be higher since some people do not get tested due to lack of testing kits or because they do not go to hospital. Also, because of stigma or lack of a proper record keeping and reporting system doctors may fail to report some people.

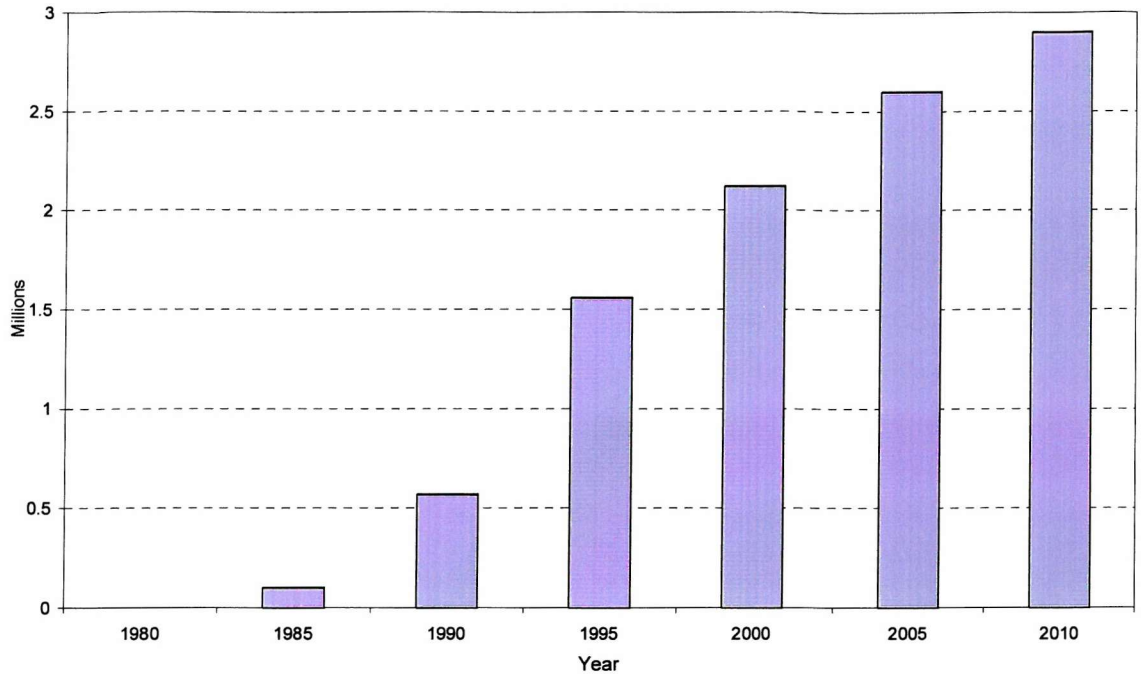
Estimates at the end of the year 2000 suggest that about 2 million Kenyans were living with the HIV virus but did not know they were infected at the time (GOK/ACU, MOH, and NACC, 2001). Figure 1.1 shows that HIV prevalence rates have been steadily rising and have almost tripled in the last decade. By the end of 2000 the national adult HIV prevalence rate (the percentage of adults aged 15 years and above living with HIV and with AIDS) was estimated at 14%, up from about 5% in 1990. HIV/AIDS prevalence rates have been invariably high in urban than rural areas. The current estimates are 17% to 18% in urban areas and 12% to 13% in rural areas (Figure 1.1). Although prevalence rates are lower in rural areas, the absolute number of people infected is larger than in urban areas since 80% of the population lives in rural areas. Projections suggest that adult HIV prevalence in Kenya will stabilise at the 14% level. If this happens, the number of people living with HIV or AIDS (PLWHA) is expected to increase from about 2 million in 2000 to 2.6 million by 2005 and to 2.9 million by 2010 (Figure 1.2).

Figure 1.1: National, urban and rural HIV prevalence trends in Kenya, 1990-2000



Source: KACU, MOH, and NACC, 2001 and Baltazar *et al*, 1999

Figure 1.2: Projected number of people living with HIV/AIDS in Kenya, 2001

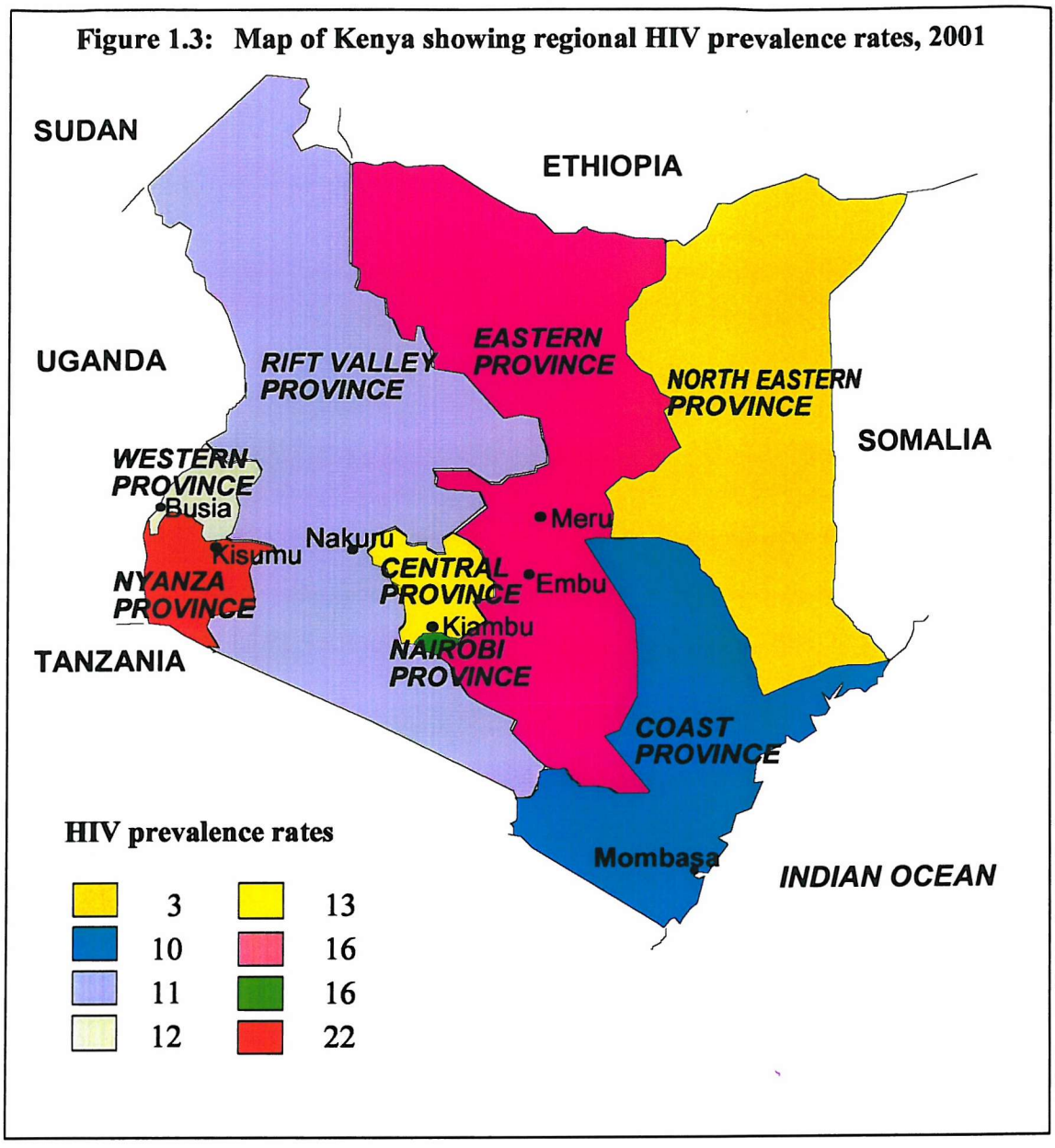


Source: GOK/ACU, MOH, and NACC, 2001

Kenya is divided into eight provinces, subdivided into over 75 districts. Consistently high HIV prevalence rates have been recorded in Nyanza, Nairobi and part of Western and Rift Valley provinces where HIV prevalence rates among pregnant women range from 16% to 30% (See Figure 1.3). Data indicates that prevalence rates are alarmingly high and on the rise in every part of the country, including previously low prevalence districts (e.g. Kiambu, Thika, Embu and Meru). The rising prevalence rates could be partly attributed to the long latency period of the HIV virus in the human body so that those infected years ago could only be coming to light now. Differences in socio-cultural beliefs and practices among communities and the level of people's integration through labour and rural-urban migration partly could explain the sudden upsurge of prevalence levels in some previously low prevalence regions.

Sentinel surveillance data of 2000 indicate that the proportion of women living with HIV is greater than 20% in Busia , Mbale (both in Western), Kisumu, Chulaimbo (both in Nyanza), Nakuru (Rift Valley), Thika (Central) and Tiwi (Coast). After showing signs of stabilisation, HIV prevalence among pregnant women in Mombasa (Coastal region) rose from about 10% in 1990 to 17% in 2000. Similarly, in Kisumu district, the rates rose from about 19% to 26% over the same period (GOK/ACU, MOH, and NACC, 2001). This rapid spread of HIV infection means no district in Kenya can be complacent about AIDS.

Figure 1.3: Map of Kenya showing regional HIV prevalence rates, 2001

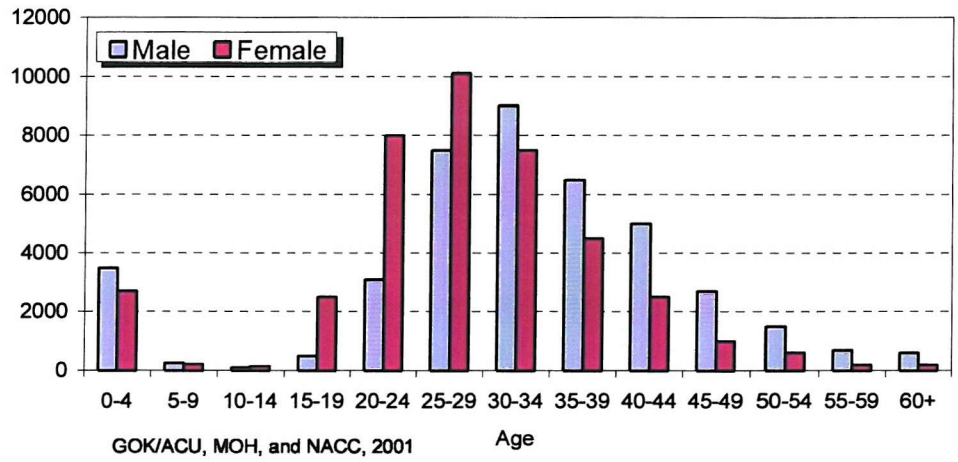


Sources – Data: GOK/ACU, MOH and NACC, 2001; Map is adapted from NCPD, CBS & MI, 1999, P.xxii.

Heterosexual contact accounts for most new infections (about 80%) and hence, people are at risk of getting the disease as soon as they initiate sexual activity. A study in Kisumu found that 18% of women were infected within two years of becoming sexually active (WHO, 1997 quoted in GOK/ACU, MOH and NACC, 2001). Mother-to-child transmission accounts for about 15% of all HIV infections because of the high HIV infection rates among women of reproductive ages. About 30% to 40% of babies born to HIV-positive mothers in Kenya are at risk of getting infected with HIV. The other babies who may not be infected are equally at risk of becoming orphans once one or both parents die from AIDS. It is projected that the number of AIDS orphans will reach almost one million by 2005 (Baltazar *et al.*, 1999; GOK/MOH, 1997). Blood transfusion is considered an insignificant mode of transmission since screening is almost 100%.

Figure 1.4 illustrates the alarming patterns of AIDS cases in Kenya by age and sex during the last decade. Generally, men and women are infected in equal proportions. This is expected as HIV is predominantly transmitted through heterosexual contact. However, striking gender variations in infection levels at different ages is evident. Infection rates are generally higher for young women than young men, but the reverse holds for older men and women (Figure 1.4). About 75% of the AIDS cases occur in the age group 20-45 years, peaking at ages 25-29 years for females and 30-34 years for males. Young women in the age groups 15-24 years are 2 to 3 times more likely to be infected than males in the same age. More AIDS cases occur in children under five years than in age group 5-14 probably because most of them are infected through their mothers.

Figure 1.4: Age-sex distribution of reported AIDS cases in Kenya, 1986-2000



Kenya presents a unique scenario, having experienced one of the most rapid fertility declines in the recent past that has been largely attributed to increases in contraceptive use and improvements in other socio-economic aspects. The total fertility rate declined from about eight births per woman in 1978 to 4.8 in 1998. The population growth rate is estimated to have dropped from 3.8% in 1979 to about 2.5% in 1998. Contraceptive prevalence rate increased from 17% in 1984 to 39% in 1998 (NCPD, CBS and MI, 1999). The decline in fertility and population growth rates was initially accompanied by a decline in mortality rates. But these positive gains are currently being reversed by the increasing deaths attributed to AIDS.

Infant mortality, estimated at 62 per thousand live births in 1989 rose to 74 per thousand in 1998; a rise attributed to the increasing spread of HIV/AIDS (NCPD, CBS and MI, 1999,

1994, 1989; GOK/CBS, 1989). Life expectancy estimated at 60 years in 1989 declined to 58 years in the 1990-1996 period (NCPD, CBS and MI, 1999). It is projected that by the year 2010, life expectancy will fall to about 40 years in Kenya, meaning a loss of 20 years attributed to AIDS (GOK/ACU, MOH and NACC, 2001; Cohen and Trussell, 1996). Population projections indicate that AIDS will have reduced the population of Kenya by over 2.1 million by 2005 and 4 million by 2010 (CBS, 1996).

Apart from the impact on the demographic structure of the Kenyan population AIDS significantly impinges on the social and economic sectors of the economy, but it is not an aim of this study to discuss this in detail. Generally, the health and social costs of the epidemic are enormous. Estimates indicate that the HIV/AIDS epidemic has directly or indirectly cost the government of Kenya 40 billion shillings since the first case of the disease was reported some 15 years ago (GOK/MOH, 1997). It was projected that by 2000 about 50% of all hospital beds would be required for HIV/AIDS cases (Okeyo *et al.,* 1998). The direct and indirect annual cost of medical care for a new HIV/AIDS patient is estimated at Kenya shillings 573,240 (about US$7,645) (GOK/MOH, 1997). This cost is unaffordable by the majority of people in Kenya where per capita income is only US$280. The quality of care is bound to worsen as the number of people needing care and treatment increases, ultimately weakening the provision of preventive health services. These trends threaten to erode the improved quality of life so far gained in Kenya.

The education sector has been affected considerably by deaths of personnel from AIDS-related illnesses, undermining its capacity to deliver educational services. In severely affected areas, school drop out is rising because of reduced household income resulting from AIDS-related deaths. Children are also being kept out of school to care for sick family members or to work in the fields to boost household food production as productive members succumb to the AIDS disease. School enrolment and completion rates are dropping as the majority of young people get infected immediately after initiating sexual intercourse.

Other drastically affected sectors include the agricultural, industrial, social and security services. Considerable costs are incurred by both private and public employers as a result of personnel absenteeism and reduced productivity due to illness, payments for medical care and treatment, loss of skilled labour, hiring and re-training expenses, including insurance and social benefits to the bereaved families. Households incur loss of earnings as productive members of the family die and others spend time caring for the sick. Families also spend a lot of money on transport and funeral expenses for individuals who die in urban areas or in

hospital (GOK/ACU, MOH and NACC, 2001; GOK/MOH, 1997). By the end of 2000, it was estimated that close to 1.5 million people in Kenya had died of AIDS; and 180,000 of these deaths occurred in the year 2000 alone (GOK/ACU, MOH and NACC, 2001), which was an average of about 500 deaths per day. This is almost four times the estimate of 130 deaths per day in 1998 (Okeyo in the *Kenya Times*, 1999). Even if new infections decrease in the country, AIDS deaths are likely to continue to increase because of the number of people already infected with HIV who may develop AIDS.

Thus, the AIDS pandemic is one of the greatest socio-demographic and economic challenges facing Kenya today and all efforts are needed to mitigate further spread of this debilitating disease.

1.2.2 Responses to AIDS in Kenya

Since 1985, the Kenya government, non-governmental organisations (NGOs), community-based organisations (CBOs), religious institutions, donors and United Nations agencies have worked together to fight the spread of HIV/AIDS. The Kenya government's response to AIDS was evident early in 1987 through the establishment of the National AIDS Control Programme. At the time, AIDS was not seen as a serious problem and so the focus was on creating AIDS awareness, blood safety, clinical management of AIDS-related opportunistic infections and capacity building for the management of AIDS control programmes at the national level. The Kenya government's response to AIDS became more realistic in 1992 when it was apparent that HIV prevalence rates were steadily increasing. To stem the accelerated spread of AIDS, STD control was seen as a priority since the presence of STDs facilitates the transmission of HIV. This led to the integration of STD control into AIDS programmes thus establishing the National AIDS and STD Control Programme (NASCOP) in 1994 (GOK/ACU, MOH, NACC, 2001). In addition, NASCOP also incorporated the management of tuberculosis (TB) into its operations, since over 40% of TB cases are also found to be HIV positive (Kenya *et al.,* 1998).

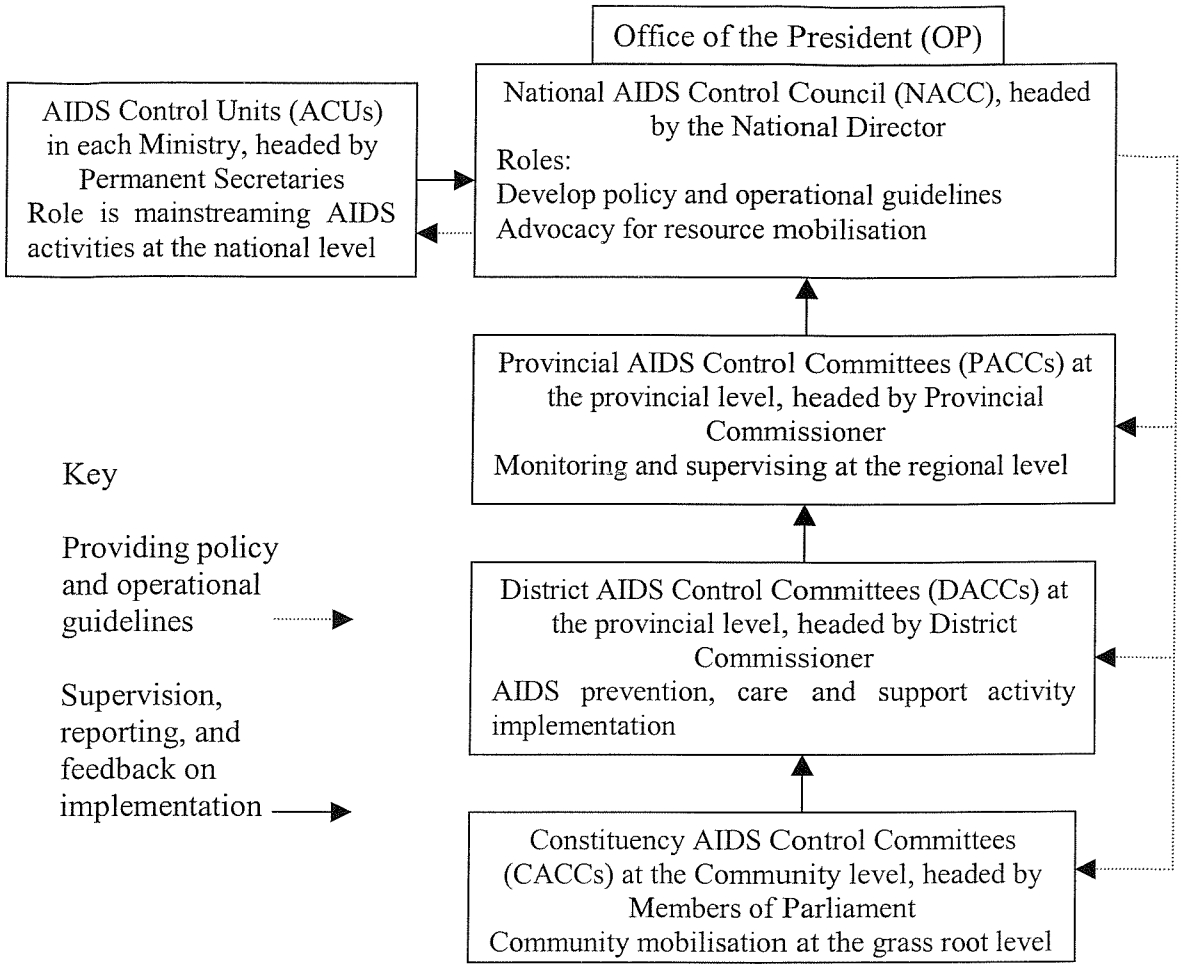
In recognition of AIDS as a development setback, the Seventh National Development Plan and the Fifth District Development Plans of 1997-2001 address the AIDS issue (GOK, 1997). The importance of effective resource mobilisation, management and co-ordination of HIV/AIDS activities led to the need for an appropriate policy framework and organisational structure to guide programme implementation, supervision, monitoring and evaluation for the many actors involved in HIV/AIDS prevention and care activities. This culminated in the parliamentary approval of Sessional Paper Number 4 of 1997 on "AIDS in Kenya" as the

national AIDS policy (GOK/MOH, 1997). The AIDS policy provides the framework within which AIDS prevention and care efforts will be undertaken for the next 15 years and beyond. It addresses the sensitive issues of the socio-cultural environment, the role of the government in a multi-sectoral environment in AIDS prevention and the creation of an institutional framework for effective management and co-ordination of HIV/AIDS programme activities. The AIDS policy prompted national debates and pronouncements about the causes and implications of the spread of AIDS in Kenya. This led to President Moi publicly declaring the disease a national disaster in November 1999. Following the public political acknowledgement of the AIDS threat, and as recommended in Sessional Paper No.4 on AIDS in 1997, the National AIDS Control Council (NACC) was established in 1999.

Figure 1.5 illustrates a simplified self-explanatory NACC institutional structure aimed at a multi-sectoral approach in HIV prevention in order to involve and mobilise the broader national response against the epidemic. The emphasis is on AIDS prevention through behaviour change, care and support activities from the grassroots to the national level. So far strategies in place include the prevention of sexual, blood and mother-to-child transmissions, disease surveillance and communicating behaviour change information (GOK/ACU, MOH, and NACC, 2001; GOK/NACC, 2001; GOK/MOH, 1997). Programmes also provide care and social support to people infected with HIV, their families and the community, and address the social and economic consequences of HIV/AIDS.

A sentinel surveillance system is in place for monitoring the magnitude and trends of HIV infections. The system operates in 12 urban sites and 8 peri-urban or rural sites spread around the country. The sites are situated in selected antenatal clinics where pregnant women are tested anonymously each year. The University of Nairobi and the Kenya Medical Research Institute (KEMRI) also collect HIV/AIDS-related data. The infrastructure for blood screening for HIV has been established in most hospitals, though the resource requirements for its maintenance are gigantic.

Figure 1.5: The Kenya national AIDS Control Council institutional framework, 2001



Source: GOK/NACC, 2001 p.50.

The efforts of the government have been supplemented by the existence of a number of donor-funded HIV/AIDS prevention projects, non-governmental organisations (NGOs), community based organisations (CBOs), religious institutions and the private sector. Most donor projects have a nation-wide scope whilst the rest target specific communities or regions of Kenya. For example, the World Bank STI project and a large-scale intervention project on HIV/AIDS Prevention and Care (HAPAC), funded by the Department for International Development (DfID) and managed by Futures Group, Europe, have been in operation countrywide in Kenya since 1995 and 1997 respectively.

The donor-funded and other prevention projects have addressed four components: (a) strengthening the national programme through the development of the institutional and managerial capacity of the National AIDS and STI Control Programme (NASCOP) to more effectively co-ordinate, supervise and implement Kenya's response to the AIDS epidemic; (b) increased and improved NGO and private sector provision of STI services through

training of providers in public, church and mission health facilities, including the private sector in syndromic management; (c) the promotion of safer sexual and treatment-seeking behaviour and its reinforcement among selected target groups, emphasising behaviour change through peer education, theatre, audio-visual shows of health promotion videos at markets using mobile vans, and community discussion forums; and d) effective and efficient services aimed at supporting and assisting people living with HIV/AIDS.

A number of NGOs conduct training of teachers, health and office workers in counselling skills. These NGOs also manage a variety of home-based care projects, among others. Above all, the Kenya AIDS NGOs Consortium (KANCO) constituted in 1990 brings together all NGOs working in the area of HIV/AIDS prevention, care and support in Kenya.

1.2.3 Achievements and Challenges in AIDS Prevention

So far, some major achievements are evident from the various interventions undertaken in Kenya. Table 1.1 shows that a high level of AIDS awareness has been attained since 1993. Over 99% of women and men have heard of AIDS. The high awareness cuts across all socio-demographic sub-groups and regions of the country (NCPD, CBS and MI, 1999). Similarly, over 96% of both women and men know that AIDS can be transmitted through sexual intercourse. In addition, over 80% know that HIV can be transmitted from mother to child and that a healthy looking person can have the AIDS virus. Misconceptions about casual modes of HIV transmission that reflect misinformation, such as mosquito bites, kissing, traditional healing and spiritual intervention, significantly reduced to 8% for both women and men in the 1998 KDHS compared to over 50% in the 1993 KDHS. The 1998 KDHS findings show an increase in the number of respondents who reported that they knew someone sick of or who had died of AIDS. In 1993, four in ten women and men knew of someone ill or dead from AIDS. This had increased to seven in ten women and men in the 1998 KDHS, thus reflecting the advancement of HIV/AIDS spread in Kenya.

Table 1.1: Changes in knowledge about AIDS, KDHS 1993 and 1998

Characteristics	Female		Male	
	1993 (n=7,540)	1998 (n=7,804)	1993 (n=2,336)	1998 (n=3,386)
Ever heard of AIDS	97.8	99.1	99.0	99.4
Knows a person can get AIDS from sexual intercourse	90.3	96.5	96.1	97.8
Can a healthy person have AIDS?	75.8	79.1	87.5	85.3
Can a mother transmit AIDS to a child?	86.5	86.0	90.3	85.1
Knows someone sick of or died from AIDS	42.0	71.7	40.2	70.0
Believes AIDS can be prevented?	78.7	91.5	86.3	92.1
Knows condoms can prevent AIDS	20.8	37.5	35.6	49.0
Percentage with misinformation about AIDS prevention[1]	55.1	8.0	59.0	8.4

Sources: NCPD, CBS & MI, 1999 and NCPD, CBS & MI, 1994

A number of bottlenecks have hampered the fight against AIDS in Kenya. Lack of political commitment and will at the beginning of the epidemic was a major obstacle in HIV prevention. Initially, national leaders were not willing to discuss HIV/AIDS in public because of the stigma attached to the disease and the impact it would have had on the country's socio-economic base. Thus, AIDS was a disease shrouded in mystery and was associated with and considered restricted to certain groups of 'high-risk' people - prostitutes, drug users, truck drivers and homosexuals (Forsythe *et al.,* 1996; Kenya *et al.,* 1998). This attitude negatively impacted on the success of AIDS prevention programmes, since the general population was not exposed to open discourse about AIDS.

The declaration of AIDS as a national disaster in 1999 paved the way for increased openness about the disease. Unlike in the past, national leaders now talk about AIDS in public. Currently, hardly a day goes without a newspaper reporting about a politician speaking in public gatherings about the socio-economic and demographic impact of AIDS and the need

[1] Includes a belief that avoiding mosquito bites, kissing, or care from a traditional healer or spiritual aid can prevent AIDS.

for people to be careful. People are now more than ever before, confident and willing to discuss AIDS issues overtly.

Lack of religious support was also a major stumbling block to AIDS prevention efforts, particularly regarding condom use. Efforts aimed at promoting the use of condoms for the dual prevention of pregnancy and STIs by the government and NGOs working in the area of sexual and reproductive health, including AIDS prevention have faced stiff opposition from Christian and Islamic groups. In early 1996, Catholic and Muslim religious leaders mobilised their adherents to hold public demonstrations in which they burnt sex education literature and condoms (Forsythe *et al.,* 1996; Kenya *et al.,* 1998).

For some time, sex education for the youth was a contentious issue and was widely opposed by religious, parental and secular groups. Currently, religious leaders, parents and institutions have realised the seriousness of the disease and have consented to open discussion about AIDS. A number of religious denominations have made a public commitment to adopting policies to guide clergy, laity and parishioners (Forsythe *et al.,* 1996). Religious leaders in Kenya emphasise celibacy for the unmarried and monogamy for those married as the best checks against contracting HIV, they remain opposed to condoms and, discourage members from using them. Such restrictions may not work if people continue engaging in unsafe sexual activities.

The other barriers to AIDS prevention include poverty, the impact of structural adjustment programmes on vulnerable groups, particularly women, the ever increasing number of people with full-blown AIDS needing medical care and social support, gender inequalities, and persistence of some risky socio-cultural practices that influence the spread of the disease (Okeyo *et al.,* 1998).

1.2.4 The Problem Statement

Although ignorance is no longer an issue in Kenya, it remains unclear how knowledge is associated with people's feelings of personal vulnerability to AIDS and sexual behaviour. It is also unclear how perception of risk influences or is influenced by people's sexual behaviour. A host of social, demographic, cultural and, structural factors may mediate between people's level of knowledge, attitudes and behaviour. Kenya is culturally and ethnically diverse. The strong influence of the socio-cultural environment may explain the observed inconsistency between what Kenyan people claim to know and their beliefs and risk-taking behaviour.

Kenya has an active AIDS-control program supported by a well-structured institutional structure (see Figure 1.5). Nevertheless, health promotion activities in Kenya took the assumption that people will respond to HIV/AIDS risk in a way that reflects their awareness levels, thus relying heavily on the conventional health behaviour models (Janz and Becker, 1984; Becker, 1974, see Chapter 2, section 2.2). Although knowledge and awareness of AIDS is a necessary condition for behaviour change, research in Kenya and elsewhere has shown that this is not enough in itself (Bauni and Jarabi, 2000; UNAIDS, 1999). Ignorance is no longer the issue in Kenya but attitudes and behaviour change are. Feelings of invulnerability and risky sexual practices are rife among different population sub-groups. The 1998 KDHS findings revealed that about a third of both women and men felt they were not at risk of HIV/AIDS. Similarly, risky sexual behaviour persists even though there is high knowledge of AIDS. In the 1998 KDHS, 16% and 60% of married and unmarried men respectively, reported having more than one sexual partner in the 12 months before the survey. For women, the proportions were 2% and 40% for married and unmarried respectively. About 7% of married men with extramarital partners reported having had two or more sexual partners in the last year while less than one per cent of married women reported the same. Comparably, 50% and 14% of the sexually active unmarried men and women respectively reported having had two or more sexual partners in the last year before the survey. These findings also indicate that Kenyan men are more likely than women to engage in extramarital sexual relations or to have multiple sex partnerships, thus they are more at risk of contracting HIV and infecting their partners.

Regrettably, the risky sexual practices are not matched by adoption of safer sexual behaviour. Though a variety of behavioural responses exist for the personal prevention of HIV infection in Kenya, such as abstinence, monogamy, and limiting of sexual partners, the crucial one may pertain to the use of condoms in event of persistence of high-risk sexual activity. The fact that multiple sexual partners for men is somewhat condoned in most Kenyan communities would render monogamy and abstinence futile particularly for subordinate women. Condom use is low in Kenya and is confined to only certain types of sexual liaisons. Results of the 1998 KDHS show that among married men and women, condom use is common in extramarital relations. Seven percent of men and three per cent of women reported condom use among spouses respectively, compared to about 42% of men and 15% of women during sex outside marriage. Low use of condoms in extramarital relations heightens the risk of HIV and classical STDs in conjugal unions that would otherwise reduce risk if partners were faithfully monogamous.

There is evidence to show that most Kenyan women are forced to acquiesce in unsafe sex for economic and socio-cultural reasons (Fapohunda and Rutenberg, 1999; Okeyo *et al.,* 1998; Kenya *et al.,* 1998; GOK/MOH, 1997; Forsythe *et al.,* 1996). Women in subordinate positions in society and who depend on men for their livelihood would not refuse sex or negotiate for condom use even if they know that they risk contracting HIV. Thus, the major constraint that plagues HIV/AIDS prevention and control efforts in Kenya is the slow pace of change in sexual attitudes and behaviour, as well as gender inequalities in sexual decision-making.

The various HIV/AIDS prevention and care programmes have also been criticised for targeting those considered at high risk. For example, the UNAIDS Kenya country programme adviser, Dr. Warren Naamara in 1999 said, "programmes tailored to fight the scourge should be made to target all vulnerable groups among people and not just risky practices" (*The People*, July 3 1999). The programmes have ignored a huge chunk of the population, such as those in marital unions, the sexually active unmarried women and men who are also vulnerable, and the sexually inexperienced who will soon be entering sexual lives. In a generalised AIDS epidemic like in Kenya people of all socio-demographic backgrounds are potentially vulnerable.

Few studies in Kenya, if any, have been nationally representative, or critically looked at the associations between perception of risk and sexual behaviour and their implications on HIV/AIDS prevalence among population sub-groups in Kenya (Njogu and Castro-Martin, 2001; Waithaka and Bessinger, 2001).

The 1998 KDHS provides population-based data that is useful in examining the general influence that AIDS prevention initiatives have had on Kenyans' sexual attitudes and behaviour. This research is important because it focuses on aspects that influence behavioural change among all population sub-groups; a process that remains the most viable way to curb the spread of AIDS in Kenya. The persistence of other STDs even with the availability of antibiotics for treatment suggests that finding a cure may not be the solution to the AIDS problem. Thus, identifying priority sub-groups in need of specific AIDS prevention strategies remains the immediate challenge in mitigating the impact of AIDS in Kenya.

1.3 Study Objectives

This study examines the associations between perception of risk of HIV/AIDS sexual behaviour among Kenyan men and women using the 1998 Kenya Demographic and Health Survey (KDHS) and qualitative data. The net effects of socio-demographic, psychosocial/knowledge, and behavioural factors on self-assessed risk and risky sexual behaviour among women and men are examined using multivariate statistical techniques. Qualitative research is used to identify the social context of people's perceptions of risk of HIV, sexual behaviour and AIDS prevention strategies. Specifically the study aims to:

1. describe the community beliefs, norms, and attitudes regarding perception of risk and sexual behaviour and how these influence or are influenced by adoption of AIDS prevention strategies.

2. characterise women and men by different levels of self-perceived risk and to examine the socio-demographic, psychosocial and behavioural factors associated with self-perceived risk of HIV of Kenyan women and men; and

3. investigate the association between self-perceived risk of HIV and risky sexual behaviour net of socio-demographic, psychosocial and behavioural factors.

This research provides further understanding of the nature and patterns of sexual attitudes and behaviour enhancing the spread of HIV/AIDS in Kenya. Such information can assist public policy and programmes in identifying possible priority sub-groups in need of interventions and the type of interventions that may be instituted.

1.4 Organisation of the Study

This study is divided into seven chapters. Chapter 2 describes the conceptual framework adopted for the study and a review of literature on factors associated with people's perceptions of risk and sexual behaviour and the risk of HIV infection.

Chapter 3 describes the qualitative and quantitative data sources and methods of analysis adopted in the study. The limitations of sexual behaviour surveys are highlighted, noting the various issues that may influence respondents' behaviour during interviews. In addition, some aspects of the quality of the 1998 KDHS sexual behaviour data are examined.

Chapter 4 describes the social context of people's sexual behaviour, focusing on perceptions of the risk of HIV and prevention measures adopted to deal with sexual risks, noting any social barriers that may hinder the enactment of such risk-reduction strategies.

Chapter 5 examines the factors associated with self-perceived risk of HIV among women and men and Chapter 6 links perception of risk with risky sexual behaviour through association analysis. The net effects of socio-demographic, psychosocial and behavioural covariates of risk perception and sexual behaviour are examined.

Finally, Chapter 7 gives a summary of the findings, conclusions and suggestions on policy, programme and research implications that could be used to mitigate the spread of HIV/AIDS in Kenya, taking into account gender differences.

The next chapter presents a review of the literature on perception of risk, sexual behaviour and the risk of AIDS.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature on factors associated with perception of risk and sexual behaviour. Section 2.2 gives an outline of some health behaviour theories that have been used to study sexual behaviour. The conceptual framework used to examine the associations between perception of risk and sexual behaviour in Kenya is described in Section 2.3, which also guides the literature review. Sections 2.4 to 2.11 review the existing literature noting the psychosocial/knowledge, behavioural, cultural and socio-demographic factors associated with various levels of perception of risk and patterns of sexual behaviour that may influence the risk of HIV transmission. The role of gender and STIs as co-factors in HIV transmission and condoms as prevention mechanisms are also highlighted. Section 2.12 identifies some of the gaps in knowledge that this thesis attempts to address and section 2.13 gives a summary of the chapter.

The focus of the literature review is on sub-Saharan Africa since the study setting, Kenya, shares a number of similar social, cultural and demographic characteristics prevalent in the region. Occasionally, reference is made to literature from other parts of the world in order to fill the gaps in data. In addition, a detailed review is made of sex-related risk factors for HIV/AIDS given that studies in sub-Saharan Africa have associated a large proportion of HIV infections with sexual contact (United Nations, 1998; Piot *et al.,* 1988). The factors associated with perception of risk and sexual behaviour overlap and so the review of literature in this thesis refers to these terms interchangeably.

2.2 Health Behaviour Theories

It is not an aim of this thesis to attempt an application of any one of the theories. Much of the analysis in this thesis is derived from the 1998 Kenya Demographic and Health Survey data, that was not designed to test any theory on sexual behaviour and HIV/AIDS spread but to have a broader emphasis on the measurement of fertility, mortality and maternal and child health. However, the theories provide the background against which the conceptual framework for this study is developed, and where applicable, for the discussion of findings on perception of risk and sexual behaviour in Chapters 4-6.

Various health behaviour change theories cited in the sexual behaviour and HIV/AIDS prevention literature have been progressively developed and adapted over time. Health

behaviour models have been largely applied to studies of health seeking behaviour in the United States (Rosenstock *et al.,* 1994; Bandura, 1989; Ajzen and Fishbein, 1980). Although these theories have not yet been extensively applied in research outside of the United States, they do suggest how the behaviour change process is believed to occur.

The most widely applied theory is the Health Belief Model (Becker, 1974) which attempts to explain health behaviour based on individual attitudes and beliefs. This model argues that an individual's awareness of a disease, knowledge of how to avoid it, perceived susceptibility to it as serious and life-threatening, sense of personal vulnerability to it and the feeling of the ability to avoid it predict behavioural change. The individual weighs the costs and benefits of engaging in a particular behaviour: the greater the perceived benefit, the more likely the behaviour is to occur. Cues to action such as media exposure and personal experience of the disease may also influence behaviour. Bandura (1977) later developed the Self-Efficacy Theory, suggesting that an individual's perceived ability to execute behavioural change successfully, such as using a condom or avoiding risky sexual partners, influences a person's decision or ability to adopt and sustain the required behaviour.

The Theory of Reasoned Action (Fishbein, Middlestadt and Hitchcock, 1994) and the Theory of Planned Behaviour (Ajzen, 1988) are based on the premise that humans are rational and that their behaviours are under individual control. The intent to perform behaviour is assumed the best predictor that a desired behaviour will actually occur, and both attitudes and norms (one's perception of other people's opinions regarding the defined behaviour) influence one's intention and behaviour.

The Stages of Change Theory presupposes that behaviour change is a cyclical process of five components – pre-contemplation, contemplation, preparation for action, action and maintenance –that varies for each individual over context and time (Catania, Kegeles and Coates, 1990).

The AIDS Risk Reduction Model (Catania, Kegeles and Coates, 1990) provides a framework for explaining and predicting the behaviour change efforts of individuals specifically in relation to the sexual transmission of HIV. This model incorporates several variables from other behaviour change theories. The model posits that behaviour change starts when a person recognises and labels own behaviour as high risk due to knowledge and awareness of the risk of HIV transmission, personal perceived susceptibility and benefits, and social norms and networking. The individual makes a commitment to reduce the high-risk sexual contacts

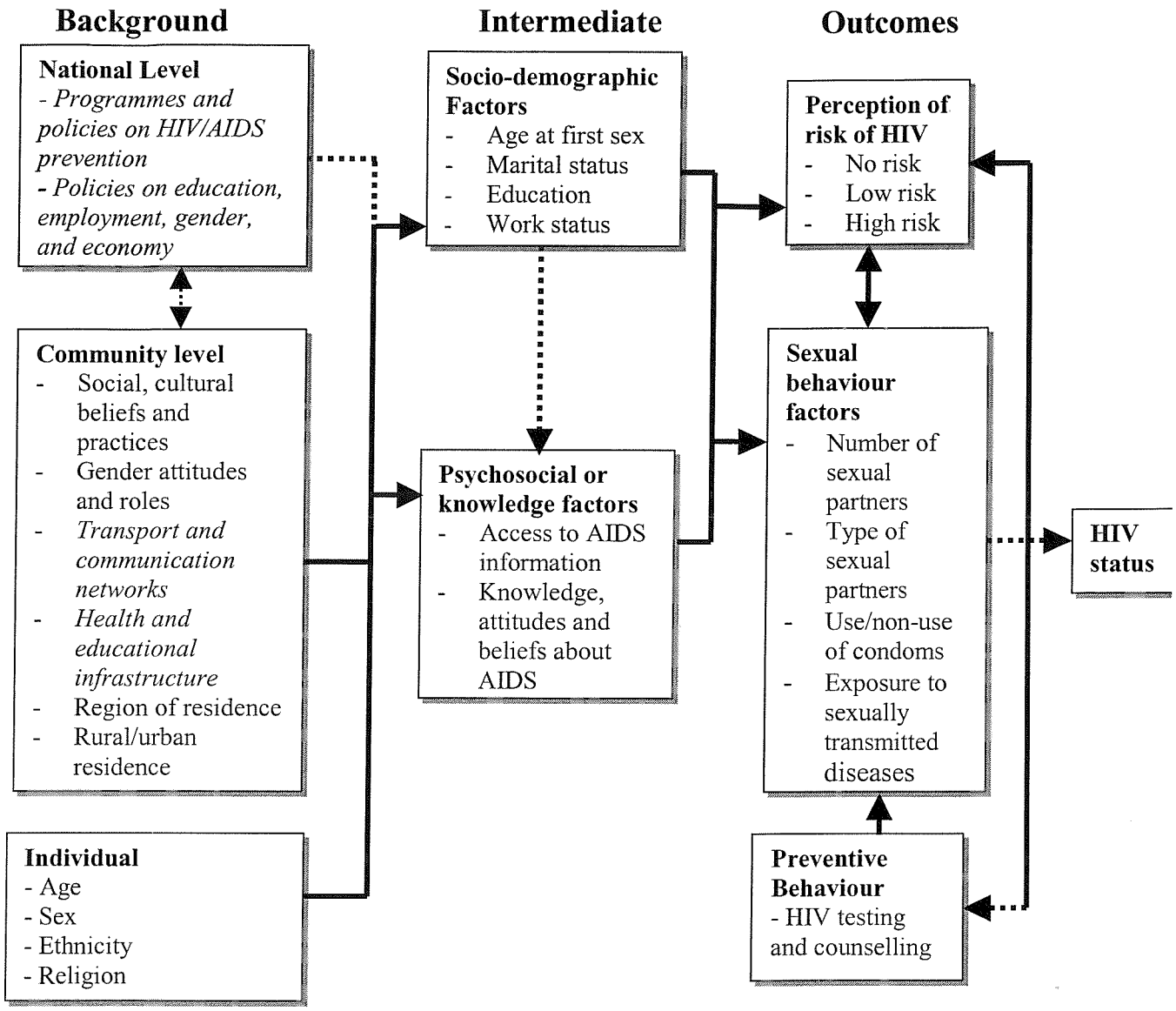
and to increase low-risk activities while assessing costs and benefits of behaviour change and self-efficacy (whether change will affect enjoyment of sex, knowledge of health utility and social factors, such as group norms and social support). The final stage is that of enacting solutions such as use of condoms. Depending on individuals, these phases may occur concurrently or may be skipped (Denison, 1996).

The underlying concept of individual and rational decision-making that is implicit in these models has been criticised by several authors in recent years as being inadequate to explain fully people's sexual behaviour and the risk of HIV infection (Kippax and Crawford, 1993; Ingham and Van Zessen, 1992a; Ingham *et al.,* 1992b; Brown *et al.,* 1991). Ingham and Van Zessen (1992b) conclude that the models are individualistic, rationalistic and static in concepts. Sexual behaviour may be not under an individual's control but dependent upon a host of social, cultural and sexual interactional factors. Heterosexual sexual activity involves two people and so the perceptions, beliefs, and intentions of both partners may influence their sexual behaviour (Gage and Njogu, 1994). Studies in Africa reveal the role of gender relations in sexual decision-making. Unequal gender relations might make potential actions difficult to enact (Blanc, 2001; Fapohunda and Rutenberg, 1999; McGrath *et al.,* 1993; Caldwell and Caldwell, 1993; Holland *et al.,* 1991). The issues that are related to growing intimacy might also influence perceptions of risk and sexual behaviour. Partners in non-marital relationships that last for some time are noted usually to abandon condom use once trust is established (Preston-Whyte, 1994). Other factors such as drug use, alcohol intake and traditional practices like widow inheritance might prevent a person practising safer sex.

2.3. The Conceptual Framework for the Study

Based on empirical research and theoretical perspectives outlined, perception of risk of HIV/AIDS and sexual behaviour are both influenced by an interaction of factors at different levels of a society. Figure 2.1 summarises the hypothesised associations between background factors at the national, community and individual levels, intermediate socio-demographic and psychosocial/knowledge factors and the outcome factors. The conceptual framework identifies three outcome variables: perception of risk of HIV infection, sexual behaviour and preventive behaviour. In this study, focus is on perception of risk and sexual behaviour as the dependent outcomes hence, both perception of risk and sexual behaviour are treated also as explanatory variables depending on the outcome of interest because the association can work in both directions.

Figure 2.1: The conceptual framework for the study of perception of risk of HIV infection and sexual behaviour in Kenya



Key

———— Represents associations that are examined in this thesis.

..... Represents possible associations but which are not examined in this study due to data, time and financial limitations.

Variables in italics are not measured in this study

Figure 2.1 shows that at the national level, the social policy, legal framework and institutional structure in a country have an indirect influence on people's sexual health and behaviour, over which the individual has very little control. Structural, legal and policy considerations of marriage, divorce, sexual and domestic violence, inheritance, (and, more specifically, those that are gender-oriented) are likely to influence specific sexual attitudes

and behaviour. Economic policies and situation are factors at the national level. The inequitable distribution of economic resources may adversely affect the position of women. Poor education and employment policies may adversely limit women's economic advancement and participation in the labour market, which may ultimately lead to women's over-dependence on men for personal upkeep. Poverty is closely linked to women's sexual risk-taking activities (Cohen and Trussell, 1996).

Government support for HIV/AIDS prevention and care activities is significant. The importance of political will and commitment in determining the success of any health programme is demonstrated by Uganda's success story in AIDS prevention, that is attributed to the strong government support (UNAIDS, 1998). The ability of the government to access AIDS and sexual health information and services at the community level is important in preventive and curative services for STDs and HIV/AIDS. Lack of information and inaccessible health care may mean poor knowledge and non-use of condoms, poor health seeking behaviour, and poor treatment and management of STDs. Examining the influence of national programmes and policies on perception of risk and sexual behaviour in Kenya is not an aim of this thesis hence, no background factors at the national level are measured. Nonetheless, Chapter 1 provided a review of the AIDS situation in Kenya, which highlights the AIDS interventions, and successes or failures or challenges so far faced.

The framework underscores the influence of socio-cultural factors, at both the household and the community levels, an influence that is often underplayed in health behaviour models and of which individuals may have little control. People who live in the same community may share similar attitudes, beliefs, and information networks that may shape their perceptions of risk and sexual behaviour. For example, where women's means of gaining acceptance and socio-economic security is through subservient sexual behaviour, unhealthy sexual relations may prevail between the women and men and could also influence perceptions of risk.

Childhood socialisation on sexual matters may carry over into adulthood. Gage (1998) argues community ideologies of masculinity and femininity may shape an individual's identity and self-concept and may thus have a strong impact on his or her sexual attitudes and roles. Through the transmission of concepts about appropriate sexual behaviour for women and for men, the cultural context may govern women's sphere of influence in negotiating safer sex as well as the costs and benefits to women of initiating sexual decisions. For instance, social norms may define "a good woman" as one ignorant or passive in sexual encounters, whereas a "real man" may be defined as being sexually experienced and not necessarily limited to one

sexual partner. The socialisation of young women to acquiesce in male sexual encounters and to give priority to male pleasure and control in sexual partnerships can contribute significantly to women's inability to negotiate whether sex will occur and whether condoms will be used.

Social influences also include the extended family, partners and friends. Friends or the family may be the salient reference group when individuals make decisions related to sexual activity and risk-reduction strategies such as condom use. For example, where the use of contraception is socially unsanctioned, or remains controversial, there may be fear of rejection or reproach by one's spouse, family, friends and the community at large, for broaching or negotiating the use of condoms as a means of protecting against getting HIV/AIDS. The social context of perception of risk, sexual behaviour and preventive behaviour is examined in Chapter 4 using qualitative data.

At the community level, variations in the distribution of socio-economic and development resources are manifest in the availability of transport and communication facilities, the number and the quality of schools and health care facilities, and the degree of urbanisation, which could influence people's attitudes about HIV/AIDS and sexual behaviour. Access to education and information facilities, for example, often affects literacy and the acquisition and adoption of new knowledge and practices. For example, regional disparities in health care provision are markedly evident in Kenya, with a disproportionate concentration of better facilities in urban and suburban areas, and this is reflected in regional differences in morbidity and mortality levels across the country (NCPD, CBS and MI, 1999; 1994; Population Studies and Research Institute (PSRI) and UNICEF, 1994). Regional differentials also seem to be evident in the current HIV/AIDS prevalence patterns (Baltazar *et al.,* 1999), which may be influenced by differences in the socio-cultural environment. The geographical locations such as regions or rural or urban residence can determine the level of access to information and reproductive health services and these can influence perception of risk and sexual behaviour.

The conceptual framework includes some individual background factors such as gender, current age, ethnicity, and religion that may mediate to influence sexual behaviour. The conceptual framework assumes that background factors operate through a range of intermediate factors to influence perception of risk and sexual behaviour. These intermediate factors may be socio-demographic such as age at sexual initiation, marital status, level of education and work status or, psychosocial factors, which include access to information,

knowledge, attitudes and beliefs. The nature of the associations between background and intermediate factors and perception of risk and sexual behaviour are fully described in the next section on literature review in this chapter. The pattern of the association between intermediate factors and perceptions of risk and sexual behaviour are examined using multivariate statistical analyses in Chapters 5 and 6. As mentioned earlier, the relationship between perception of risk and sexual behaviour is two-way. Thus, perception of risk is used as an outcome variable in Chapter 5 and as an explanatory variable in Chapters 6, while sexual behaviour is used as an outcome in Chapter 5 and as an explanatory variable in Chapter 5.

Psychosocial/knowledge factors such as exposure to AIDS information, attitudes and beliefs about AIDS may intervene to influence perceptions of risk of HIV and sexual behaviour and behavioural change. An individual might make the decision to engage or not to engage in sexual intercourse and with whom and how to have it depending on the perceived costs and benefits of a particular behaviour gathered from various sources (Becker, 1974; Janz and Becker, 1984; Ajzen-Fishbein, 1980). The sources and quality (accuracy) of AIDS knowledge is important in facilitating or inhibiting expected behaviour. Similar to socio-demographic factors, the intervening influence of psychosocial/knowledge factors on perception of risk and sexual behaviour are examined using multivariate statistical analyses in Chapters 5 and 6.

An individual's risk of HIV infection is closely linked to his or her sexual behavioural factors. These may include history or presence of STDs, age at sexual debut, multiple and frequency of change of sex partners, commercial and casual sexual encounters, and non-use of condoms in risky sexual encounters. For example, condoms will be valued and sought after in situations in which the individual perceives a threat of an infection; and frowned upon by those who have limited knowledge and those who believe that use of condoms reduces sexual pleasure or is undesirable. The sexual behavioural component of the framework is used to develop a measure of risky sexual behaviour, which is applied as the dependent variable in Chapter 6, and as an explanatory variable in Chapter 5.

As shown in the framework, perception of risk may influence or be influenced by sexual behaviour. However, the cross-sectional nature of the 1998 KDHS data cannot allow us to examine the direction of causality but only associations, which are investigated in Chapters 5 and 6. Individual decisions regarding risk-reduction strategies are likely to lead to HIV infection or prevention. Similarly, knowing one's own serostatus might influence adoption of

specific forms of sexual behaviour. This component of the framework is not fully examined in this thesis due to data limitation. Data on reported behaviour change is highly doubtful as it appears inconsistent with reported risky behaviour in this study. Therefore, HIV testing and type of reported behaviour change were used as explanatory variables in Chapters 5 and 6 and not as dependent outcomes.

In summary, sexual attitudes and outcomes are a function of an intricate process that involves a series of relationships between the individual and the surrounding socio-cultural and physical environment. The extent to which sexual attitudes might influence decisions depends on an intricate mesh of factors at several levels of the social hierarchy, intermediate socio-demographic and psychosocial factors.

2.4 Literature Review

2.4.1 Definition of Perception of Risk

Debates on the definitions and concepts of perceived risk abound in the risk analysis literature and it seems clear that these debates are due to the various disciplines under which risk behaviour is studied (Short, 1984). In the literature the terms "definition" and "concept" are used interchangeably, and Thomson and Dean (1996) suggest that it is simply a question of employing different definitions. An in-depth review of the definitions is not the focus of this thesis but an attempt is made to provide a brief account of how perception of risk has been defined and used previously.

The major contention in the study of risk perception lies in the distinction between what is "perceived risk" and what is "actual risk", and in whether public perception should take some precedence over probabilistic estimates (the so called lay people vs. the experts) (Cross, 1992). Industrialists and economists, for example, have often looked at risk in terms of economic costs and benefits and may distinguish between "risk" in which the probabilities of outcomes are known, and "uncertainty," in which the probabilities associated with events are unknown (Heimer, 1988; Knight, 1921). By contrast, sociologists and psychologists are more likely to conceptualise risk in terms of events in which the probabilities of all possible outcomes are unknown (Heimer, 1988). Thus, risk becomes an element of uncertainty that partly influences people's perception and subsequent behaviour.

Risk is also defined as the likelihood, or probability of some adverse effect or a hazard, thus connoting an undesirable event, and perception of risk becomes an opinion or belief in the potentiality of occurrence of an undesirable outcome (Short, 1984). Although most scientific

and socio-psychological analyses of risk perception are typically concerned with negative potentials, risk can be viewed both positively and negatively depending on context. Thus, a more neutral definition of risk would simply be "the probability of some future event" (Short, 1984:711). Starr and Whipple (1980) and Shrader-Frechette (1991) acknowledge that the experts of probabilistic (or positivist) concepts emphasise assessments of probabilities of undesired outcomes, whereas the contextualist or relativists (also called constructivists) argue that the relative perceived risk of the public should be more important than "actual" risk in societal policy planning (Hornig, 1993; Cross, 1992; Plough and Krimsky, 1991; Short, 1984; Douglas and Wildavsky, 1982).

Douglas and Wildavsky (1982), for example, contend that what is and what is not good vary from culture to culture and beliefs are embedded in culture so as to establish an invariant structure in social relationships – such as the expected submissiveness of women in sexual relations in sub-Saharan Africa. The authors add that individuals and groups within any society will establish relationships which form a fixed structure that establishes the hierarchy of power within the society, and that individuals' perception of risk are indicative of their place within the society. Thus, perceptions of risk are often a reflection of deep social structures as they represent the world.

Whether it is perceived or actual, risk is a theoretical concept, not something capable of precise empirical prediction or confirmation. If it were empirically confirmed/determined, the threat would be certain, not just risk. Shrader-Frechette (1990) suggests that if there were hazards or threats that were not perceived, then we would not know them. But because we know them, in some sense that proves that even real risks are perceived, since real risks must be known via categories and perceptions.

The immediate practical relevance of all this is that studies on risk behaviour should be aware of the contentious nature of debates over the conceptions of risk, but should not expect to resolve them by offering more definitions (Thomson and Dean, 1996).

The conceptual and definitional issues of risk perception reviewed above show that AIDS is indeed an example of a health event characterised by extreme uncertainty from first exposure to the actual knowledge of infection (Becker and Joseph, 1988). Moreover, the incubation period before the development of the disease is often long; uncertainty continues even after the adoption of preventive practices (Medley et al. 1987). Prohaska and others (1990) define perceived risk for HIV as the probability of some future event (HIV infection) in which the

certainty of a given outcome (AIDS death) is unknown. This study acknowledges that for many people living in contexts with generalised AIDS epidemics like in Kenya, it is not just the probability of infection but also the probability that one is already infected, that looms largest. Self-perceived risk maybe largely driven by the knowledge or the realisation that one could be HIV positive, particularly if sexual behaviour has been risky.

2.4.2 Defining Sexual Behaviour and Behaviour Change

Sexual behaviour can be viewed in the context of sexual partnerships, sexual acts and orientations and sexual beliefs and practices (Dixon-Mueller, 1996; Cohen and Trussell, 1996; Caldwell *et al.,* 1993). Elements of sexual partnerships include the timing and duration of sexual contact throughout a person's lifetime, the number of sexual partners, the characteristics and types of relationships, whether choice of partners was intended or forced, and the rate and conditions of change of partners (Dixon-Mueller, 1996).

Dixon-Mueller (1993:275) defines sexual behaviour as "...actions that are empirically observable (at least in principle); that is, what people do sexually with others or themselves, how they present themselves sexually and how they talk and act..." The author considers sexuality as a more comprehensive concept that encompasses the physical capacity of individuals to experience feelings, desires, and pleasure, as well as personal and culturally ascribed sexual meanings and beliefs about appropriate or inappropriate behaviour for men and women.[2] Similarly, Varga (1997:54) distinguishes "sexual behaviour", "sexual decision-making" and "sexual negotiation". Similar to Dixon-Mueller, Varga connotes sexual behaviour with the physical actions of sexual intercourse such as condom use or penetration; sexual decision-making with the choices and resolutions people adopt regarding sexual intercourse, such as whether or not to have sexual intercourse or use condoms; and sexual negotiation with the nature and types of communication dynamics between partners regarding when and how sexual intercourse will take place. Thus, this study is concerned with sexual behaviour, which is, to some extent, an expression of sexuality, and not sexuality in itself.

Sexual behaviour varies by context. Human beings may express their sexuality in different forms and these are referred to as sexual orientations or variations. Some individuals may

[2] Dixon-Mueller (1993:275) explains that sexual meanings differ by context. That "the social construction of sexuality refers to the process by which sexual thoughts, behaviours, and conditions (for instance, virginity) are interpreted and ascribed cultural meaning. This ... incorporates collective and individual beliefs about the nature of the body; about what is considered erotic or offensive; and about what and with whom it is appropriate or inappropriate for men and women (according to their age and other characteristics) to do or talk about sexually".

engage in various forms of sexual behaviour and others may engage in one exclusive form. The most common forms of sexual orientations are heterosexual, homosexuality, and bisexuality. Sexual acts may be vaginal, anal, or oral and can involve penetrative or non-penetrative sexual intercourse. They may also consist of solitary or dyadic sexual practices. The timing, numbers, types of partners and practices are often used in sexual networking and disease transmission models (Dyson, 1992). Patterns of partner selection, types, and change vary over the course of a lifetime, from adolescence through adulthood to old age. All these factors might influence people's perceptions of risk and sexual behaviour.

Surveys on sexual behaviour in Kenya often assume that people engage in heterosexual partnerships. The surveys have not paid attention to the different forms of sexual behaviour, such as homosexuality and bisexuality, known to exist and to be increasing with time in Kenya (Kenya *et al.,* 1998). Nevertheless, heterosexual behaviour is assumed to exert more influence on the incidence and prevalence of HIV infections than other forms of sexual behaviour in Kenya (GOK/ACU, MOH, NACC, 2001; Baltazar *et al.,* 1999; Okeyo *et al.,* 1998).

Behaviour change as applied in public health is used to refer to change in activities or actions of unwanted health behaviours, often from risky to safer behaviour (Parnell and Benton, 1999). On a broader sense, behaviour change encompasses adoption of beliefs, attitudes and practices that reduce the risk of unwanted behaviour at the societal, community and individual levels. On the individual level behaviour change may denote the physical capacity of an individual to act in a way that reduces personal health risk. Sexual behavioural change, therefore, relates to change from risky sexual behaviour (for example casual or extramarital sexual intercourse) to safer sexual behaviour such as use of condoms, faithfulness and monogamy, and abstinence.

2.5 Psychosocial Factors and AIDS Risk

The health behaviour models consistently rely on mental and emotional factors as direct determinants of people's change in behaviour. Studies have also suggested a link between awareness levels, beliefs and attitudes about STDs and AIDS, and the levels of risk perceptions and transmission of HIV and behavioural change. Prohaska et al. (1990) note that interventions, such as educational campaigns aimed at reducing the spread of AIDS, for example, are "predicated on the belief that educating people on the risks and transmission routes of HIV virus encourages reduction in high-risk health behaviour" (1990:385). The authors also state that evidence based on AIDS reduction efforts "suggests that increased risk

perception may result in behavioural change, although the effects may diminish over time." (1990:382). On the contrary, other findings indicate that many people remain ignorant of the risk of HIV or their own likelihood of becoming infected by the virus despite widespread educational campaigns (Ingham and Van Zessen, 1992a; Becker and Joseph, 1988; Cleary et al. 1986).

Almost all studies report a very high awareness of HIV/AIDS. Knowledge of AIDS has remarkably increased over the years and is almost universal in most sub-Saharan countries, and this cuts across population subgroups. According to the Kenya Demographic Survey of 1998, over 99% of women and men reported having heard of AIDS. Similarly, over 97% of young people in Bamenda, Cameroon reported to have heard of AIDS (Rwenge, 2000). The UNAIDS (2000b) notes that general awareness of AIDS is no longer important but specific knowledge is. Multivariate analyses using the World Health Organisation [WHO]/Global Programme on AIDS [GPA] data showed that education and media exposure were major predictors of AIDS awareness, and controlling for education diminished the effect of age (Ingham, 1995). Some studies have shown that awareness of AIDS is related to knowledge about modes of transmission, genuine risk behaviours and preventive measures (Ingham, 1995; Hogsborg and Aaby, 1992; Lindan *et al.,* 1991; Irwin *et al.,* 1991). Using the WHO/GPA data, Ingham (1995) found that sex with prostitutes was mentioned as risky by over 90% of respondents who were aware of AIDS, although in Guinea-Bissau, nearly 3 in 10 respondents did not view sex with prostitutes as risky.

Despite the notion that awareness levels lead to adoption of safer sexual behaviour, studies have also shown that it is not always the case. In a population-based study in Ife-Ife in Nigeria in which a very high awareness of sexual transmission was noted, only 29% of women and 17% of men mentioned commercial sex as a route of transmission (Messersmith *et al.,* 1994). The sex differential in knowledge was also evident in the responses to questions about prevention. Of those who knew of AIDS, women were nearly twice as likely as men to mention condom use and avoidance of commercial sex, and were slightly more likely to mention reducing number of partners. Men who reported having had commercial sex were less likely than those who had not to regard sex workers as risky, and the proportion who mentioned that having fewer partners reduces the risk of HIV infection dropped as the number of partners over the last years rose. Perhaps these findings suggest denial of an existing practice (commercial sex) or a resignation to fate by the women who view men's errant sexual activity as normal. The discrepancies noted in knowledge, risk perceptions and behaviour could not be explained by inaccurate belief in modes of transmission.

Cleland (1995) using the WHO/GPA data did not find significant associations between AIDS awareness levels and number of partners and self-perceived risk. Perhaps, Hogsborg and Aaby (1992) provide a possible explanation for the weak link between knowledge, perceived risk and behaviour. In their study, respondents who felt at risk were also most likely to report that "it depends on God". This fatalism has been noted in many studies, particularly in focus groups in which participants are aware of modes of transmission and prevention and yet continue to engage in risky sexual practices (Fapohunda and Rutenberg, 1999; Obbo, 1993a). The expression "after all you have to die of something" has been cited as a common justification for high-risk behaviour (Cohen and Trussell, 1996).

The mismatch between knowledge and behaviour has been noted not only in Africa but also in studies in the United States where homosexual acts are more common. Klepinger et al. (1993) in a nationally representative sample of United States men aged 20-39, used descriptive analyses to study perceptions of AIDS risk and risk-related behaviour. Their findings negate the expected relationship between knowledge and actual behaviour. The study found that male perceptions of the disease's severity seemed to have little influence on their sexual behaviour, with no clear association between men's knowledge of AIDS and their recent number of sex acts, their condom use or their participation in anal or casual sex. In addition, the men's perceptions of the general risk of HIV transmission also appeared to have little effect on their concerns about AIDS.

Although a large number of respondents in sub-Saharan countries tend to believe in casual modes of transmission such as by "the wind" or "by eating chicken" (Messersmith *et al.*, 1994), the discrepancies between risk perceptions and behaviour in Lusaka, Zambia, could not be explained by inaccurate belief in modes of transmission (Ingham, 1995). Multivariate analyses of the WHO/GPA survey showed that education was the strongest predictor of accurate knowledge about modes of transmission. Belief in incorrect modes of transmission was associated with higher perceived risk only among men in Lusaka, Zambia and women in Côte d'Ivoire. This finding might partially explain why women in Côte d'Ivoire who were apparently not at risk perceived themselves to be at risk but it does not explain why men in Lusaka who reported high-risk behaviour felt safe. Perhaps they thought their behaviour, which was risky, was safe.

It is expected that knowledge about disease prevalence in the community or the social proximity of knowing someone with AIDS is likely to translate into corresponding levels of

self-perceived risk and adoption of preventive behaviour. However, studies show that knowledge about the disease in the community does not always lead to high perception of risk or sexual behavioural change. A large proportion of respondents in most countries of the WHO/GPA surveys spontaneously mentioned AIDS as a major health threat to both the world and their nations. Some thought the problem was not serious in their communities. In Guinea-Bissau, high proportions said AIDS was a national threat, but only around one in ten thought it an immediate threat to their community (Cleland, 1995). Surprisingly, respondents from some heavily afflicted areas such as Tanzania and Lusaka, Zambia, though very much aware of the threat of AIDS to their community, saw AIDS as a medium-term rather than a current concern. These results suggest that individuals perceived AIDS as a distant threat rather than immediate, perhaps because the problem of AIDS had not assumed high proportions at the time.

The aspect of awareness or familiarity with the disease may propel some people to have higher levels of risk perception than others. However, the distinction between knowing personally and knowing through the media is not often made. People's reports of knowing someone sick from or dead of AIDS may be related to what they have heard or seen through the media and such knowledge can lead individuals to distorted levels of perceived risk as a result of simply hearing or seeing of an AIDS-infected person through the radio, posters, or films. For example, inconsistent findings were noted in the analysis of Mauritius WHO/GPA data in which 93% of respondents indicated that they knew a sick or dead person and yet there were only five reported AIDS cases at the time (Ingham, 1995).

Some researchers report that asymptomatic transmission of HIV is not common in local concepts of disease (Hogsborg and Aaby, 1992; Irwin *et al.,* 1991). A study of AIDS knowledge in Zimbabwe revealed that while all men and women had heard of AIDS, 15% of men and 26% of women did not believe that a healthy-looking person can carry the AIDS virus (Central Statistical Office, Zimbabwe and Macro International Inc., 1994). In contrast, analysis of the WHO/GPA data showed high levels of awareness of asymptomatic transmission among respondents from various African countries (Cleland, 1995). Cohen and Trussell (1996) suggest that this could have arisen due to differences in the way the questions were asked.[3] Perhaps the differences in the knowledge of asymptomatic transmission are also due to the timing of the studies. People's knowledge could have improved with more

[3] Cohen and Trussell (1996:138) note that the WHO/GPA surveys asked "whether someone who has the AIDS virus but looks healthy can transmit the virus to others", whereas for discovering determinants of behaviour, a more accurate picture might be given by a question such as "Can you get AIDS from someone who looks healthy?"

public awareness and sensitisation campaigns. Incorrect beliefs about transmission can have serious repercussions in that they can lead people either to obsessive carefulness that makes them over-estimate their risk, or to fatalism in which change in behaviour is seen as futile (Ingham, 1995; Ingham and Van Zessen, 1992a).

The notion that AIDS is a disease that afflicts people considered as "high-risk" groups can also influence people's perceptions and behaviour. For a long time, AIDS was associated with homosexuals, drug users, prostitutes, truck drivers, and tourists, and other groups of people discounted their own risk because they did not identify with the groups considered to be at high risk of HIV infection (Kenya *et al.,* 1998; Okeyo *et al.,* 1998; Cohen and Trussell, 1996; Temoshok *et al.,* 1988). Although not based in Africa, multivariate analysis of factors associated with men's perceptions of AIDS risk in the United States (Prohaska *et al.,* 1990) found that membership of a demographic category of individuals at high risk for AIDS did not heighten the respondent's perceptions of risk. Moreover, being in a low-risk category was not associated with lower perceptions of risk.

There is a dearth of literature on the relationship between emotions and perceptions of risk in Africa. However, there is much literature on the same in developed countries, particularly in the United States, which suggests that the more threatening an event, the greater the likelihood that it will trigger an emotional reaction that intensifies one's sense of being at risk (Prohaska *et al.,* 1990). Health conditions like AIDS or events that generate great fear receive public and personal attention proportionate to their contribution to morbidity and death (Jenike, 1987; Conrad, 1986). Intensive media coverage of AIDS as a threat to the general population may increase people's perception of risk even though some people might be at low risk of the disease (Cleary *et al.,* 1986; Heimer, 1988). Popular images of threats that are portrayed prominently in the news and on television typically become more salient to people than events that receive less targeted attention (Stallings, 1990). As a result, dramatic events that receive extensive coverage may seem more risky than common hazards that are in fact more threatening (Short, 1984). For example, some people could fear travelling by air as an accident will be fatal, yet might continue to smoke lots of cigarettes.

People's assessment of risk may also depend upon how much they trust the accuracy of the information (Stallings, 1990). Thus media exposure and accuracy are weighted independently and may exert unexpected effects on perception of personal risk. Prohaska and others (1990) found that increased exposure to the media and greater belief in the accuracy of the media as a source of information about AIDS did not affect people's perception of risk, either

positively or negatively. Similarly, knowing the facts about HIV/AIDS transmission did not influence people's perceptions of risk. This is not surprising given that ultimately risky behaviour, rather than lack of knowledge alone, results in HIV transmission.

Interpretation of physical illness may be subject to social mores and norms and perception of risk may be derived from belief systems that justify and reinforce socially sanctioned behaviour. Thus illness is sometimes interpreted as a form of punitive justice (Williams, 1986). Some people believe that contracting AIDS is a punishment for what they define as immoral behaviour and people who develop AIDS are stigmatised heavily (Nzioka, 1996; Sontag, 1988). Therefore, people tend to avoid admitting that they are at risk of an event associated with shame or deviation from the moral code. Stigmatisation can make people to spread AIDS knowingly.

In Rakai, Uganda, Konde-Lule (1993) found that AIDS patients were little stigmatised except by adolescents, who thought that since the means of transmission were known, people living with HIV/AIDS (PLWHAs) had only themselves to blame. Unsympathetic attitudes have been noted in other countries. In Kinshasa, Zaire, factory workers stated that anyone known to be HIV-positive would be shunned by his or her neighbours (Irwin *et al.,* 1991), while respondents in Central African Republic thought AIDS patients deserved no care, and nearly one in five flatly said they should be killed (Ingham, 1995). Similar sentiments were found in Ghana (Anarfi, 1993) and in Tanzania (Kaijage, 1994). However, variations in attitudes have also been noted within countries having wide regional differentials in AIDS prevalence. Kaijage, (1994) found that stigmatisation of PLWHAs was far worse in Arusha than it was in Kagera perhaps because the disease was not so prevalent in Arusha and lots of myths still surrounded it.

When HIV/AIDS first was reported in Kenya, some communities, such as the Luo in Nyanza Kenya were stigmatised by the rest who considered AIDS to be a Luo thing (Kenya et al., 1998). Stigmatisation has been noted in study findings elsewhere in the world (Abrams *et al.,* 1990; Memon, 1991), suggesting that despite being generally aware of the fatality of HIV, people often see the potential threat to others and not their own risk. The Luo ethnic group is known for the traditional practice of widow inheritance and sexual cleansing, which has been difficult to change. This is considered a significant agent of HIV transmission in the community.

Previous research in Kenya and elsewhere has demonstrated the majority of people consider AIDS as a serious threat to others but perceive themselves to be at low or no risk: a fact that is now known as personal sense of AIDS invulnerability (Nzioka, 2001; 2001; 1996; Ingham and Holmes, 1991; Abrams *et al.*, 1990). Using in-depth interviews to examine lay perceptions of risk of HIV infection in one community in Kenya, Nzioka (1996:576) found that people constructed risk in different ways, "which were socially meaningful but, which neither limit the spread of the virus nor offer security to the individual from the virus." The author concluded that health educators need to understand local discourses and practices related to safe sex first, before making prescriptions to people that assume that decisions are personal and rational.

2.6 Sexual Behavioural AIDS Risk Factors

2.6.1 Sexual Initiation and Premarital Sex

Conditions surrounding sexual initiation are important in shaping subsequent sexual attitudes and behaviour, and long-term reproductive and health outcomes. Early age at sexual debut is associated with a long period of risk exposure, a higher propensity to accumulate sexual partners, and increased chances of contracting sexually transmitted diseases, including HIV/AIDS unless the first intercourse is also the start of a mutually monogamous relationship (Konings *et al.*, 1994; Dixon-Mueller and Wasserheit, 1990). Various reasons are advanced for early age at sexual intercourse. In most of sub-Saharan cultures, marriage is considered a proxy for the onset of sexual activity and premarital sex is considered synonymous with the influence of modernisation and westernisation (Cohen and Trussell, 1996). Increased urbanisation and greater emphasis on formal education, particularly for women, has led to an increase in the age at first marriage for women, thus leaving women with longer periods spent in an unmarried life. Formal education is also associated with the erosion of traditional supports for virginity at marriage.

The pressure to prove fertility before marriage in some African cultures is also associated with early sexual initiation and increased premarital sex (Nzioka, 2001; Hulton *et al.*, 2000; Standing and Kisekka, 1989). The wide age differences at marriage between male and female partners coupled with the decline in polygyny in most of sub-Sahara Africa means that there is an increase of available women of marriageable age relative to potential husbands in older cohorts, thus reinforcing competition for husbands and pressures to prove fertility. Small-scale studies in Nigeria have shown that virginity is no longer upheld and could even be disapproved of (Orubuloye *et al.*, 1992). The parents' social support to help care for offspring of unmarried teenage daughters may also influence premarital sex.

The age at onset of sexual intercourse varies across countries and cultures. The WHO/GPA studies (Caraël, 1995) found that rates of sexual activity converged dramatically for men and women in some countries whereas in others, the rates were very disparate. In some countries of West Africa: Cotê d'Ivoire and the Central African Republic, for example, sexual initiation tends to occur relatively early with 45% to 60% of both sexes being sexually active by the age of 15 years. In East and Southern Africa, sexual activity started slightly later, with a wider gap between the sexes in some countries. In Zambia, for example, 24% of women and 43% of men were already sexually active by age 15 years and in Kenya the same figures were 29% of men and 24% of women.

Early age at first sex is associated with increased HIV risk attributed to the culture of sexual experimentation prevalent among young people and their physiological and emotional immaturity at young ages. Studies have noted that young women tend to have first partners who are older and more sexually experienced than them, whereas men have first partners slightly younger or considerably older. Studies in Kenya indicate that young women aged between 15-24 years are two to three times more likely to be infected with HIV than males in the same age group, a trend attributed to differences in ages between sexual partners (Baltazar *et al.*, 1999; Okeyo *et al.*, 1998).

2.6.2 Extramarital Sex

Extra-marital sexual relations without consistent use of condoms are considered a high risk factor for HIV infection. It is often difficult to define casual and stable relationships. Partners' perceptions of extramarital sex may be very divergent. Whereas one partner may define an outside relationship to be an extramarital affair, the other might see it as a stable union with some emotional significance. Though extramarital sex is not explicitly socially sanctioned, it is implied and generally acceptable in some communities in Africa and so distinguishing between marital and extramarital relations can be problematic. In many instances, extramarital sex is condoned for men, but not for women. Caraël (1995) observed clear evidence of multiple concurrent partnerships in Africa from the analysis of the WHO/GPA data. Meekers and Calvès (1997) suggest that among young men in Africa, having multiple partners is common because of the social prestige accruing from such behaviour. There is usually a main girlfriend whom they expect to marry and others for sexual fun. The authors stated that this continues into marriage where men maintain casual relationships alongside their marital partners. Similar findings have been noted in small-scale studies in Kenya (Nzioka, 2001).

Studies have noted a number of causes of extramarital sex in Africa. Post-partum abstinence is considered a strong motivator for men to seek sex outside marriage. Long periods of postpartum abstinence occur following the birth of a child and terminal abstinence following the birth of a grandchild (sometimes referred to as "the grandmother" effect (Ali and Cleland, 2001; Madise and Diamond, 1993; Ocholla-Ayayo and Schwartz, 1991). Men may have sex with other women when their regular partners are observing post-partum abstinence. Unprotected sex with extramarital partners increases the chances of couples getting infected with HIV or other classical STDS. Using the 1994 DHS data of monogamous men in Cotê d'Ivoire, Ali and Cleland (2001) observed a significant effect of postnatal abstinence on the probability of husbands reporting at least one extramarital partner. Net of the effects of urban-rural residence, education and religion, unprotected extramarital sex was twice as common among married men who were observing postnatal abstinence than it was among other men. Cleland et al., (1999) observed similar findings from the analysis of the 1996 Benin DHS data. The authors concluded that because condom use is low in Côte d'Ivoire, spouses were at increased risk of HIV infection from the husband's extramarital relations during the postpartum period.

Couples may also abstain at other times, such as during a woman's menstrual period, in times of mourning, during the first planting and harvesting. Abstinence would reduce the risk of getting an HIV infection only if both partners remain monogamously faithful. Brockerhoff and Biddlecom, (1999) using the 1993 data observed that long separations occasioned by labour migration influenced couples to engage in extramarital relations.

Most literature assumes that extramarital sex for women has economic underpinnings, with women accepting material support, gifts, or money from their lovers. For example, Awusabo-Asare et al. (1993:71) allude that "African women do not trust their boyfriends and believe that several are needed as a financial insurance". Although this may often be true, it is not always the case. Orubuloye *et al.,* (1991) in a small-scale study in Nigeria found that two thirds of rural women justified their extramarital affairs on the basis of economic security, yet half of urban women who had extramarital affairs said they did so just for fun. Even among market traders, a group often thought highly likely to supplement their income through sexual relations, nearly one-quarter said they had sex outside marriage just for pleasure (Omorodion, 1993; Orubuloye, 1992).

Revenge by the offended partner may also encourage extramarital sex. In-depth interviews in Uganda (Obbo, 1993a) suggested that the most common reaction by men to their errant wives was to avenge themselves by sleeping with the wife of the offending men.

Guyer (1994) proposed that extramarital sex might be used as a way to accumulate resources. The author maintained that easily dissolved marriages and increasingly common informal unions might be insufficient to ensure support for women, who in turn use childbearing as a survival strategy. Because men in most of sub-Saharan Africa are happy to claim paternity, and extended families are happy to absorb additional members, bearing a child may give a woman a stake in a man's family resources, regardless of whether she has married into the family or not. Thus, bearing several children to different men will potentially allow the woman a claim to the resources of several families. Where conception and childbirth are the prime goal of a union, then the prognosis for condom use as an AIDS prevention device is almost none and the likelihood of self-perceived risk is minimal.

Because beliefs are important in behaviour change, a study by Lindan et al. (1991) found that in Rwanda, nearly nine out of 10 women said they believed most married men are unfaithful, and 44% of men said they believed most married women are too. Such types of beliefs can influence people's sexual behaviour. According to the WHO/GPA findings, Lesotho, with low organised polygyny and high rates of migrant labour, had over half of men and two in five women reporting more than one current regular partner. In Lusaka, Zambia, twice as many men as women had two stable relationships (Caraël, 1995).

2.6.3 Casual and Commercial Sex

Commercial sex is generally defined as any sex in which money, gifts or favours are exchanged in partnerships and excludes relationships in which exchange is not the prime motive or reason for sex (Caraël, 1995). Casual sex as used in the KDHS denotes sex with an irregular and non-commercial partner. However, it is often problematic trying to distinguish between casual, commercial, and extramarital sex in different cultural contexts in sub-Saharan Africa (Cleland *et al.,* 1992). In Kenya, commercial sex may have a very different meaning from that in the Western context, and may differ across ethnic groups. Commercial relationships are often complex, can last for longer periods, and may become established in which the "client-provider" nature of the relationship diminishes. A client, for example, may visit a commercial sex worker regularly and ceases to think of it as commercial sex. Similarly, casual sex could also involve exchange of money, gifts or favours. Material and monetary favours are almost an implied element of most sexual relationships in Kenya.

Therefore, paying or receiving money, gifts or favours for sex is not necessarily considered commercial sex.

Having multiple sexual partners has often been cited as a major source of HIV transmission. The WHO/GPA surveys show a strong aggregate correlation between men reporting casual sex in the last year and men reporting more than one regular partner (Caraël, 1995). This may suggest two things: either men have many concurrent regular partnerships or, they reported what would otherwise be termed as casual partners to be regular partners, raising the issue of how people define regular and non-regular partners. Men could have interpreted some casual partners as regular simply because they had long term but intermittent relationships, suggesting that where overall levels of sexual activity are high women in stable relations will still be at increased risk for HIV. There was even a stronger correlation between men reporting casual sex and men not cohabiting with their regular partner (43% in Cotê d'Ivoire and 41% in Tanzania). Not surprisingly, men reporting more than five casual partners in the last month were disproportionately likely to live in countries with generally high levels of sex outside regular partnerships. However, there was no apparent correlation between levels of commercial sex reported and the proportion of men with five or more casual partners. As already noted, this is not surprising given the difficulty of distinguishing between the various types of sexual partnerships that exist in sub-Saharan Africa.

A number of studies in sub-Saharan Africa and the rest of the world suggest that women tend to report less than half of male levels of non-regular sexual activity (FHI, 1999; Reid, 1999. A community study in Ghana (Anarfi, 1993) noted that two fifths of women and a slightly higher proportion of men reported that their most recent partner was not their spouse, suggesting that the majority of women who may be in monogamous unions could be at HIV risk from the behaviour of their male partners. Similarly, a recent study in Zambia examining national trends in AIDS knowledge and sexual behaviour in two rounds of surveys found that overall, few women reported sexual activity with non-regular partners during the last year: about 2% of the women as compared with 15% of men reported having two or more partners during the last year (Banda *et al.*, 1999).

Commercial sex workers are often assumed to be women and yet there is evidence to suggest that there is profusion of male sex workers. For example, in the WHO/GPA surveys, the incidence of commercial sex during the past year ranged from 3% of all men in Burundi to 25% of all men in Tanzania and from 0.2% of all women in Burundi and Togo to 11% of all women in Tanzania (Caraël, 1995). Many authors suggest that economic hardships,

particularly occasioned by structural adjustment programmes, have increased the need for and incidence of transactional sex (Caldwell *et al.,* 1993; Larson, 1989). The spectrum of women engaging in transactional sex is broad, yet commercial sex workers are often portrayed as helpless victims of extreme poverty and family breakdown. Pickering et al. (1992) in a prospective study of prostitutes and their clients in the Gambia found that many women were from well-off families and their work appeared to be out of choice. Another small-scale study by Pickering and Wilkins (1993) also refuted the assumption that many widowed, divorced, or separated women, deprived of their partners support, are obliged to turn to sex as a means of livelihood. Using income and expenditure diaries, formerly married women were shown to generate two thirds of their income by providing services such as laundry and cooking. However, the levels of syphilis among the formerly married women were found to be nearly identical to those among currently married women, perhaps suggesting high transactional sex between formerly married women and married men who in turn infected their wives.

2.7 Condoms and AIDS Risk

Awareness of condoms, accessibility, cost of condoms, attitudes and misconceptions all influence condom use. The general awareness of condoms and their dual role varies widely across nations, sub-groups and between sexes. In the WHO/GPA surveys, more men than women knew of condoms in every country of study, and this remained true even after controlling for media exposure, education and residence. However, the majority could not state where they could be obtained (Mehryar, 1995) and knowing that HIV is transmitted sexually and self-perceived risk of infection were not associated with condom use. A consistently higher proportion of women than men reporting commercial sex said they never used a condom. Perhaps this suggests that other factors rather than knowledge alone, influence people's behaviour. Some surveys have found that people's reported knowledge of condoms depends on the context of the questioning. Messermith et al. (1994) in a study of sexual behaviour and condom use in Ife-Ife, Nigeria, found that condoms were known as a means of family planning by more people of both sexes than as a means of protecting against STD transmission, although more actually used condoms for the latter purpose.

Studies in sub-Saharan Africa depict low condom use, linked to negative attitudes. A qualitative study of men's participation in reproductive health in one district in Western Kenya (Fapohunda and Rutenberg, 1999) found high awareness of family planning methods, but with generalised stigmatisation of condoms by both men and women. The study also noted a lack of information and many misunderstandings regarding contraceptive methods in

general, and condoms in particular. Condoms were said to reduce pleasure and therefore many partners preferred *"flesh to flesh"* sexual intercourse and they argued that *"sex with a condom is like eating a banana with peels"* or *"a sweet with wrappers"*. The study noted a higher prevalence of negative attitudes in rural than in urban areas.

Use of condoms throughout sub-Saharan Africa is still low. Studies in sub-Saharan Africa consistently show that more men report using condoms with their partners than do women, perhaps because women are passive users. In a national survey in Zambia Banda *et al.* 1999 found about one fifth of women as compared with one third of men reported to have ever used condoms with their partners. Findings in Kenya (NCPD, CBS & MI, 1999) and Tanzania (Rutenberg *et al.*, 1994) have noted similar differentials in condom use between women and men.

The consistent use of condoms in risky sexual encounters is likely to reduce the risk of HIV infection, yet studies have noted that people do not always use condoms. Pickering et al. (1992) noted the inconsistent use of condoms in the Gambia among part-time sex workers to whom condoms were freely distributed. In urban areas, women reported using condoms with four clients out of five but condom use dropped as the number of clients per woman rose. The drop was even further pronounced at peak periods such as holidays, when women reported over 11 clients per night, and condom use dropped below 50%. The risk of unprotected sex in commercial partnerships has already been noted and so these results signify adverse implications in the spread of HIV/AIDS.

Messersmith et al. (1994) using data from Ife-Ife, Nigeria conducted multivariate analysis and found a negative association between condom use and age. They also showed a linear rise in condom use with the number of lifetime partners and positive associations with knowledge of AIDS and a history of STDs. The author also found that men with five or more partners were far more likely to know that condoms could prevent STD transmission than men with fewer partners. The number of partners was not a significant predictor of that knowledge among women. Knowledge about AIDS was associated with increased condom use. For both sexes, there was strong correlation between those who had heard of AIDS and those who knew that condoms could prevent the spread of STDs. Likewise, Rutenberg et al.(1994) using the DHS data for Tanzania showed that although condom use was rare, it was concentrated among those with multiple sex partners.

Similarly, a control study among prostitutes living in an impoverished area of Nairobi, Kenya (International Family Planning Perspectives, 1989) found that women who had been exposed to counselling on prevention of STDs and HIV/AIDS were more likely to use condoms with their clients than their counterparts in the control group. The counselled clients were also more likely to have proposed that their clients used a condom and to have provided the device themselves. However, condom use also rose among the controls. The researchers concluded that "the spill over" effect from informal contacts among all women might have resulted in an increase in condom use among the controls, suggesting that public education could have an important effect on sexual behaviour change.

On the contrary, other studies show that if a person knows of AIDS, knows that AIDS is sexually transmitted, and knows that condoms can protect against STDs, it does not seem to follow that the person will also believe that condoms can protect against HIV. It appears people see HIV/AIDS as something different from other STDs. In focus groups in Uganda and Zaire respectively, people frequently dismissed the idea that a condom could protect against a disease as deadly as AIDS (Konde-Lule, 1993; Irwin *et al.,* 1991). A similar view was reported to be common even among bar girls in Nigeria (Orubuloye *et al.,* 1991). These perceptions tend to suggest that people hold the belief that the enormity of AIDS cannot be simply counteracted by only condoms.

In sub-Saharan Africa, the context of condom use is generally in casual or extramarital relationships and men and women alike report they should not be used within marriage or stable relationships (Fapohunda and Rutenberg, 1999; Bond and Dover, 1997). Condom use in regular partnerships is usually for pregnancy prevention and not disease prevention. Studies have documented that both women and men in stable relations trust their partners and may even worry if a partner used a condom, alleging that use of a condom connotes mistrust or infidelity. Likewise, partners in non-regular relationships that last for some time usually abandon condom use once trust is established. Condoms are generally associated with prostitutes and promiscuity, particularly among the young, perceived as tools for immorality and associated with illicit sexual activities (Bond and Dover, 1997; Preston-Whyte, 1994; Hogsborg and Aaby, 1992; Irwin *et al.,* 1991). In Uganda, Konde-Lule (1993) reported that some bar girls did not like to suggest condom use for fear of being branded prostitutes.

Cohen and Trussell (1996:145) state "in strongly pronatalist societies, the fact that condoms prevent conception may weigh heavily against their use to prevent transmission of STDs and HIV/AIDS. Thus, the social stress on fertility and the consequent quest for pregnancy can be

important in determining women's propensity to disregard condoms. In areas of high STI and HIV prevalence, women may have to choose between not using condoms and exposing themselves to STDs (including HIV) or using condoms and foregoing the pregnancy (Preston-Whyte, 1994; O'Toole, 1993).

Another common belief is that condoms reduce sexual pleasure. Interruption of spontaneity, especially in repeated ejaculation within one sexual contact, and the problem of disposal also contribute to distaste for condom use (Nzioka, 2001; Preston-Whyte, 1994; Konde-Lule, 1993). The high failure rate and concerns over the safety of the condom are other factors associated with their non-use (Konde-Lule, 1993, Hogsborg and Aaby, 1992; Lindan *et al.,* 1991; Irwin *et al.,* 1991). Fears, myths and rumours that condoms can "disappear into the womb" are rampant.

Other misconceptions are that condoms are porous and are laced with HIV (Fapohunda and Rutenberg, 1999; FHI, 1999). Orubuloye *et al.*, (1991:71) report that in Ekiti in Nigeria, "many believe they (condoms) are as dangerous as AIDS." Generally, misconceptions about condoms are likely to influence their use.

Cost is often considered a barrier to regular condom use and therefore condoms are only useful if they are within people's means. In the WHO/GPA surveys, two-fifths of men who had ever used condoms in Cotê d'Ivoire considered them too expensive. In most study areas, female users were slightly more likely than men to consider regular use to be inhibited by the cost of condoms; this may reflect women's relatively lower economic power (Mehryar, 1995). However, some studies in Rakai, Uganda have shown little effect of availability and affordability of condoms on its use (Konde-Lule, 1993).

2.8 Sexually Transmitted Diseases (STDs) as Co-Factors of HIV Infection

The 1994 International Conference on Population and Development (ICPD) held in Cairo emphasised the integration of the provision of family planning and STI services. Studies have suggested a strong relationship between classical STDs (syphilis, gonorrhoea, chlamydia, chancroid, trichomoniasis and herpes simplex) and HIV although this association seems to be poorly understood (Wasserheit, 1992). The strong bond arises from the mode of transmission and behavioural risk factors shared by HIV and the other STDs. Ulcerative STDs, in particular, are said to provide an enabling environment for HIV transmission (Kreiss *et al.,* 1989). The presence of genital ulcers causes epithelial reduction and may render uninfected sexual partners more susceptible to HIV infection. In a prospective study among males and

their clients in Kenya, Cameron et al. (1994) noted a high incidence of HIV infection among men who developed genital ulcer disease after contact with a commercial sex worker. Among the same sample of seropositive female commercial sex workers, HIV was detected by culture from 4 of 36 ulcers (11%). And in another study among prostitutes in Kenya, genital ulcer disease was independently associated with HIV infection (Simonsen *et al.,* 1990).

The case for non-ulcerative STDs as risk factors for HIV transmission or acquisition is not well documented. A prospective study of female prostitutes in Kinshasa, Zaire, showed that gonorrhoea, chlamydia, and trichomoniasis during the presumed period of exposure were all significantly associated with HIV sero-conversion, even after controlling for sexual exposure in terms of the number of sexual contacts and frequency of condom use (Laga *et al.,* 1993). Based on data from an observational study, Laga et al. (1994) reported lower HIV incidence among those sex workers who regularly attended clinical services for STD diagnosis and treatment as compared with workers who received STD services irregularly, after adjustment for condom use. Similarly, a randomised community-based intervention trial in Mwanza, Tanzania, indicated significantly lower HIV incidence among adults residing in communities that received improved STD management, as compared with control communities (Grosskurth *et al.,* 1995).

Available information suggests that STI prevalence rates are very high in many African settings. Serological evidence of the prevalence of syphilis ranging from 11% to 21% has been documented among women attending prenatal clinics in a number of sub-Saharan countries. In a study of pregnant women in Uganda, Nsubuga et al. (1994) found a prevalence of 42% for trichomoniasis, 10% for syphilis, and 7% for chlamydia.

Lindan et al. (1991) report that HIV infection among women with a history of STDs in the previous 5 years is twice as high as among women with no STD history. The WHO/GPA surveys show a strong correlation between reported risk behaviour and venereal infections. In many nations, those reporting STD symptoms are two to three times as likely to report casual sex as those unaffected. This correlation is stronger with increased number of partners and strongest with a history of respondents with five or more lifetime partners and previous contact with a prostitute as compared with those having a single lifetime non-commercial partner (Ferry, 1995).

Treatment of both partners is considered crucial in limiting the effects of STDs as co-factors for HIV transmission. Often, partner communication about STDs is almost non-existent. A quantitative study in Nyanza region, Kenya showed that over two thirds of respondents

reporting STD symptoms of discharge and painful urination continued sexual relations without protecting their partners (Futures Group Europe, 2000).

Most STD sufferers may seek treatment in hospitals or with private doctors, but use of traditional healers and self-medication is also common. Sometimes the fear of stigmatisation and shame prevents many STD sufferers from seeking treatment (Nzioka, 2001; Fapohunda and Rutenberg, 1999). Cohen and Trussell (1996) state that young single adults may also refrain from seeking treatment for fear of jeopardising their chances of marriage. The high cost of treatment, lack of available services and the attitude of the staff toward the client may also be further reasons deterring people from attending STD clinics. Besides, a number of STDs are known to cause infertility. Barrenness in most African societies is considered a curse and this may drive women to towns and to commercial sex work (Varle, 1998). Where barrenness is a product of chronic or untreated STDs, the implications for HIV transmission are high.

The association with HIV is generally stronger for ulcerative than non-ulcerative STDs, though the latter are more prevalent in Africa. Attributable risk of HIV infection due to STDs may be greater as a result of ulcerative than non-ulcerative STDs (Wasserheit, 1992; Piot and Laga, 1989). While the prevalence of untreated STDs may have been significant in the rapid spread of HIV in Africa, the underlying differences in STD rates found in many African settings may play a role in the unequal spread of HIV on the continent.

Although findings have consistently argued that STDs facilitate HIV transmission, Cohen and Trussell (1996:87) suggest that "interpretation of the findings is difficult because of confounding variables". The authors add that "classical STDs may be markers of sexual activity and not causal risk factors and accurately controlling for the sexual activity of the patient and his/her partner(s) is frequently not possible" (Wasserheit, 1992; Pepin *et al.,* 1989). Besides, other authors have hinted that the findings may be affected by potential mis-reporting of partner information, problems in determining the time sequence of the infections, the variable delay in HIV seroconversion following infection, and the inability to assess accurately the STD status of the partner(s) of the index case (Mertens *et al.,* 1990; Piot and Laga, 1989; Pepin *et al.,* 1989). Whatever the case, it is clear that in communities with high prevalence of STDs, treatment, management and control of STDs is central to the reduction of HIV infections.

Some studies in SSA suggest that HIV infection is more prevalent in areas where male circumcision is not practised than in areas where men are circumcised (Moses *et al*, 1990; Bongaarts *et al*, 1989). However, some of these studies are limited because of no allowance for possible differences in sexual behaviour and other STDs, and in differences in the onset of the disease. Studies that have allowed for these differences present varying results. Recent studies suggest a highly significant protective effect of male circumcision in populations at high risk for HIV and STDs (Weiss *et al*, 2000). Ethnic differences in circumcising habits exist in Kenya and, HIV prevalence rates seem to be higher among groups that do not circumcise than among groups that do so. A meta-analysis of the UNAIDS sponsored study in four cities in Africa by Auvert *et al* (2001) found a strong protective effect of male circumcision in Kisumu, Kenya, a city where circumcision is not traditionally practised by the main ethnic group, the Luo. The strong effect persisted even after allowing for possible confounding factors in socio-demographic, sexual behaviour and STD differences. In addition, bivariate analysis showed that men who were circumcised before sexual initiation had a lower HIV prevalence than men who were circumcised after sexual initiation. Similarly, the prevalence of syphilis was significantly lower in circumcised men than in uncircumcised men in Kisumu. In Ndola, Zambia, circumcision showed a protective effect, although it was not statistically significant. The authors concluded that protective effect of circumcision against HIV infection lies in its protective effect against other STDs, in particular ulcerative STDs and the decreased likelihood of abrasions in the absence of a foreskin.

The UNAIDS meta-analysis also found differences in sexual behaviour between the four cities but the differences in sexual behaviour could not in themselves explain the differences in the rate of spread of HIV (Ferry *et al.*, 2001). For example, the rate of partner change was higher in Yaounde, one of the low HIV prevalence cities, than in Kisumu and Ndola, cities with high HIV prevalence rates. The authors concluded that the differences in the spread of HIV were due to differences in probability of transmission of HIV during sexual intercourse, and a lack of circumcision was considered one of the factors enhancing HIV transmission in high HIV prevalence cities of Kisumu and Ndola.

2.9 Socio-cultural Beliefs and Practices and AIDS Risk

2.9.1 Levirate Marriage (Widow Inheritance)

Practices of widow inheritance or the passing on of wives to the brothers or family members of dead husbands are common in some sub-Saharan African societies (Ocholla-Ayayo, 1997; 1976; Standing and Kisekka, 1989). Other societies such as the Maasai of Kenya are known

to share wives among people of the same traditional age set. Lesthaeghe (1989) reports that in some Kenyan patrilineal communities, such as the Maasai, Nandi, Kisii and Meru, widow inheritance used to be the rule, and widows had limited rights of appeal, but adds that nowadays widows have more choice in the matter. The widows have a choice of who inherits them and whether they remarry at all. Widow inheritance is also a common phenomenon among the Luo and Luhya of Western Kenya (Kenya *et al.,* 1998; Ocholla-Ayayo and Schwarz, 1991). According to the Luo, upon the death of a spouse, a widow has to be ritually cleansed and inherited or remarried. The ritual usually involves the widow having sexual intercourse with a male relative of the deceased. In some instances, the cleansing is also performed to a dead woman before burial. Cleansing is performed irrespective of the cause of death. Widow inheritance is considered a significant agent of HIV transmission, and in situations where such practices are inherent and considered culturally significant, perceptions of risks of HIV infection and risk-reduction strategies may be compromised.

2.9.2 Beliefs and Practices Associated with Sex

A widely held view in SSA is that men have an insatiable need for sex and that sex is necessary for good health (Anarfi, 1993). Many people frequently express the belief that retained semen is somehow poisonous and dangerous to men's health and this is used as an excuse for men's errant sexual behaviour. Some African cultures hold that frequent sex is healthy and strengthening and sometimes the ability to achieve multiple orgasms during a sexual act is used to measure men's health status. This may have precipitated the notion among some researchers that Africans are notoriously promiscuous (Caldwell *et al.,* 1989). Studies have indicated that rape is sometimes justified and condoned because men are "forced by nature" to release their sexual tensions (Vos, 1994). Some studies, however, have reported contradictory findings that associate frequent sexual intercourse for men with weakness that requires restorative efforts (Aziz *et al.,* 1985 cited in Dixon-Mueller, 1996), even though the same men consider intercourse important for maintaining overall health. Whatever the case, beliefs that condone sexual freedom are obvious agents for the transmission of STDs including HIV/AIDS, not only for men but for their partners as well. Similarly, such beliefs might make people disregard their risk of HIV/AIDS and to engage in risky sexual behaviour.

The belief that sex can cure venereal diseases, including AIDS, is prevalent in some African cultures and this can ultimately affect risk perceptions and the spread of the disease within and across communities (Awusabo-Asare *et al.,* 1993). Virgins or young girls are good targets for such practices. A Kenyan local newspaper (*The Daily Nation, Wednesday*

September 22, 1999), for example, reported the case of an orphaned virgin who was raped in an AIDS cleansing ritual, in which the rapist had been advised by a miracle healer that "rape a virgin and your health status will immediately transform from being HIV positive to HIV negative". The healer who equated AIDS with witchcraft drew a large following far and wide and "many infected men ... got a new hope in this new wave of healing..." (*The Daily Nation, Wednesday September 22, 1999*). Such beliefs enhance the spread of HIV infections and may influence people's levels of risk perception. During a health facility–based survey in Kenya, the author met an in-patient girl aged 8 years who had been raped by her uncle in the belief that he would get cured of his recurrent sexually transmitted infections[4].

The beliefs that frequent sex can diminish the viral load of the HIV-infected and that young girls were "safe" have also been reported in focus group discussions in Uganda. Adolescents reported that infected men bribed young girls for sex or raped them (Konde-Lule, 1993; Obbo, 1993b). Likewise, female traditional healers in Zimbabwe reported that their male counterparts encouraged men to have sex with young women (especially family members) to "cleanse them of HIV (Meursing et al. cited in Cohen and Trussell, 1996). HIV risk implication of these risky beliefs and practices is high.

Different communities have varying practices to enhance sexual pleasure. Sexual pleasure enhancing techniques or devices that are often intra-vaginally used can be physically damaging and may elevate one's risk of HIV infection. Some of these include the practice of "dry" sex (Dallabetta *et al.,* 1995). Dry sex is intended to decrease vaginal secretions. This practice is associated with an increased probability of HIV transmission. Cohen and Trussell (1996:133) state that "the insertion of powders, mineral infusions or crushed leaves or herbs into the vagina can lead to tearing, lesions, or inflammation in the vagina, increasing the likelihood of transmission of STDs and HIV". Dryness alone may lead to abrasive sex and lesions, with the same effect. Besides, dry sex may also interfere with condom effectiveness or acceptability of vaginal microbicides (associated with increased wetness) (Dallabetta *et al.,* 1995).

The practices of dry sex are common in many sub-Saharan African countries, including Nigeria, Zaire, Zambia, Malawi, Zimbabwe, South Africa, and Ghana (Sandala *et al.,* 1995; Standing and Kisekka, 1989). In a study in Ghana, school children of both sexes reported preference of dry and tight vagina, and most could describe drying agents (Standing and

[4] The father of the girl gave a full description of the symptoms presented by the rapist that actually fitted outcomes of opportunistic infections associated with AIDS.

Kisekka, 1989). The same was noted in focus groups with older women in Zimbabwe (Vos, 1994); and in Natal, South Africa, teenagers associated wetness with promiscuity (Preston-Whyte, 1994). In a community study in Zaire, men and women alike expressed a preference for dry sex (Brown *et al.,* 1993) and although most women said that it increased their sexual pleasure, some complained of inflammation and itching. Clinical examination showed that many of the methods had led to lesions or swellings in the vagina.

On the contrary, results of some studies have been inconclusive on the assumed effect of intravaginal agents on HIV transmission. For example, in Blantyre, Malawi, a study of women attending an antenatal clinic designed to assess the prevalence of dry sex practices and their association with HIV infection, found that 34% of the women had used an intravaginal agent for the treatment of discharge or itching, while 13% had used them for tightening the vagina. The study found no difference in HIV status among women who used the agents for tightening (Dallabetta *et al.,* 1995). Similarly, a study in Lusaka, Zambia (Sandalla et. al., 1995) found no evidence of a strong relationship between these practices and HIV infection.

2.10 Gender and AIDS Risk

Understanding how the socio-cultural context of gender roles shapes people's behaviour is important in AIDS interventions and programmes. There is extensive literature that suggests that community norms, beliefs and practices define sexual behaviour appropriate for men and women, which influence people's perceptions and risk-taking behaviour. Social norms that define what people do in every day life and what other people expect of them may define appropriate sexual behaviour for them, hence can influence people's attitudes and behaviour (Blanc, 2001).

Inequities in power may make women vulnerable to men's risky sexual behaviour and irresponsible decisions and at the same time jeopardise men's health. For many women traditional female gender roles limit their say in sexual matters and their ability to influence their partners' behaviour (Blanc, 2001; Blanc *et al.,* 1996; Gage and Njogu, 1994; Dixon-Mueller, 1993). Even in situations where men and women discuss reproductive issues, it is often not on equal terms. In most of sub-Saharan Africa women have little or no decision-making powers especially at the household level. All female functions are subsumed within their familial roles (wives, mothers, carers, producers, and processors (Gage and Njogu, 1994). This kind of identity does not usually change when women have higher education or

work in paid employment, since they see their family roles as a way of gaining identity. Unequal gender relationships in turn influence perceptions of HIV risk and sexual behaviour.

Traditional social and cultural factors often discourage married women and men from starting discussions about sexual and other reproductive issues (FHI, 1999; Seidel, 1993). In many societies sex is a taboo subject to discuss. Also, women and men may be afraid of rejection by a sex partner, especially at the beginning of a relationship and consequently, they may not introduce issues of sexual history or use of contraception (FHI, 1999; Fapohunda and Rutenberg, 1999).

Gender roles may predispose women to being silent about sex and other reproductive health concerns (Blanc *et al.,* 1996; Grady *et al.,* 1996; Van der Straten *et al.,* 1995). They may not be able to ask their partners to use condoms or to refuse sex, even when they know they risk getting pregnant or being infected with STIs, including HIV (Riley, 1997; Blanc, *et al.,* 1996; Worth, 1989). An analysis of Uganda's DHS data has found that one person in every four believes that a woman cannot refuse sex, even if she knows her partner has AIDS (Blanc *et al.,* 1996).

Women may submit to men because of fear of repercussions, such as being beaten, divorced, and threats by the man to marry another wife, or to turn to prostitutes and other women. Because traditional gender roles place them in subordinate positions many women resign to fate (Fapohunda and Rutenberg, 1999; Mbizvo and Bissett, 1996; Blanc *et al.,* 1996; Dixon-Mueller, 1993; UN, 1995). Men may feel there is nothing to discuss or no need to take into account their wives' feelings or opinions. In countries such as Kenya and Nigeria, traditional male dominance is a major obstacle to spousal communication about family planning (Omondi-Odhiambo, 1997; Isiugo-Abanihe, 1994). Also, a husband might consider his wife promiscuous or unfaithful if she tries to discuss contraception with him (Fort, 1989). Sometimes it is easier for unmarried women and prostitutes to negotiate sexual activity with men, including condom use, than for married women to do so with their husbands (Habema *et al.,* 1999).

Men's gender roles harm their own health as well as women's. Studies show that the mix of cultural norms, social expectations, and men's sex drive encourages men's risky sexual behaviour (FHI, 1999). In some Kenyan communities, it is acceptable for married men to have extramarital sex, either with girlfriends or prostitutes (Fapohunda and Rutenberg, 1999). Similarly, men are assumed to be promiscuous because of the concept of proving one's

masculinity. These behaviours can contribute to their contracting STIs and infecting their wives or girlfriends.

2.11 Socio-demographic Factors Associated with AIDS Risk

Studies have shown that individual characteristics such as age, education, residence, work status, migration status, ethnicity, marital status, and religion, are associated with people's sexual attitudes and practices. Some of these factors have been discussed in earlier sections on sexual behaviour (see sections 2.4 - 2.10)

The level of formal schooling, employment and economic status has been associated with AIDS risk. Employment is closely linked to earnings and is reflective of a person's level of education and wealth. Better-educated people are likely to be in a highly skilled job and thus likely to have disposable income. Education is associated with an increase in premarital sex in the teen years and more casual sex even when the effect of other variables is controlled (Caraël, 1995). However, Meekers (1994) found that the association almost disappears when age is held constant. Extra years of schooling are likely to delay marriage, and increase the exposure to premarital sex. It is likely that the effect of education is confounded by the effect of economic status, particularly for men, for whom education is like a resource gateway that can be used to access commercial or casual sex. Kivumbi (1993) cited in Cohen and Trussell (1996) found that in Rakai, Uganda, sero-positivity linearly rose with education and occupational status for both sexes, except for female bar and hotel workers.

Being unmarried is associated with high-risk sexual behaviour and heightened risk of HIV. Rutenberg *et al.* (1994) using DHS data, showed that in Tanzania, single women had the highest rate of partner change, followed by the formerly married. Among men, the two groups were almost the same. Lindan *et al.,* (1991) in a study of sexually active women in Kigali, Rwanda, found that 84% of women who lived alone felt at risk of HIV infection, as compared to just one-quarter of monogamously married women. The same fraction of monogamously married women turned out to be seropositive; a clear indication of women's vulnerability to risk from their partner's behaviour than from their own. The same pattern was found in Nairobi, Kenya and Rakai, Uganda (Hunter *et al.,* 1994; Serwadda *et al.,* 1992). In Nairobi, single women were found twice as likely and formerly married women three times as likely as married women to be HIV-positive (Hunter *et al.,* 1994). Cohen and Trussell (1996) suggest that the high rates among the formerly married are not surprising, given that in high-prevalence areas the formerly married may well be AIDS widows and

therefore at extremely high risk of exposure. They may also be divorced because they are suspected of being HIV-positive.

Urban areas are associated with more casual sex than rural areas, though some data suggest a strong correlation between urban and rural rates of casual sex across most countries (Caraël, 1995). Sexual behaviour in urban areas appears culturally linked to sexual behaviour in rural areas, and risky behaviour is present in both urban and rural areas. Orubuloye *et al.,* (1991) reported similar patterns of risky behaviour in rural and urban areas of Southwest Nigeria.

In Tanzania, Rutenberg *et al.* (1994) found that sexually experienced single men were more likely to have multiple partners if they lived in rural areas, but, perhaps because of lower levels of polygyny married men were more likely to have extramarital partners if they lived in urban areas. Anarfi (1993) reported earlier sex in urban than in rural areas of Ghana.

Large movements of people are evident in Africa due to differentials in income and social services and sub-regional variability in development. In addition, increasing urbanisation is associated with a lower proportion of customary marriages relative to consensual unions (Orubuloye *et al.,* 1991; Caldwell *et al.,* 1989). This is assumed to weaken the financial security of women and their children left at home. Because migrants are often young productive adult men, there is a high ratio of men to women at the points of destination. According to Anarfi (1993), high sex ratios in favour of men generate growing demand for commercial sex, which is often provided by widowed, divorced, and single women because of their weak economic situation. Mining and industrial centres often have a particularly high concentration of young men who migrate to seek employment. The people in these sites are highly vulnerable to the risk of HIV infections. This is the case for South Africa which receives migrant workers from Lesotho, Swaziland and the rest of African countries. The countries of origin of migrant workers are then faced with the dual challenge of sustaining economies that are largely dependent on their export of labour to South Africa and reducing the consequent vulnerability of migrant workers. Migrant workers who get infected at their places of work bring infection back to their families when they return home.

Sometimes, migration in Africa takes the form of people leaving their villages on a seasonal or temporary basis in search for work, hoping to move back eventually to their place of origin. This pattern of migration means that infected individuals may spread HIV/AIDS to others at both the sending and receiving ends. Anarfi (1993) states that in Ghana, the risk is heightened in rural areas by a tendency among returning migrants to flaunt wealth and

acquire partners. Anarfi (1993) also showed that international migrants are more likely than internal migrants to report high numbers of partners. Some studies have not found any substantial difference in levels of sexual activity of migrants and non-migrants. Cohen and Trussell (1996) suppose this could be due to the predominance of internal migration in most of Africa. However, it is important to note that large scale movements of refugees as a result of famine, civil unrest, and military coups apparent in sub-Sahara Africa could have led to the rapid spread of the AIDS epidemic, although this has not been carefully studied.

Belonging to a specific ethnic group influences sexual behaviour because of the differences in social, cultural and economic organisations. Ethnic groups may differ in conceptions of risk, sexual ideologies and gender relations that may indirectly affect individual sexual behaviour (Kenya *et al.,* 1998; Ocholla-Ayayo and Schwarz, 1991).

Religion may influence people to under-estimate their risks even though their behaviour exposes them to AIDS. Nzioka (1996), using in-depth interviews among people leaving with HIV/AIDS and opinion leaders, noted that religious people considered AIDS a sinful disease, and so they considered it to affect only those who transgressed against God. Gregson *et al.*, (1999) in a study in Manicaland in Zimbabwe found differences in demographic behaviour by religious affiliation (Spirit-type vs Mission churches). The HIV-associated rise in mortality was less evident in the demographic data for Spirit-type churches. In addition, people from the Spirit-type churches sought treatment for STDs less often than other people. The pattern of differentials between the churches could not be explained by socio-economic differences. The authors concluded that the low mortality could be because members of the Spirit-type churches are more likely than other people to follow church teachings on avoidance of pre-marital and extra-marital sex and are therefore at lower risk of acquiring HIV infection. Spirit-type churches also enforce strong adherence to taboos against drinking alcohol that results in less frequent visits to bars and beer halls. The differences in religious groups were further supported by reports of virginity at marriage that was more common within Spirit-type churches than in other religious groups. Prohaska *et al.,* (1990) in a study in the United States found that formal religious belief was not associated with personal perceptions of risk for AIDS. Absence of religious affiliation, however, was associated with increased self-perceived risk. It may be that those who did not follow any religion felt that they are at risk because they had no protection of a supernatural being or their sexual behaviour, which was risky, heightened their perception of risk.

2.12 Gaps in the Literature

The review of literature shows that studies differ by context, methodologies, study design, methods of analysis and the final findings. A number of gaps in understanding the link between knowledge, sexual attitudes and behaviour are evident. Studies clearly show that gender imbalances underscore the persistence of risky sexual behaviour in much of sub-Saharan Africa, including Kenya. Examples of studies using different approaches and methodologies illuminating gender differences are highlighted by Waithaka and Bessinger (2001), Njogu and Martin (2001); Nzioka (2001), Banda *et al.* (1999), Reid (1999), and Baltazar *et al.* (1999) among others. Findings show that the majority of women (both outside and in stable unions) are likely to be infected by HIV from the behaviour of their partners. Despite these obvious differences, the available literature is still lacking in comprehensive nationally comparative studies examining gender differences using data from one source. This study addresses this gap by conducting separate analysis for men and women using the 1998 KDHS data.

Some studies have examined the gender component of sexual behaviour by reviewing available literature (Blanc, 2001; Gage, 1998; Gage and Njogu, 1994). Other studies have focused on either males or females only; adolescents only or specific population subgroups (Ali and Cleland, 2001; Jackson *et al.,* 1997; Meekers and Calvès, 1997; Pattullo *et al.,* 1994; Ngugi *et al.,* 1994; Lema and Hassan, 1994; Kleiber and Wilkes, 1993; Ajayi *et al.,* 1991). Examining only specific groups reduces general comparability of data by gender and different subgroups of the population. This is because survey data pertaining to sexual behaviour has been criticised as potentially inaccurate, being influenced by normative reporting: women under-reporting socially disapproved and men over-reporting socially approved sexual behaviour (Ericksen and Steffen, 1996; Caldwell *et al.,* 1989). If mis-reporting is largely because of gender, then conducting separate analysis for men and women while controlling for individual characteristics such as age, marital status, residence, and education (likely to affect the reliability of responses) can correct for the bias of mis-reporting in the results. This thesis, therefore, seeks to provide a gender-based understanding of characteristics of, and the nature and patterns of sexual attitudes and behaviour in Kenya using nationally representative data, in addition to using data from focused in-depth studies. Men and women are analysed separately in order to obtain comparisons within and between groups. The study, therefore, examines gender-specific characteristics by controlling for the effects of differences in population subgroups (e.g. education, age, marital status, residence, religion, etc.) to enable identify groups of men and women most at risk of HIV infection. Identification of "at risk" groups from the general population can help design targeted

interventions to suit information and behavioural change needs of different segments of the population.

The literature suggests that perception of risk and sexual behaviour are associated with a range of structural, community and individual level factors such as knowledge, the socio-cultural milieu, socio-demographic and behavioural factors. Because of the dynamic environment and the varied factors that influence people's perceived risk of AIDS and behaviour, it is not surprising that discrepancies exist between actual risk, personal perceived risk and sexual behaviour. Studies that have examined the link between perception of risk and sexual behaviour have been based on a range of approaches and methods such as quantitative data (Ali and Cleland, 2001; Banda *et al.*, 1999; Dodoo and Ampofo, 1998; Aggleton *et al.*, 1994), qualitative methods (Nzioka, 2001; 2001; 1996; Fapohunda and Rutenberg, 1999; Harrison *et al.*, 1977; Balmer *et al.* 1995), and few have combined methodologies (Chimbwete, 2001; Varle, 1998; Blanc *et al.*, 1996). Previous research does not seem to show a strong association between perceived risk and behaviour. People who report risky behaviour do not feel more threatened by HIV than people who do not, and in the WHO/GPA data, no relationship between the two appears when the effects of socio-demographic factors are simultaneously controlled.

The literature also suggests that the expected association between sexual behaviour and socio-demographic factors such as level of formal education, residence, age and marital status is inconclusive (Caraël, 1995; Meekers, 1994). Evidence of inconsistent associations between knowledge, attitudes and behaviour suggests a need for a triangulation of research approaches and methods, mixing qualitative and quantitative studies for better explanations. More specifically, research is needed to examine ways in which the social context influences sexual attitudes and behaviour, and how socio-cultural constraints make women particularly vulnerable and unlikely to exert choices relating to their sexual and reproductive lives. To address this gap in knowledge, this study uses both qualitative and quantitative approaches and methods to gain a better understanding of the characteristics of, and socio-cultural circumstances surrounding specific sexual attitudes and behaviour in Kenya. The social context component in this study lends some explanations for the observed associations in the multivariate regression models, thus enriching the interpretation of the findings.

Studies done in sub-Saharan Africa and specifically in Kenya, show that epidemiological rather than social research, has dominated the understanding of HIV/AIDS through the years, while mostly targeting the special groups or those considered "high risk" (see Ndinya-

Acholla *et al.,* 1997; Moses *et al.,* 1996; Job *et al.,* 1992; Plummer *et al.,* 1987). Few studies, if any, have been nationally representative, or critically examined HIV risk factors among all population sub-groups in Kenya (Njogu and Castro-Martin, 2001; Waithaka and Bessinger, 2001; Ingham and Holmes, 1991). It should be acknowledged that each type of data has its own limitations. Epidemiological studies have good data but only on sub-sections of the population. Social surveys might have data that can be generalised but of doubtful quality on everyone. Thus, there is a need to have improved data on those sub-sections of the population not covered by epidemiological studies. The 1998 KDHS provides population-based data that is useful in examining the general influence of AIDS prevention initiatives on sexual attitudes and behaviour for all segments of Kenya's population. Examining all population subgroups is important because behavioural change, rather than anti-retroviral drugs or a cure, remains the most viable way to curb the spread of AIDS in contexts with generalised epidemics as in Kenya. Thus, identifying priority sub-groups in need of specific AIDS prevention strategies remains the immediate challenge in mitigating the impact of AIDS in Kenya.

In addition, small-scale studies targeting specific groups, although providing focused and rich data, have resulted in small sample sizes and reduced comparability and generalisation of results, as well as difficulties in implementation of AIDS prevention strategies (see Orubuloye *et al.*, 1997; Caldwell *et al.*, 1993; Orubuloye *et al.*, 1991). The majority of the population left out assumed a sense of invulnerability hence the rapid spread of AIDS amongst groups considered "not at risk", even though still at risk of HIV. For example, young unmarried sexually active males and females left out of AIDS research or interventions in Kenya form the most significant group in AIDS prevention strategies. The rapid spread of HIV infection among the general populations in most of sub-Saharan African countries is partly attributed to the failure of the interventions that targeted only the "high risk" groups (Frank, 1994; Ankrah, 1989), hence the need for research focusing on all population subgroups. As mentioned earlier, this study addresses this gap in knowledge by using nationally representative data to examine the characteristics of, and levels, patterns, nature and extent of self-perception of HIV risk and sexual behaviour among different subgroups of women and men in Kenya.

Much of the reviewed literature shows that research has also tended to focus on risk behaviours and their determinants (Waithaka and Bessinger, 2001; Brockerhoff and Biddlecom, 1999; Cleland *et al.*, 1999; Dallabeta *et al.*, 1995; Nunn *et al.*, 1995; Kiragu and Zabin, 1995; 1993). AIDS awareness campaigns formed a large component of AIDS

prevention initiatives at the beginning of the epidemic, yet there is a dearth of research examining how knowledge has been translated into action. Available literature indicates that association between AIDS knowledge and perception of risk on one hand, and AIDS knowledge and behaviour on the other, remain inconclusive. Some studies indicated that risky behaviour is itself positively correlated with AIDS awareness and knowledge (Ingham, 1995). At the same time, a number of studies suggest that AIDS knowledge does not always lead to safer sexual practices (Njogu and Castro-Martin, 2001; Mbizvo *et al.* 1997). The reason for this common scenario in most countries is still unclear. Some of these analyses did not control for the interactions of knowledge factors such as AIDS awareness and the influence of socio-economic and cultural factors that might make it easier for some sub-groups of people to engage in risky sexual behaviour.

The measurement and definition of variables used in the quantitative studies such as in Njogu and Castro-Martin (2001) did not take into account the influence of accuracy of specific knowledge of AIDS on sexual attitudes and behaviour. The UNAIDS (2000b) observes that it is no longer general knowledge that is important in AIDS prevention, but specific knowledge is. Knowledge has generally been measured in terms of binary responses, such as "yes/no". This measurement approach does not gauge how accurate or incorrect knowledge (or a mix of both) influence attitudes and behaviour. In addition, risk behaviours and changes in behaviour have been measured using simply derived outcomes without taking into account overlap in some of these behaviours (See Njogu and Castro-Martin 2001; Mbizvo *et al.* 1997). For example, a married man who reports having casual sex must also count as having more than two sexual partners, but would not necessarily have experienced two different types of risk behaviours. The gap in measurement and definition of variables on knowledge and behaviour is addressed in this study by the development of measures of levels of accuracy in knowledge and taking into account overlap in reported risky sexual behaviour.

Whereas some studies that relied on analysis of cross-sectional survey data such as the Demographic and Health Surveys (DHS) (Ali and Cleland, 2001; Cleland *et al.*, 1999) affected by complex survey design features took into account the effects of weighting, clustering and stratification, others did not (Mbizvo et al. 1997; Blanc et al., 1996; Cleland and Ferry, 1995; Rutenberg, 1994). Ignoring sample design effects renders multivariate parameter estimates fairly biased. Statisticians acknowledge the need to account for survey design effects in order to obtain unbiased point estimates and fairly realistic standard errors and confidence intervals (StataCorp, 2001; Brogan, 1998; Eltinge, Parson and Jang, 1997; Korn and Graubard, 1995; Skinner *et al.*, 1989; Smith, 1988). The quantitative analysis in

this study addresses this statistical component of survey design effects by adjusting data for unequal probability of selection, stratification and clustering effects, thus rendering the parameter estimates obtained fairly unbiased and nationally representative.

2.13 Summary

In summary, the review of literature has identified the range of factors likely to influence perception of risk and sexual behaviour at the community, individual and intermediate levels. The review of literature examined studies done in different contexts in sub-Saharan Africa, which employed a variety of techniques of data collection, used different sample groups, sizes and analytical methods, and arrived at varying conclusions. The evidence from the findings, to some extent, is inconclusive on how knowledge influences attitudes and behaviour, as well as, how attitudes influence behaviour and vice versa. The strong influence of gender-based differences in sexual behaviour is highlighted. This study uses multivariate statistical modelling techniques to identify factors influencing sexual attitudes and behaviour while controlling for correlations between variables and individuals within regions/communities by accounting for survey design effects. The study also explores the social context of sexual attitudes and behaviour. The study objectives are achieved using quantitative and qualitative data; details are described in the next chapter.

CHAPTER THREE

DATA AND METHODS

3.1 Introduction

This chapter describes the sources and examines the quality of data used to investigate the aims of this study. The complementary nature of triangulation of methods in the study of sexual behaviour and HIV/AIDS is outlined. The first objective of this study stated in chapter one is achieved using qualitative data. Qualitative data identifies the social context of perception of risk and sexual behaviour outlined in the conceptual framework discussed in chapter two. Objectives 2 and 3 investigating the associations between perceptions of risk of HIV infection and sexual behaviour also described in the framework in Chapter 2 are addressed using quantitative data.

A description of the design and process of qualitative and quantitative data collection is given. The qualitative research process is described in more detail than the quantitative method, which is well explained in the report of the 1998 Kenya Demographic and Health Survey (KDHS) (NCPD, CBS and MI., 1999). Some limitations of sexual behaviour surveys are highlighted. Methods of data analysis used in the study are briefly mentioned and the variables used in the analysis are described, pointing out their limitations where applicable. The final part of the chapter includes an assessment of some aspects of the quality of the 1998 KDHS sexual behaviour and HIV/AIDS data.

3.2 Sources of Data: Complementary Methodologies

The quantitative data used in this study are obtained from the 1998 KDHS (NCPD, CBS, and MI., 1999). Qualitative information was collected using focus group discussions (FGDs) and in-depth interviews (IDIs). Details about the process of data collection and the communities of study are described in section 3.2.1.

The importance of triangulation or a mix of research methods in social science is an acknowledged fact (Knodel, 1997; Svetsreni and Attig, 1993; Brannen, 1992; Debus, 1988). The limitation of existing theoretical approaches of studying health behaviour has led to a need for more focused and intensive research to account for the role of the social context in explaining human behaviour (see Chapter 2, section 2.2). Quantitative data provide statistically representative analyses that can be generalised to the population. Thus, quantitative data are able to answer the "who, what and how many" questions that are important in identifying prevalence, patterns, trends and correlates of outcomes of interest in

a population. Conversely, qualitative data answer the "why" and "how" questions of such outcomes, but are not designed to be statistically representative, hence the results cannot be generalised across the population. Qualitative data are, therefore, used to understand the social context of specific behaviour (social and cultural norms, beliefs, attitudes), the range of interpretations and meanings people attach to their behaviour, and dominant discourses surrounding behaviour of interest that may help illustrate, illuminate or add value to quantitative findings. Qualitative methods have been used successfully to study sensitive topics such as sexual behaviour and family planning in both developing and developed country contexts (Chimbwete, 2000; Ndhlovu, 1999; Hennink, 1997; Pearson *et al.,* 1996; Barker and Rich, 1992). Qualitative methods may be used for exploratory, evaluative or explanatory research, which can be undertaken prior to, nested in, or carried out after quantitative research (Hennink and Diamond, 1999; Svetsreni and Attig, 1993). Thus, qualitative research can be used in generating culturally-specific terminology or to explore a relatively unknown or unclear concept; to select the target population or information needs for a quantitative study; to evaluate the effectiveness of a service or product that may identify reasons for specific behaviour; and finally to elaborate, explain, clarify or validate results of quantitative research.

In this thesis, quantitative data provide information about associations between particular variables: the strength and magnitude of the associations and socio-demographic differentials among respondents. Qualitative data, on the other hand, are used to illustrate, highlight or provide some explanations for observed associations in the multivariate regression models, albeit within the constraints of qualitative information. FGDs were used to explore the community level concerns surrounding perception of AIDS risk, patterns of sexual behaviour and responses to reducing the spread of the disease, where people did not necessarily need to reveal their personal information. On the other hand, IDIs explored individual subjective assessment of their risk of contracting HIV and the role of partners' interactional competency in adoption of AIDS-risk reduction strategies. The IDIs were also used to validate the opinions raised in FGDs and vice versa.

3.2.1 Qualitative Data

FGDs and IDIs were held with women and men aged 15 to 45 years in the month of March 2001. The study was undertaken in a rural area of Kisumu district, Nyanza Province, and a peri-urban area of Kiambu district, Central Province, Kenya.

Gender, marital status, and ethnicity affiliation/region of residence were used to stratify FGD participants in order to explore views of people exposed to different sexual experiences and cultural contexts. Fourteen focus group discussions were conducted with 122 participants as follows:

- Six groups among unmarried women and men aged 15-24 years
- Four groups among recently married women and men aged 15-30 years (marital duration of 5 years or less)
- Four groups among older married women and men aged 31-45 years (marital duration of 6 years or more).

The unmarried and married groups were selected in order to examine differences in sexual experiences and attitudes towards AIDS at different stages of people's sexual lives. The views of groups of married women and men aged over 30 years were compared and contrasted with those for people aged 15-30 years. The focus groups for unmarried women and men comprised both the sexually experienced and inexperienced.

The emphasis of the qualitative research in this thesis is on young people (15-30 years) because they comprise over a third of the Kenyan population, have the highest HIV infection rates and are most likely to engage in risky sexual practices (ROK/MOH, ACU and NACC, 2001; NCPD, CBS, and MI., 1999; Aggleton *et al.,* 1994). Understanding the social and cultural context of young people's sexual behaviour may help in designing appropriate prevention strategies likely to reduce the spread of AIDS in Kenya. As noted in chapter one, the rapid spread of AIDS among young people has led to devastating social and economic consequences in Kenya. Young people are at the peak of their reproductive and the economically productive lives, hence their illness and death affect all facets of Kenya's social and economic fabric. High HIV/AIDS rates among young people could lead to increased mother to child transmission, orphaned children, and diminished economic productivity both at the macro and micro levels. The burden of caring for the sick and supporting orphaned children will fall on the elderly, thus reversing the traditional wealth flow support system (Dow *et al.,* 1994). In addition, focusing on young people is important since they are most likely to be receptive to change, particularly the adolescents (15-19 years) and young adults (20-24 years).

Field Instruments. Two types of question routes were developed, for FGDs and IDIs. The development of question routes was informed by the results of quantitative analysis of the 1998 DHS data, Kenyan statistics on the socio-demographic differentials of HIV/AIDS

prevalence rates in Kenya, and the literature review. The topics covered in the question routes are described below under qualitative methodologies.

Focus Group Discussions. FGDs allow a small group of participants with similar characteristics to discuss subjects of common interest with the guidance of a facilitator or moderator, in which participants do not necessarily need to reveal personal information. They are important in exploring common attitudes, norms and practices of social behaviour. FGD guides or question routes (Appendices 3.2, 3.3 and 3.4) were used in this study to explore a range of topics to include: sources of sexual and AIDS information, AIDS awareness, attitudes and motivations for premarital and extra-marital sex, sexual decision-making and negotiation, perceptions of AIDS risk, and community responses to mitigate the risk of contracting the AIDS virus with particular emphasis on attitudes about condoms and other AIDS prevention mechanisms. Two different question guides were developed for FGDs: one for the unmarried and another for married participants. Questions were also worded to cater for both genders. To explore gender differences, contradictions or agreements on opinions and attitudes about different forms of beliefs and sexual practices (e.g. condom use, abstinence etc), a hypothetical story was related about a promiscuous male (Fagia) living in town away from his female partner (Kazuri) who lives at their rural home. Participants were asked about their views regarding what Kazuri should do about her partner's promiscuous behaviour, with particular emphasis on risk-reduction mechanisms.

In-depth interviews. Anonymity is important when discussing personal and sensitive topics such as sexual behaviour of respondents, where they may have to admit to behaviour socially disapproved, such as extramarital or casual sex. IDIs explored the more personal and sensitive issues of how people perceive and interpret their individual vulnerability to HIV at various stages of their sexual lives. IDIs provide opportunity for probing respondents for greater depth and further explanation or clarity on their answers (Hennink, 1997). IDIs were held with 29 respondents drawn from the focus group participants. Two respondents picked at random were interviewed from each focus group. In-depth respondents were purposely drawn from FGD participants in order to understand how individual perceptions and opinions conformed or diverged from what was expressed in the group discussions. Initially, the fear that opinions raised in the focus groups would influence individual attitudes and responses appeared unfounded when respondents spoke as if oblivious to what had been discussed in FGDs, often with contradictory remarks. For example, AIDS was broadly perceived to be a great threat to the communities among all focus groups participants. Yet, the individuals interviewed in-depth, who were equally aware of the general risk, denied being personally at

risk citing a range of reasons even though some people reported having engaged in risky sexual activity and lacked knowledge of their own HIV status. Chapter 4 describes the FGD and IDI results in detail.

Only individuals who reported ever having sexual intercourse were selected for IDIs because this group was most suited to address the research problem (the role of sexual partnerships and interactional processes in HIV-risk). The respondents for IDIs were identified after the FGDs by administering a short questionnaire that collected basic socio-demographic characteristics and sexual experience of participants (see Appendix 3.4). The IDIs involved a one-to-one interview between a respondent and an interviewer following a pre-designed question guide (Appendices 3.5 and 3.6). Similar to FGDs, separate question guides for unmarried and married participants were used. The IDIs elicited detailed individual information on contraceptive behaviour and sexual decision-making during first sexual intercourse and most recent or current sexual partnership[5]. The aim of the IDIs, therefore, was to explore how people perceive and interpret their personal vulnerability to HIV infection at two stages of their sexual lives (during sexual initiation and at later sexual partnerships), rather than to obtain detailed sexual histories. The first and recent or current sexual partnerships were chosen in order to minimise recall errors. It is assumed that the first sexual intercourse is a memorable event, the circumstances surrounding which are unlikely to be forgotten. Similarly, activities in a recent or current partnership can easily be remembered compared with events of intermediate partnerships. Due to the small number of participants (29 respondents interviewed in-depth), the characteristics of sexual behaviour and the subjective criteria of risk assessment are examined and not necessarily the prevalence of specific behaviour across sub-groups.

The themes about individual sexual behaviour and perception of AIDS risk were asked about at different sections of the IDI question guide (Appendices 3.5 and 3.6). These include: a) individual patterns of sexual experiences; b) contraceptive behaviour with first and most recent or current sexual partner; c) perception of AIDS risk based on past and current sexual relationships; d) sexual decision-making and negotiation, including communication about contraception, particularly condoms and AIDS; and e) AIDS prevention strategies.

[5] The sexual partnership is considered recent if it terminated in the last 12 months before the study; and is current if it is still ongoing or involves a marital union.

Although there were initial plans to interview policy makers, programme managers and opinion leaders or key informants, this was not undertaken because of lack of time and financial constraints.

The Study Sites. The two areas, Kisumu in Nyanza Province and Kiambu in Central Province, were purposely selected in order to reflect differences in social and cultural beliefs and practices, variations in access to AIDS knowledge and services and HIV/AIDS prevalence rates. Figures 1.3 (p.6) and 3.1 (p.75) showing regional HIV prevalence rates in Kenya and the coverage of the 1998 KDHS also indicate the location of Kisumu and Kiambu districts in Kenya (the study sites). The two areas are meant to be illustrative of the social context of AIDS risk among people in Kenya and not to be statistically representative. Thus, no attempts are made to generalise the results of this study to the wider Kenyan population, as the social and cultural interpretations of AIDS risk and of sexual behaviour may be specific to the communities under study. The two communities are referred to as 'Kisumu' and 'Kiambu' throughout this study.

The Luo ethnic group predominantly inhabits Kisumu district. Though Kisumu town serves as a provincial administrative headquarters for Nyanza province, the catchment population for this study was rural, drawn from all the four divisions that constitute Kisumu district. Kiambu district is a peri-urban area close to Nairobi, largely inhabited by the Kikuyu ethnic group. Two locations were selected in Kiambu district, one for pilot testing and another for the actual fieldwork. The Luo and the Kikuyu have markedly contrasting economic and socio-cultural belief systems that tend to shape people's daily behaviour.

Kiambu district has an estimated population of 744,000 people and Kisumu has 517,317 people. HIV prevalence rates in Nyanza Province have been consistently high compared to rates in Central Province. At the end of the year 2001, 32% of people in Nyanza were estimated to be living with HIV/AIDS compared to 12% in Central Province. At the district level, estimates from sentinel surveillance data indicate that HIV prevalence rates in Kisumu and Kiambu are 26% and 17% respectively (ROK/ACU, MOH and NACC, 2001). Socio-economic, cultural and behavioural factors may explain the observed HIV prevalence rates. The age-sex distribution of HIV prevalence rates is similar to the national levels in both study sites. For example, in Kisumu HIV prevalence rates among adolescents aged 15-19 years are estimated at 22% for girls and 5% for boys, suggesting that girls are four times more likely to be infected than boys (MOH/Kisumu District Health Profile, 2000).

The quality and quantity of public services and infrastructure vary considerably between the two communities. Kiambu is well served by a network of tarmac roads; the majority of homes have electricity; there are public telephone booths and most homesteads have private water supplies. Newspapers are easily accessible in Kiambu. In Kisumu, almost all the rural roads are subject to closure during the rainy season, most rural homesteads have no electricity, public telephone booths are non-existent, and people depend upon local rivers and ponds for water supplies.

The two study sites are further differentiated by access to health and reproductive health services. Kiambu is well served by both public and private health facilities and Nairobi is within easy reach. There are two well-equipped private hospitals, a government hospital, and a number of health centres and private clinics. Proximity to Nairobi enables people in Kiambu to benefit from most AIDS prevention initiatives. The study site in Kiambu is served by one private hospital, one health centre, and three private health facilities attached to tea factories. Services at the factory health facilities are free to non-workers. There are four primary and five secondary schools in the study site, most within walking distance.

Kisumu is typically a lowland area bordering Lake Victoria. The district is vulnerable to flooding and prone to water and vector-borne diseases such as malaria and diarrhoea. The district has 48 health facilities offering basic health services. The majority of the health facilities (23) are private enterprises and situated in Kisumu town. Generally, utilisation of health services is poor in rural areas because of poor infrastructure, long distances to facilities and inadequate distribution (MOH/Kisumu District Health Profile, 2000). Both Kisumu and Kiambu districts have benefited from a range of AIDS prevention initiatives, the common one being a nation-wide World Bank funded STI control project. However, consistently high HIV prevalence rates in Kisumu, and Nyanza province in general, have attracted the attention of several international donors and NGOs focusing on AIDS prevention, care and support activities. A major initiative has been the HIV/AIDS prevention and care (HAPAC) project funded by DfID and managed by Futures Group Europe. Futures Group Europe oversees activities of NGOs and private sector institutions targeting AIDS awareness, prevention and care activities in Nyanza Province, including Kisumu district. Despite all the AIDS initiatives, Kisumu ranks among areas with high HIV prevalence rates.

Economic activity is more diversified in Kiambu than in Kisumu district. Kiambu is a tea and coffee production zone and so most people are employed in farms and factories. Tea and coffee picking, planting, horticulture and vegetable growing are the main socio-economic

activities of the people. Kiambu attracts many labour in-migrants from other parts of Kenya, particularly Nyanza and Western Provinces. Integration of people from different cultural backgrounds is likely to influence people's way of life. For purposes of this research, only people of the Kikuyu ethnic group settled in the area were selected. Another section of the population of Kiambu earns its living by working in Nairobi because of its proximity (on average, less than 1 hour by public transport). In Kisumu, most economic activities are confined to smallholdings utilising family land. The largest town, Kisumu is situated about 30 kilometres or more away from the rural communities (MOH/Kisumu District Health Profile, 2000).

The cultural beliefs and practices vary considerably between the two communities. In Kisumu, the practice of widow inheritance, a belief in witchcraft and '*chira*'[6], and polygyny are entrenched components of the Luo culture which have been associated with the rapid spread of AIDS in the area (Kenya *et al.,* 1998; Ocholla-Ayayo, 1976). The Luo community does not traditionally practice male circumcision. In contrast, in Kiambu the Kikuyu practice of widow remarriage has disappeared and the practice of traditional circumcision of boys and girls, a common cultural feature among the Kikuyu, has shifted from the more traditional form of seclusion to the modern hospital environments (Price, 1995). Polygyny is more widely practiced in Kisumu than in Kiambu. According to the 1998 KDHS, about a quarter of women respondents in Nyanza Province reported having co-wives compared with 3% of women in Central Province. Similarly, 18% of men in Nyanza Province and 3% in Central Province reported being in polygynous unions.

The significance of the lineage system has declined markedly in Kiambu whereas it is a strong element of people's lives in Kisumu. Traditionally, the Kikuyu are a matrilineal society, in which the lineage is traced through female members of the family, though the husbands do not necessarily move to reside in the wife's home. Kiambu women are assumed to have a stronger control in reproductive decisions than men since children belong to the woman (Price, 1995; Gage and Njogu, 1994). The 1998 KDHS indicates that twice as many women in Central Province (2%) as in Nyanza (1%) reported marriage dissolutions, perhaps reflecting differences in lineage systems. Kiambu women can also inherit property from their fathers or husbands (Price, 1995).

[6] '*Chira*' is a Luo term for a body wasting illness that is believed to afflict people who break cultural taboos.

In contrast, the Luo of Kisumu is typically a patrilineal community where the lineage system is drawn through male members. In a patrilineal society, women at marriage must leave their families to live with their husbands'. Payment of bridewealth to the woman's family transfers the woman's reproductive capacities and other benefits from her own lineage to that of the husband. Such a society might have higher rates of polygyny than others, suggesting that men are more dominating. In patrilineal communities, son preference for inheritance and continuation of the lineage tree has a strong influence on the number of children a woman bears for her husband's family (Gage and Njogu, 1994). Kiragu and Zabin (1995) observe that patrilineal societies in some parts of Africa condone premarital sexual relations for boys and not girls. Traditionally, Luo women do not inherit property (Ocholla-Ayayo, 1976).

Recruitment of Participants. Focus group and in-depth interview participants in Kiambu were recruited from two locations. The participants were identified through the Chief of the location[7]. After the introduction of the research team, interviewers, assisted by community facilitators, recruited potential participants with characteristics of interest. Informed written or verbal consent to participate in the discussions was obtained from the respondents. Participants who were enlisted were asked to report to the meeting venue, which was close to the Chief's office, at an agreed time and date. A sift questionnaire (Appendix 3.1) was used to allocate participants into relevant groups.

In Kisumu, participants were recruited from four selected locations out of the four divisions that comprise the district. The Kisumu District AIDS and STD Co-ordinator (DASCO) assisted in the recruitment exercise. All the participants in Kisumu were drawn from rural areas in order to capture the cultural aspects of the Luo community. A different recruitment approach was used in Kisumu because participants came from all the four divisions, and to solve the time and financial constraints. Care was taken to explain to the DASCO the objectives of the study and the importance of having differentiated groups. She then relayed this information to the Chiefs of the four locations, giving her permission to recruit eligible participants. Similarly, informed consent to participate was obtained from respondents and a sift questionnaire was used to allocate participants into appropriate groups. Participants in Kisumu were asked to report to the community hall at the DASCO's office located in Kisumu town on an agreed date and time.

[7] A district is usually made up of several locations, which are under a chief and are next to last in the Kenyan administrative hierarchy. Sub-locations, which are under assistant chiefs are the lowest in the administrative structure.

The approach adopted in selecting FGD and IDI participants in the two sites may have introduced bias since previous research has shown that Chiefs or administrative representatives tend to recruit only their relatives, friends or the 'best looking/knowledgeable people' in the community (Watkins *et al.,* 1996). However, these fears were partly allayed during informal talks with the participants, some of who did not know others, this was particularly true of Kisumu district. Nonetheless, a few participants knew each other as they were recruited through the snowballing technique. Some researchers recommend that FGD participants should not be familiar with each other in order to facilitate free and frank discussions (Bender and Ewbank, 1994; Folch-Lyon and Trost, 1981). But free and frank discussions were evident from participants who used personal life experiences to illustrate a point, such as "I always ask my husband where he has been if he comes home late" or "I discuss AIDS with my children". Thus, the enormity of the AIDS pandemic, coupled with extensive media coverage appears to have made people free to talk about sexual matters.

It also must be acknowledged that it is impossible to do research in any part of Kenya without an authorisation. A research permit must be obtained from the Office of the President. Depending on the scope of the research, permission from a relevant administrative officer has to be sought at the community levels. Since the qualitative research process in this study involved only a few participants, permission was sought from respective District Officers through the assistance of the Chiefs who are the custodians of law and order at the community level.

Generally, the recruitment exercise went well except that in Kiambu, it was easier to enlist the participation of men than women. The Kiambu site is peri-urban with a more vibrant economy than rural Kisumu. Thus, the competing demands on women's time of earning a living vis-à-vis attending the discussion may have discouraged them from taking part. But this does not explain clearly why men were readily available. For example, 28 unmarried young men showed up for the discussion, yet only the recommended maximum of 10 was desired (see Hennink and Diamond, 1999; Bender and Ewbank, 1994; Debus, 1988) Conversely, only seven women in a similar group showed up although more had been informed about the study. Family obligations were the most common reasons women gave for not participating. Some women were simply uninterested. It was quite difficult to send away the excess men. In order to turn away the rest, men were grouped according to their ages so as to know the number falling in each group. Finally, a balanced representation of the ages 15 through 24 years was selected. The rest were given an explanation as to why they

could all not be accommodated, mainly because of lack of enough space. They were thanked for their time and served with soft drinks. None of the men appeared offended.

Men in Kiambu were sometimes enlisted from their place of work. Where this happened the Factory Manager, with the help of the Chief, was consulted to release the workers to attend the discussions or interviews. The willingness to release the workers on full pay and the requests of the Manager that we educate the workers about AIDS reflected the reality of the perceived threat of the disease in the area. In fact, the research team was mistaken for public health education officers. The research team tactfully turned down the Manager by emphasising the objective of the research.

In Kisumu, there was the problem of some participants turning up on the wrong date or time. Because of the long distance travelled, participants who turned up on the wrong day were given money to go back and return on the appointed date. Alternatively, people who showed up late were allowed to join the discussion group.

Some participants were keen about monetary incentives for participating in the study. By talking to the Chief and youth leaders, it was learnt that a few organisations have started offering payments to study participants. The payment culture is common among international NGOs. This line item was not in the research budget, but fortunately there was a travelling allowance. The travel allowance information was relayed to potential participants during recruitment and proved a popular incentive for participation. Thus, each participant was paid a travelling allowance relative to the distance covered at the end of the discussion. As would be expected, there were a few men who complained that the amount paid was too little or they had been promised more, facts that were obviously untrue.

The Research Team and Training. Each focus group was conducted by two research assistants of the same sex (one as a moderator and the other a note taker), co-ordinated and supervised by the principal investigator. The same research assistants conducted IDIs with same sex participants. Eight research assistants were recruited aged between 25 and 32 years. Because of differences in languages spoken in each study site each district had two groups of field assistants, two females and two males, well acquainted with the locally spoken languages (Luo and Kikuyu), in addition to being fluent in English and Swahili. Experience in conducting qualitative research in social sciences, and the ability to transcribe and translate interviews from a local language to English was another criterion used for recruiting research assistants. Understanding the subject matter was also crucial. Two of the research assistants

had first degrees in Sociology and six had Masters degrees in Population Studies or Anthropology.

To avoid problems of hiring inexperienced research assistants, recruitment was undertaken through personal contacts with international NGOs (The Population Council and Population Services International) and the Population Studies and Research Institute of the University of Nairobi. Each research assistant had worked with one or all of these organisations.

Research assistants underwent intensive training for six days to familiarise themselves with the research questions, ways of conducting focus group discussions and in-depth interviews, roles of the moderator and note taker, transcription and translation techniques, and the contents of the question routes. A training manual was prepared as step-by-step guide for field assistants.

The other major components of the training were role play and pilot testing, which helped to identify potential difficulties likely to have arisen regarding clarity and appropriateness of the question guides, transcription and translation, and duration of interviews. For example, during training it was noted that some English words such as "reproductive health" did not have direct translations into the local languages. Such a word had to be broken into "family planning, sexual intercourse, sexual health, and HIV/AIDS". Subsequently, during the conduct of FGDs, questions had to be asked addressing each word separately rather than as one. This lengthened the time taken to conduct the discussions as participants had to be clear that we were seeking information about "reproductive health", not only family planning or HIV/AIDS. The word "risk" was replaced with words synonymous with "danger" to make the meaning more appropriate. Other words that had no direct translations were "safer sex", and "sexual experiences or relationships or behaviour." Young unmarried women or men were replaced with "boys or girls" because according to the local languages, a woman or man connotes a person who is/has been married. An experienced qualitative expert based at the University of Nairobi partly assisted in the training and translations to ensure the right wording of the question routes. Role playing also helped to highlight probing styles.

The question routes and the fieldwork logistics were pre-tested in a location in Kiambu district. The pilot testing helped to spot questions that needed revision or exclusion because of overlap. Problems associated with recruitment of participants and venues were noted after the pilot. For example, it was realised that there was a need to have enough time for locating the Chief of the area, explain the objectives of the study, and to recruit the participants.

Realisation of the need to make early preparations led to enlisting the help of the DASCO in Kisumu, partly also to resolve the time and financial constraints.

Data Collection. As mentioned earlier, a moderator and note taker conducted same sex focus groups and in-depth interviews using different interview guides, specifically designed to take account of gender and marital status. Since the study sites are situated in different regions of Kenya, fieldwork was not done concurrently. Fieldwork started in Kiambu, then Kisumu.

All research instruments were originally developed in English but translated into Luo and Kikuyu for interview purposes. As mentioned earlier, the themes covered in FGDs and IDIs were very similar but with variations in the design to elicit community and individual levels of perception of risk and risk-prevention strategies (Appendices 3.2 to 3.6). Experts based in Southampton and Nairobi Universities, versed in collecting sexual behaviour data using qualitative methods reviewed the research instruments.

Discussions were held in community halls in both study sites and conducted in the local languages (Luo or Kikuyu). Both venues were convenient, quiet and away from outside interference. FGDs were conducted in the morning and in-depth interviews in the afternoon. The number of participants for most FGDs was 12 except among unmarried women in Kiambu (mentioned earlier). Sometimes, IDIs were held under trees but always away from possible interference. Interference was encountered only once in Kiambu from an elderly woman who wanted to join an ongoing discussion group to know why the study targeted women and men aged 15-45 years. Apparently, she had donated land upon which the hall, previously serving as a self-help community health facility, was built. She complained that people were tired of seeing researchers come and go yet the health facility remained inoperative, insisting that a promise be made to have the health facility re-opened. Finally, she was persuaded not to interfere by explaining the purpose of the study and the need to focus on the sexual and reproductive health concerns of younger women and men.

All interviews were tape-recorded and notes taken by the note taker to ensure that all discussion was captured. Special attention was paid to non-verbal language such as fidgeting, hesitation and long pauses, including speech fillers such as "You see…", "I mean…", and so on, useful in the analysis of the transcriptions and in identifying how opinions were expressed.

A short individual questionnaire was administered to the participants at the end of the discussion to obtain basic socio-demographic and sexual experience information (Appendix 3.4). Participants were finally offered refreshments (soft drinks and bread) at the end of the discussions as a token of appreciation for their time. All FGDs and IDIs varied in length but generally took about one and a half to two hours for FGDs and 45 minutes to one and half hours for IDIs.

Moderators made short summary reports immediately after every session had ended describing their general impression of the discussion. Debriefing sessions were held at the end of each day's activities with all the research assistants in order to identify any difficulties encountered regarding group dynamics, the question route, location and seating arrangement, tape recorders, and moderating techniques.

Data Processing and Analysis: Qualitative research generates large amounts of textual data requiring a systematic method of segmenting the data into meaningful units or themes. In qualitative research, data analysis and collection is recommended to occur simultaneously in order to gain clear field insights and to clarify social and cultural patterns (Bernard, 1988). Qualitative analysis involves a search for patterns in data and for ideas that help explain the existence of those patterns with an aim of developing theoretical paradigms from the data. Qualitative researchers have proposed different methods of coding or segmenting data all of which are different variants of developing a coherent framework for analysis. As with quantitative data, it is possible to pre-code expected themes before data collection, while allowing for unexpected ideas which may be raised by the respondents (Bernard, 1988). However, this way of analysing qualitative data risks presentation of results that reflect the researcher's theoretical hunches rather than that of the respondents, which is what qualitative research should seek to avoid. Thus, important information may be thrown out simply because they do not fit into the researcher's expectations.

Bernard (1988) proposed a chart for checking patterns evident in qualitative data – in things informants said or did. The chart helps check for particular patterns of ideas or behaviour shared by members of a culture, how collective it is, and how proper they think it is. The patterns identified are then compared to the researchers' notes and relevant informant statements extracted to check whether the behaviour was in a group or by an individual informant, and whether the informant acted spontaneously or was directed by a researcher. This charting strategy allows identification of shared components of a culture and those

produced in private. The author argues that spontaneous statements are likely to reflect a collective culture than are statements engineered by a researcher.

The main method for analysis of qualitative data is *Grounded Theory* developed by Glaser and Strauss (1967) and exemplified by Strauss and Corbin 1990), which aims to develop theory about social behaviour derived inductively from data. The attractiveness of the *Grounded Theory* is that themes are left to emerge from the data without being influenced by researchers' preconceived concepts. The inductive process of developing concepts or theory helps gain an understanding of the social environment from the perspectives of those living within it. "The analysis is iterative, since it is based on constant comparisons, contrasting and conceptualisation" (Oona *et al.*, 1999:60). The analysis of qualitative data in this thesis was based on these concepts of grounded theory.

First, tape-recorded discussions were transcribed and translated verbatim to English. Both the moderators and note takers did the transcriptions and compared notes to ensure quality and consistency. The principal researcher also read and strictly monitored all the transcriptions to certify that the general rules of transcribing were adhered to. This proved to be a useful exercise as it turned out that one pair of research assistants had resorted to summarising the discussions instead of reporting verbatim, an act that would have resulted in loss of much information if left undetected. Despite prior training and the emphasis on the importance of verbatim transcriptions and translations, the affected field assistants had resolved to summarise information arguing that it was the way they did for previous employers. Translations were done in one place so that problems arising were discussed and resolved at once.

Second, transcripts were type-written and then thematic or content analysis was undertaken. Oona *et al.* (1999:60) state "content analysis involves coding (also called indexing) of segments of text, which refer to the various topics and categories." Content analysis was considered appropriate since qualitative data were collected to enhance the understanding of the values, norms, and beliefs that characteristically influence people's perceptions of risk and sexual behaviour among the study communities. Thus, themes that emerged during the discussions rather than the confines of formal health behaviour models, guided the analysis. Analysis involved developing a system of indexing the data into sets of categories or codes that provided structure to the data within which the analysis was done. The structuring of the data was based on the research objectives and the topics included in the question guides. Thus, each code represented a core topic or theme. Different levels of codes were developed

to enrich the analysis process. For example, a parent code, also called "free node" or "Index Tree", (e.g. sexual behaviour) was developed and then sub-categories (e.g. premarital, extramarital, commercial) were used to represent different types of sexual behaviour. Codes were developed from reading and re-reading of the transcripts. The codes enabled searching patterns of attitudes and behaviour across and within groups. QSR Nudi*st (QSR, 1997), a qualitative software was used to assist in segmenting or categorising a uniform set of key themes and sub-themes into codes. Qualitative software enables easy storage, facilitates data manipulation, and retrieval of transcripts by other researchers if need be (Lewando-Hundt et al., 1997: Mason, 1996). A codebook containing a list of the codes and sub-codes and their definitions is presented in Appendix 3.7.

Verbatim quotations were sometimes used to support or to illustrate the range of responses expressed within or across groups.

Data Validity and Reliability. The question of validity in qualitative research is difficult to check because all research carries an element of subjectivity; personal biases may come into play as well. The interpretation of qualitative data depends on the analyst as well as other people. Validity and reliability involve ensuring that study procedures are consistent and comparable to other research and methods, and that findings can be verified and elaborated (Oona *et al.*, 1999; Miles and Huberman, 1994).

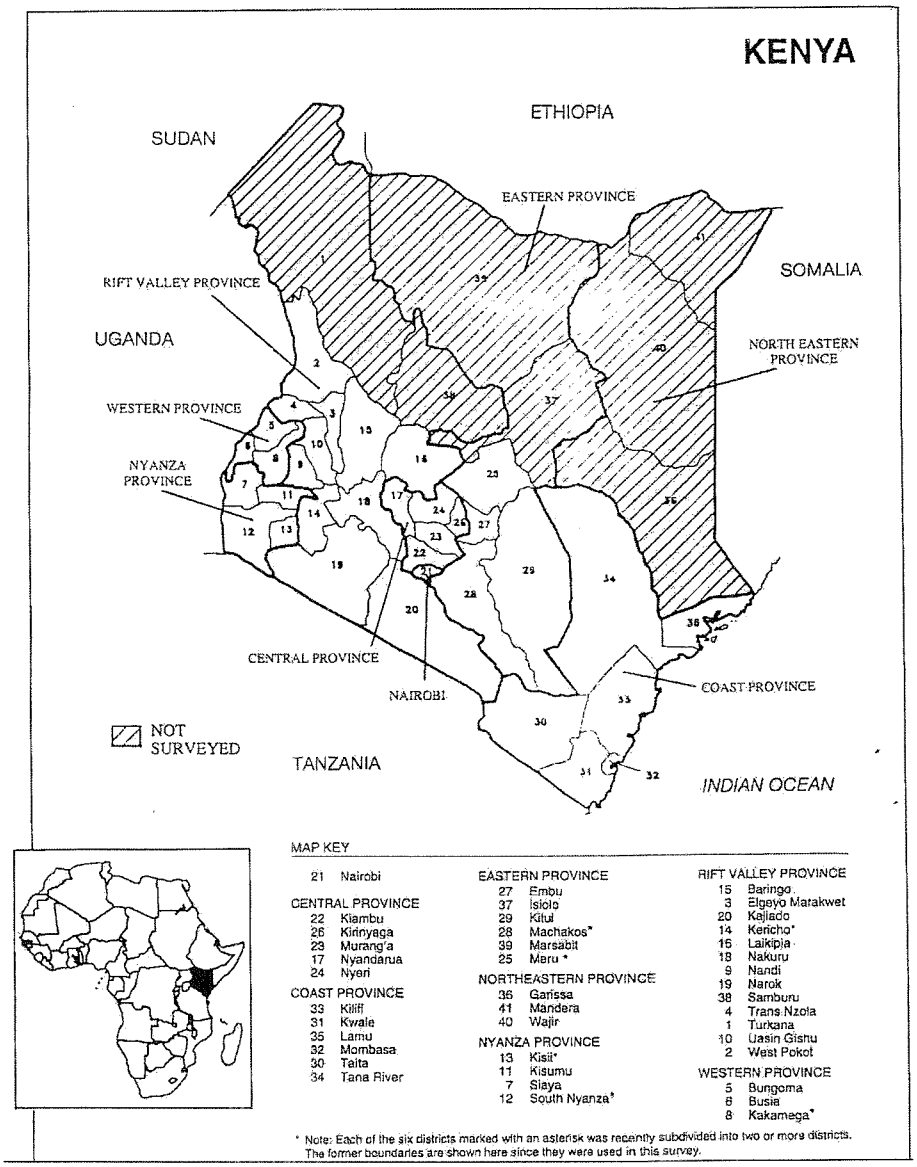
The issue of validity and reliability of the qualitative findings in this study is addressed in a number of ways. To ensure that the outcomes of the research measured the intended objectives, data collection methods and procedures were designed in accordance with standard methods and procedure of qualitative research (Mason, 1996; Miles and Huberman, 1994). A full description of these methods and procedures is provided in section 3.2.1.

Comparing findings with those from other sources also checked data validity and reliability. Multiple sources of data (e.g. FGDs, IDIs, previous research in Kenya and sub-Saharan Africa) guided interpretations and drawing of conclusions. Similarly, four experienced qualitative researchers independently helped in the review of the question routes, as well as, in verifying the findings and the conclusions drawn, by coding randomly chosen portions of textual data to check consistency between research colleagues. The triangulation of methods, comparing findings and cross-checking done by different researchers ensured maximisation of the validity and consistency of the findings. Discussions were also tape recorded and transcribed verbatim to improve data reliability.

3.2.2 Quantitative Data

The 1998 KDHS was designed as a follow-up to the 1989 and 1993 KDHSs that were of similar size and scope. Figure 3.1 shows the Kenyan regional boundaries and the areas covered during the 1998 KDHS. The 1998 KDHS was national in scope and targeted women and men residing in private households[8] throughout the country, with the exclusion of sparsely populated semi-desert areas of nomadic communities in the North and North Eastern Provinces of Kenya. Together, the excluded areas account for less than 4% of Kenya's population (Figure 3.1).

Figure 3.1: Map of Kenya showing administrative boundaries and the coverage of the 1998 KDHS



Source: NCPD, CBS & MI, 1999 p.xxii

[8] Persons residing on state land (e.g. National Parks, etc.) and in institutions, which account for fewer than one per cent of the total population, were not included (NCPD, CBS & MI., 1999).

The KDHS used a two-stage stratified sample consisting first of selected sample units or clusters, and secondly, selected households within sample units from a list compiled during a special KDHS household listing exercise. The 1998 KDHS sample points were selected from a national master sample (i.e. sampling frame) that consists of 1,048 rural and 325 urban clusters, called the Third National Sample Survey and Evaluation Programme (NASSEP-III)[9] and maintained by the Central Bureau of Statistics (CBS). From the master sample, 536 sample points were drawn: 444 rural and 92 urban clusters.

The KDHS could not be used to produce data for each district in Kenya without expanding the sample to an unmanageable size. As a result, more samples were drawn from rural areas in 15 selected districts and Nairobi and Mombasa specifically targeted as urban areas. The resulting over-sampling of some districts renders the 1998 KDHS not self-weighting at the national level, hence sampling weights are required to produce national estimates so as to compensate for the unequal probability of selection between geographically defined strata. Consequently, weighted estimates are used throughout this study (see section 3.5.2).

All women of age 15-49 were targeted for interview in the selected households. Every second household was identified for inclusion in the male survey; and all men age 15-54 were identified and considered eligible for individual interview. Table 3.1 gives a summary of the household and individual interviews.

Table 3.1: Summary of results of the household and individual interviews, KDHS 1998

Result	Total	%
Household interviews:		
Households sampled	9,465	-
Households occupied	8,661	-
Households interviewed	8,380	96.8
Individual interviews: Women	7,881	-
Number of interviewed women ever heard of AIDS	7,804	99.0
Number of interviewed women ever had sexual intercourse	6,639	84.2
Number of women ever heard of AIDS and ever had sexual intercourse	6,554	83.2
Individual interviews: Men	3,407	-
Number of interviewed men ever heard of AIDS	3,386	99.4
Number of interviewed men ever had sexual intercourse	2,973	87.3
Number of men ever heard of AIDS and ever had sexual intercourse	2,973	87.3

Source: NCPD, CBS & MI, 1999, p.8

[9] The NASSEP-3, and thus the 1998 KDHS, defines an urban area as population centres of 10,000 or more, plus all district headquarters regardless of size (NCPD, CBS and MI., 1999).

In total 7,881 women and 3,407 men were successfully interviewed, yielding a response rate of 96% and 89% for women and men respectively. From all the interviews, a total of 7,804 (99%) women and 3,386 (99%) men reported that they had heard about HIV/AIDS and 6,639 women and 2,973 men reported ever having sexual intercourse. The quantitative analysis of sexual behaviour and change in behaviour to avoid AIDS in this thesis is based on women and men who reported having heard about AIDS and having had sexual experience in order to compare women and men exposed to the same type of basic information (hearing about AIDS) and behaviour (ever had sexual intercourse). But analysis on perception of risk is done for all women (7,804) and men (3,386) who reported being aware of AIDS (Chapter 5).

Three types of questionnaires were used in the 1998 KDHS: the household, female and male questionnaires. The household questionnaire was used to list all usual members and visitors in the selected households. For each person listed, basic information was collected that included age, sex, education and the relationship to the head of the household. The main purpose was to identify all women aged 15-49 and men aged 15-54 eligible for the individual interview. In addition, the household questionnaire also elicited information on the characteristics of the household, such as the source of water, the type of toilet facility, the materials used to construct the household's dwelling, and the ownership of various consumer goods. The individual female and male questionnaires were based on the DHS Model A questionnaire that was designed for use in countries with relatively high levels of contraceptive use. The information collected, among others, includes respondents' individual characteristics, marriage and sexual activity, family planning knowledge and use, and STDs and HIV/AIDS-related knowledge, attitudes, and behaviour.

3.3 Limitations of Sexual Behaviour and HIV/AIDS Data

Apart from sampling errors that can be evaluated statistically, non-sampling errors can occur because of methodological, individual response, and socio-cultural biases. These are major constraints in the collection of sexual behaviour and HIV/AIDS information. Researchers have noted that the quality and validity of sexual behaviour data is a function of the varied methods of data collection, sample selection, methods of analysis, terminology and points of reference, and cultural diversity in sexual beliefs and practices (Frank, 1994; Savage and Tchombe, 1994; Dare and Cleland, 1994; Ankrah, 1989).

Perhaps the first general attempt to study human sexuality in developing countries, including Kenya, was through the World Fertility Surveys (WFSs) conducted in the 1970s to early 1980s. Although the Kenya Fertility Survey (KFS) of 1977/78 collected some information on

initiation of sexual activity, coital frequency and post-partum abstinence, it was mainly aimed at understanding fertility determinants and contraceptive behaviour and not sexual behavioural dimensions. Besides, HIV/AIDS was not identified until the 1980s.

Similarly, the recently introduced DHSs in developing countries have not adequately addressed the issues of sexual behaviour and HIV/AIDS, except for the inclusion of few questions in the more recent surveys. It should be borne in mind that the DHS is not designed as a sexual behaviour or HIV/AIDS survey, but has a broader emphasis on the measurement of fertility, mortality, family planning, maternal and child health. The KDHS has, with each subsequent survey, expanded the range of questions asked in regard to sexual behaviour and HIV/AIDS since the first KDHS of 1989. Likewise, the wording and reference points for some questions such as number of sexual partners at specific time duration has not been uniform (last three, six or 12 months). In this regard, it is not possible to examine trends for most of the key sexual behavioural variables. At the same time, the amount of data that could be collected about HIV/AIDS in the 1998 KDHS was limited because of the varied objectives of the DHS. For example, the 1998 KDHS did not collect information on other forms of sexual orientations such as homosexuality and intravenous drug use (IDU) that are associated with elevated risks of HIV infection. In addition, information on perception of risk was not anchored in patterns of behaviour.

The most recent attempt specifically to study sexual behaviour and HIV/AIDS in Kenya was based on the special programme on AIDS of the World Health Organisation (WHO), that was later called the Global Programme on AIDS (GPA), started in 1987. The WHO/GPA study addressed the topic of HIV/AIDS and the antecedent sexual behaviour, (See Cleland and Ferry, 1995; Ingham and Holmes, 1991). The GPA was designed to provide cross-cultural comparative data on sexual behaviour and knowledge, attitudes, beliefs and practices (KABP) about HIV/AIDS in some developing countries of Africa, Asia and Latin America. Kenya participated in the GPA study and had a national survey done in 1989/1990. The GPA studies borrowed their design from the established family planning knowledge, attitudes and practice (KAP) surveys of the 1980s, but also addressed other issues specific to HIV/AIDS such as the *beliefs* component.

None of the sexual behaviour surveys have relied on any particular theory or methodology and thus they cannot provide reliable cross-cultural comparative data. Epidemiological rather than social research has dominated the understanding of HIV/AIDS through the years, while mostly targeting the special groups or those considered "high risk". Targeting of specific

groups resulted in small sample sizes and the development of stereotype groups, thus making generalisation of results difficult and implementation of HIV/AIDS prevention strategies unsuccessful. The majority of the population was left out because they were not considered "high risk" groups even though still at risk of HIV. The rapid spread of HIV infection among the general populations in most sub-Saharan African countries is partly attributable to the failure of the interventions that targeted only the "high risk" groups (Frank, 1994; Ankrah, 1989). In addition, the focus on the heads of households, traditionally the older males, as units of study often led to biased results. The younger, sexually active males and females left out of research or interventions formed the most significant group in HIV/AIDS prevention strategies. In addition, epidemiological studies have good data but only on sub-sections of the population. Social surveys have data of doubtful quality on everyone. Thus, there is a need to have improved data on those sub-sections of the population not covered by epidemiological studies.

On the other hand, population-based studies usually collect retrospective cross-sectional data, which are prone to problems of recall and normative reporting. The differences in sexual beliefs and practices, and belief systems about the causes of diseases and death in the African socio-cultural contexts create difficulties in getting common terminology for use in data collection. The distinction between the many types of sexual partnerships, such as regular and non-regular partners and commercial sex is often difficult. For example, the definition of commercial sex or prostitution is often based on the Western concept that ignores the realities of poverty in much of Africa (Chapter 2, section 2.6.3). Thus, differences in the study design, the terminology used and the reference points, and in sexual beliefs and practices, make the development of standard research designs difficult to enact.

The range of information ideally required for the analysis of sexual activity is diverse, but in practice the amount that can be collected is limited to a large extent by respondent attitudes and cultural tendencies that view sex as a taboo subject. The constraint of cultural contexts of human sexuality in which discussion of sexual matters is considered taboo is not easy to overcome even with worldwide surveys. Direct questions about sex may cause nervousness in individuals, particularly when the assurance of confidentiality is in doubt. In fact, extra-marital and pre-marital sexual activity is traditionally unsanctioned amongst many communities in Kenya and, therefore, may be largely mis-reported (NCPD, CBS and MI., 1999; Kenya *et al.*, 1998). Despite the perception that people are reluctant to talk about sex, the findings of the WHO/GPA studies were found to disprove the conventionally held notion

(Carballo, 1995). But whether the willingness to talk signifies reliability of responses is difficult to tell.

Ericksen and Steffen (1996) point out that most people are uncomfortable talking about their sex lives. They may give inaccurate answers, either because they are uncomfortable with the truth or because they cannot remember events that occurred some time back. Similarly, individuals might consistently over-report socially approved behaviour and under-report socially disapproved behaviour. In sex research, individuals are as likely to exaggerate the extent of their sexual experiences, as they are to under-estimate it. In contexts where masculinity is almost synonymous with number of sexual encounters, most men are likely to exaggerate their responses (Blanc, 2001). Conversely, women are likely to under-report sexual activity or not to report at all because of the internalised beliefs that expect women to be submissive in regards to sexual negotiation and decisions, and the association of femininity with "chastity".

Discussion about sexual issues such as condom use and the risk of HIV/AIDS infection is rare in Africa due to gender inequalities in sexual decision-making (Blanc, 2001). In many traditional African communities, male sexual transgression has always been considered normal and even encouraged. Females are expected to be chaste and be good wives and mothers. Not only are women expected to be submissive, but also to be silent about their partners' sexual behaviour.

The current shift towards the sexual networking approach in studying sexual behaviour, though providing comprehensive data, has its own limitations. Although sexual networking may solve problems of tracing the component structure of sexual partnerships, the issues of reliability and validity of responses remain. The need to name partners or getting unique identifying information (e.g. addresses) on the partners in order to find and enrol them in a survey raises practical and ethical issues (Morris, 2000). The respondents may not know the names or addresses of partners when the relationships are short-term or involve proscribed behaviour/illegal activity (e.g. extramarital or commercial sex). In addition to sex itself being sensitive, respondents may also be unwilling to name their partners for sensitive topics like drug use.

Naming respondents' partners raises the consent issues. Potentially sensitive information is now being collected on partners without their consent. Even if partners choose not to participate when interviewers go to enrol them in the survey, they still have information

about them from the index respondent. There are also risks for the original respondent because if a partner is told that the respondent named them, the respondent may be exposed to retaliation.

In addition, because of the retrospective nature of most sexual behaviour surveys, it becomes generally difficult for respondents to recall behaviour that occurred some time ago. Hence, most responses on sexual activity may be mis-reported. Research has, therefore, to acknowledge all these difficulties in the process of gathering accurate information on sexual activity and sexuality in general, and in interpreting and generalising results.

3.4 Variables Used in the Quantitative Analysis

This section provides brief descriptions of the range of psychosocial, socio-demographic and behavioural variables used in the quantitative analyses throughout this thesis. The choice of predictor variables varies according to the outcome of interest, that is, some response variables are sometimes used as explanatory factors. The analyses compare women and men in order to examine if any differences exist between them. Thus, sex of the respondent is not directly entered into the models but analysed separately. Similar categorisation of variables is used for both females and males for comparative purposes.

3.4.1 Outcome Variables

Self-perceived risk of HIV infection. This is used as a response variable in Chapter 5 and as a predictor variable in Chapters 6. Perceived risk in this study is concerned with the extent to which respondents felt that AIDS was a threat to them personally. It is hypothesised that individuals who perceive themselves to be at risk are more likely to have accurate AIDS knowledge and to change sexual behaviour in response to the threat of AIDS. The question asked is: *Do you think your chances of getting AIDS are small, moderate, great, no risk at all or don't know?* Only 0.2% of women and 0.1% of men gave the 'don't know' response and these were combined with the 'small risk' group. Perceptions of moderate and great risk were also combined since preliminary analysis showed that few women and men perceived themselves at great risk. Therefore, three levels of self-assessed risk are used in the multivariate analysis: Perception of no risk ('0'), small risk ('1') and moderate/great risk ('2'). The moderate/great risk category is referred to as the "great" or "high" risk group, thus the terms are used interchangeably throughout this thesis. The limitations of self-assessed risk are discussed in Chapter 5.

Risky sexual behaviour in the last 12 months. A variable representing 'any' risky sexual behaviour in the 12 months preceding the survey was computed and used as an outcome in

Chapter 6 and a predictor in Chapters 5. The 1998 KDHS enquired about risky sexual behaviour in different ways: age at sexual debut, regular and non-regular sexual partnerships, number of sexual partners in the last 12 months, coital frequency, commercial sex, non-use of condoms, and self-reporting of STDs (a co-factor of HIV infection). These factors are important for an assessment of HIV risk as they carry an elevated risk of contracting the AIDS virus. However, it is likely that high-risk sexual behaviours were under-reported particularly among women. Besides, some respondents may not engage in high-risk behaviour but are put at risk by their partners' sexual behaviour.

Only four of the high-risk behaviours named above are used in developing the variable in order to limit the reference period to the last 12 months. Although reliance on only a short retrospective span of time might fail to yield a comprehensive outlook of people's level of lifetime risk, a 12-month reference period is used to minimise recall errors inherent in reporting of past events. The behaviours include having had more than one sexual partner, having had a casual or non-regular sexual partner, receiving or giving money/gifts/favours in exchange for sex, and self-reported experience of a sexually transmitted disease. Risky behaviour is simply defined as reporting of *any* (i.e. at least one or more) of the four selected risk behaviours associated with heightened chances of contracting the AIDS virus in the last 12 months before the survey. The "any risk" variable, therefore, is a proxy for current risky sexual activity and not lifetime risk. The rationale and the development of the risk behaviour variable are further explained in section 6.3.2. The risk variable was computed to be binary, coded '1' if any high-risk sexual behaviour was reported and '0' otherwise. The components of the "any risk" variable are discussed below.

a) Having had more than one sexual partner in the last 12 months. This variable is used while taking into account men in polygynous unions. The number of sexual partners in the last 12 months is an indirect measure of the frequency of sexual intercourse and exposure to the risk of HIV infection. The 1998 KDHS (unlike the 1989 and 1993 KDHSs) did not collect information on the number and type of lifetime sexual partners that could have been used as a proxy of level of lifetime risk of exposure to the AIDS virus through sexual intercourse. The question asked was: "*In the last 12 months, how many different persons (other than your husband/wife or the man/woman you are living with) have you had sex with?.*" This question is limited because it considers only recent sexual behaviour thus ignoring what may have transpired since first sexual intercourse. An individual may have had only one partner in the recent past, though lifetime risk could be high.

b) Having had a casual or non-regular sexual partner in the last 12 months. Engaging in casual sex is considered a high-risk factor, particularly in the absence of risk-reduction measures. It is hypothesised that those who have engaged in casual sexual activity are more likely to perceive themselves at high risk of HIV and to report behavioural change in response to the threat of AIDS relative to their counterparts. Respondents who reported having had sexual partners in the last 12 months were asked: *"The last time you had sex, was it with your wife/ the woman (or man) you live with) or a regular partner, an acquaintance, someone you paid for sex, or someone else?.* This question under-estimates the extent of casual sex because it asks only the last time. Also, the difficulty in defining casual and regular sexual partners could make the interpretation of this variable problematic in eliciting reliable responses (see Chapter 2, section 2.6.3). Defining casual and non-regular partners particularly among the unmarried respondents may be difficult as a casual partner could also be the only partner in the last 12 months. Nevertheless, the score is simply defined as reporting of one or another of the high-risk behaviour, thus partly addressing the problem of overlap in responses.

c) Having received or given money, gifts or favours in exchange for sex in the last 12 months. Commercial sex is considered a risk factor for HIV infection and may be suggestive of the extent of commercialisation of sex in a society. It may be difficult in the Kenyan context to define commercial sex since it is not unusual for sexual partners to give or receive money or other material gains, a practice made more common by rising poverty levels, without necessarily having payment as the prime motive of sexual intercourse. However, the 1998 KDHS attempted to limit the problem of definition of commercial sex by asking about sexual relations with a non-regular partner that had payment as the prime motive. The question asked was: "*Have you given or received money, gifts or favours in return for sex at any time in the last 12 months?*" Although this variable suffers from problems of low response rate and the difficulty of distinguishing between the different types of sexual liaisons, it provides a fair indicator of the prevalence of commercial sex in the Kenyan context.

d) Having experienced an STD in the last 12 months. Although having had an STD is not directly a behavioural factor it is a prime indicator of high-risk sexual behaviour (Cohen and Trussell, 1996; Tyndall *et al.,* 1994). According to the UNAIDS/WHO (2000d:18) guidelines "curable STIs are an important indicator of potential exposure to HIV infection, both because they are co-factors for infection and because they indicate unprotected sex with non-monogamous partners." In addition, curable STIs might reflect risk behaviour in the recent

past better than HIV prevalence data because the symptoms may appear relatively in a short duration. For these reasons, an increase in safe behaviour might be more quickly reflected in lower STI rates than it is in lower HIV rates. It should be acknowledged, however, that self-reporting of STD infections have several limitations. Respondents are likely to under-report STDs because of the associated stigma, guilt and shame. Besides, some respondents may be exposed to an STD by the sexual behaviour of their partners and not their own. Some STD infections are asymptomatic, particularly among women, hence may go unnoticed. Likewise, respondents may be unable to recognise STD-like symptoms and therefore fail to report them. Respondents who reported knowledge of gonorrhea, syphilis, or "*magonjwa ya zinaa*" (that is STDs), were asked: "*During the last 12 months, did you have any of these diseases?*" This question will also under-estimate those who do not know but have, in fact, had symptoms of STDs.

3.4.2 Psychosocial or Knowledge Variables

Knowledge factors are considered key influencers of people's adoption of risk-reduction strategies. Ideally every person should be able to identify potential routes of HIV infection in order to adopt specific forms of safer behaviour. It is now recognised that general awareness and knowledge about AIDS in itself are not important in behavioural change but specific knowledge is (UNAIDS, 2000b). People can hold both correct and incorrect beliefs about AIDS transmission and prevention simultaneously, and incorrect beliefs may sometimes override the correct. For example, if people believe that mosquito bites transmit the AIDS virus, taking protective measures against contracting HIV such as condom use may not be valued, as they are believed to be futile. Thus, the knowledge variables as used in this thesis seek to understand how specific forms of information are associated with self-assessment of risk and sexual behaviour of respondents. The knowledge variables used in this study are described below.

Exposure to the media. The mass media has been shown to influence sexual knowledge, attitudes and behaviour through dissemination of relevant information. Many HIV/AIDS prevention campaigns in Kenya are conducted through the radio, the television and written materials. It is hypothesised that exposure to most of these sources leads to high level of awareness, likely to influence self-assessed risk and HIV prevention mechanisms. Although the mass media may contain both correct and incorrect information (Measure Evaluation, 2001), awareness levels can be used as indicators of the extent of achievements of intervention efforts. The questions were of the form: *"Do you usually read a newspaper or magazine at least once a week?"; "Do you usually listen to a radio at least once a week?",*

and *"Do you usually watch television at least once a week?"* Responses were coded '1' for exposure to any source and '0' for no exposure.

Source of AIDS information. This enquires about ways in which individuals got to hear about AIDS. The various sources mentioned were grouped into three: a mix of formal and non-formal, only formal, and only non-formal. Sources considered formal are radio, television, newspapers, posters/pamphlets, and clinic/health workers. These are sources used for public AIDS awareness and prevention campaigns in Kenya and are considered less likely to be influenced by personal biases and beliefs. The sources categorised as non-formal include churches, schools and teachers, community meetings, friends and relatives, and the work place. These sources are considered less reliable because they are prone to personal biases and may contain both correct and incorrect information. Nonetheless, studies show that even public media sources may carry incorrect information likely to influence people's attitudes and behaviour (Measure Evaluation, 2001). Despite the likelihood of holding mixed information, the categorisation adopted in this thesis takes account of the different levels of knowledge and should not be taken as exhaustive. Respondents gave spontaneous answers to the question: *"Have you ever heard of an illness called AIDS? From which sources of information have you learned most about AIDS?"* The limitation of spontaneous responses has already been discussed under behaviour change and this variable may suffer from similar effects.

Knowledge of AIDS transmission. People aware of modes of AIDS transmission may adopt cautious attitudes and effective protective measures against getting the disease. However, as noted earlier, a mixture of correct and incorrect information (for example, mosquito bites transmit HIV) may influence an otherwise knowledgeable person to engage in risk taking behaviour if potentially successful attempts at prevention are seen as futile. The question asked was: *"How can a person get AIDS?"*. Respondents gave spontaneous responses, which sometimes included a mix of correct and incorrect responses. Thus, the interpretation of this variable has to take into account the limitations of spontaneous responses.

According to MEASURE Evaluation (2001) what people believe rather than what they know may influence their responses. Spontaneous responses may represent what people believe to be the best AIDS prevention options to them. For example, married people may choose not to report abstinence as an AIDS preventive option since it may be viewed as impracticable in marriage. Alternatively, interviewer attitude and coding abilities may also influence

spontaneous responses. For example, the interviewer's patience in probing, *"Any other way of transmission or prevention?"* and the interpretation of the answers into pre-coded responses may vary between interviewers and even surveys. Respondent fatigue from answering a series of questions may also affect the final responses to spontaneous-like questions. All these barriers can influence survey results and could make it difficult to get accurate information from respondents, compare results over surveys or look at trends over time.

Field tests by MEASURE Evaluation (2001) compared prompted and spontaneous responses for different knowledge indicators in selected developing countries in an attempt to develop reliable monitoring and evaluation indicators of AIDS knowledge and behaviour. The field tests showed a good agreement between spontaneous and prompted answers for condom use, suggesting that the mode of asking about this protection did not matter. Conversely, there was far less agreement about other prevention strategies, with people generally more likely to give a correct response when prompted than spontaneously. For example, fewer than half of respondents in any country mentioned abstinence or faithfulness as an effective prevention strategy, although when prompted up to nine in 10 said these were indeed effective strategies. In-depth interviews with the same respondents showed that prompted responses are a more accurate reflection of people's knowledge than the spontaneous answers.

Similarly, very few people volunteered incorrect methods of HIV prevention. But when prompted for incorrect beliefs, a significant proportion of people was found to have erroneous beliefs, thus posing the question – "if people did not hold these beliefs strongly enough to mention them without prompting, is it likely that their behaviour would be shaped by these misconceptions?" (Measure Evaluation, 2001:6). Incorrect beliefs about modes of transmission – for example, that sharing of eating utensils transmits HIV – could lead to obsessively careful behaviour or helplessness/fatalism such that no attempts for safer sexual behaviour are made simply because so many are thought to be necessary. Ingham (1995) notes that incorrect beliefs in transmission through purely social mechanisms are likely to lead to unwarranted worries about the risk of HIV infection and perhaps discrimination and enforced isolation against those thought to be infected with HIV.

To examine how accuracy of information influences self-assessed risk and sexual behaviour, respondents who reported ever having had sexual intercourse and aware of AIDS are categorised into three non-overlapping groups aimed at measuring level of accuracy (Table 3.2): a mix of correct sexual and non-sexual, only sexual, and don't know correct ways of

AIDS transmission. This categorisation should not be regarded as definitive or the only way of exploring the effect of knowledge on behaviour but a suggestion on how to capture correct and incorrect beliefs about AIDS. The number of respondents who mentioned a mix of correct and incorrect methods was negligible to warrant a separate category. This group is included with those who gave a mix of sexual and non-sexual methods.

Table 3.2: Categorisation of responses of knowledge of AIDS transmission to levels of accuracy, KDHS 1998

Original responses categorised into:
A mix of correct sexual and non-sexual
Sexual intercourse
Sex with multiple partners
Sex with prostitutes
Not using condoms
Homosexual contact
Blood transfusion
Sharing injections
Mother to child
Sharing razor blades
Mentioned only sexual
Sexual intercourse
Sex with multiple partners
Sex with prostitutes
Not using condoms
Homosexual contact
Mentioned incorrect only or did not know
Kissing
Mosquito bites
Don't know responses

Knowledge of ways to prevent HIV infection. The range of HIV prevention measures sought in the KDHS included both sexual and non-sexual ways. These included abstention from sex, use of condoms, avoidance of multiple sexual partners, avoidance of sex with prostitutes, avoidance of sex with homosexuals, faithfulness to one partner, and avoidance of blood and injections likely to be contaminated. Like responses on modes of AIDS transmission this question suffers from the limitation of spontaneous answers, a fact its interpretation has to consider. The forms of prevention measures mentioned could also be affected by cultural beliefs and practices. For example, abstinence may be difficult to enact for most Kenyan women since multiple sexual partners are tolerated for men but not women, and so women may have chosen not to mention this as a way of preventing AIDS. Furthermore, some studies done in Kenya have shown that use of condoms in stable or regular relationships is very low, and is almost considered unnecessary in partnerships as in marriage (Bauni and Jarabi, 2000; Fapohunda and Rutenberg, 1999). It is hypothesised that respondents aware of sexual ways of preventing HIV infection are more likely than their

counterparts without such knowledge to have high levels of risk perception and to engage in safer sexual behaviour. Respondents provided spontaneous answers to the question: *"Is there anything a person can do to avoid getting AIDS or the virus that causes AIDS? What can a person do?"* (Table 3.3).

Table 3.3: Categorisation of responses of knowledge of AIDS prevention to levels of accuracy, KDHS 1998

Original responses categorised into:
Mentioned a mix of correct sexual and non-sexual modes
Abstain from sex
Use condoms during sex
Avoid multiple partners
Be faithful to partner
Avoid sex with prostitutes
Avoid sex with homosexuals
Avoid blood transfusions
Avoid injections
Mentioned only sexual
Abstain from sex
Use condoms during sex
Avoid multiple partners
Be faithful to partner
Avoid sex with prostitutes
Avoid sex with homosexuals
Mentioned incorrect or did not know
Avoid kissing
Avoid mosquito bites
Go to traditional healer
Don't know responses

As shown in Table 3.3, knowledge of AIDS prevention among respondents who reported ever having sexual intercourse and being aware of AIDS is categorised into three: a mix of correct sexual and non-sexual, only sexual, and don't know. Similar to the knowledge of AIDS transmission variable, those who mentioned a mix of correct and incorrect ways of preventing AIDS were very few and are included in the category of people who cited a mix of sexual and non-sexual ways.

Can a healthy-looking person have AIDS? This enquires about awareness of asymptomatic transmission. In Africa, diseases are closely linked to social organisation and the belief in gods. Therefore, breaking of certain taboos or disobedience to a god, and more often physical signs are used to judge people's health (Twumasi, 1981). This makes it important to assess people's perception of risk and sexual behaviour in terms of their own interpretation of illnesses.

It is hypothesised that those who believe that a healthy looking person can have HIV have a high level of awareness and self-perceived risk, and are more likely to adopt safer sexual practices. The question was of the form: *"Is it possible for a healthy-looking person to have the AIDS virus?"*. The responses were yes, no and don't know. These are categorised as '1' if yes and '0' for no/don't know.

Knowledge of mother-to-child transmission. People who know of mother-to-child transmission are likely to adopt less risky sexual practices particularly if they also desire children. Respondents were asked: *"Can AIDS be transmitted from mother to child?"* This variable was coded '1' if yes and '0' if no/don't know.

Knowledge of someone sick or died of AIDS. The aspect of awareness or familiarity with the disease may propel some people to high levels of self-perceived risk, which may also influence their sexual behaviour. However, the distinction between knowing personally/physically and knowing by seeing pictures portrayed in the media is not clear. Thus, knowledge of someone sick of or dead of AIDS could be overstated because of hearing or seeing of a person living with HIV/AIDS on posters or films. Respondents gave yes ('1') and no/don't know ('0') answers to the question: *"Do you personally know someone who has AIDS or has died of AIDS?"*

3.4.3 Sexual Behavioural Variables

The behavioural variables used in this study are those related to sexual behaviour described in sections 3.4.1. The other behavioural factors are ever having been tested for HIV, reported behaviour change and use of condoms to avoid getting AIDS which are explained below.

Ever been tested for HIV. Respondents' preventive behaviour can also be measured through the uptake of voluntary HIV counselling and testing (VCT). Taking an HIV test may measure the degree of egalitarianism in partner relationships and the extent to which sexual attitudes are changing because of exposure to information through intervention messages or social networks. HIV testing can also be an indicator of economic independence among women. Voluntary HIV testing is beyond the means of an ordinary Kenyan since it involves payment. In most parts of Kenya, voluntary HIV testing is stigmatised and people who choose to do the test go for it secretly. Often, apart from HIV testing for medical reasons, men decide when to go for the test because they have the power and control over sexual decision-making and the economic power. The majority of women in the reproductive age groups in Kenya undergo routine HIV testing during antenatal visits as part of the national

sentinel surveillance programme. Unfortunately, the 1998 KDHS did not ask for reasons for taking an HIV test. Respondents were asked: *"Have you ever been tested to see if you have the AIDS virus?"*, a dichotomous variable coded '1' if yes and '0' otherwise.

Change in behaviour in response to AIDS. Change in behaviour is examined both at the subjective and objective levels. The subjective level is taken as a respondent reporting having instituted specific protective measures as a result of hearing about AIDS. The objective level is specifically reporting having 'ever used' condoms with a sexual partner to avoid getting AIDS.

To determine whether current behaviour represents level of AIDS awareness and self-perceived risk, and a shift from high-risk to low-risk sexual activity, respondents were asked if they had taken protective action against AIDS by changing their lifestyle in response to the threat of AIDS. It is hypothesised that change in sexual behaviour reflects people's knowledge and acknowledgement of the seriousness of the AIDS pandemic, as well as the realisation of the need of adopting risk-reduction strategies. Two questions were asked that elicited spontaneous responses: "*Since you heard of AIDS, have you changed your behaviour to prevent getting AIDS? If yes, what did you do?*" and "*Has your knowledge of AIDS influenced or changed your decisions about having sex or your sexual behaviour?" If yes, in what way?* The first question elicited both sexual and non-sexual forms of behavioural change, and the second specifically sought changes in sexual behaviour. Ideally, this question should not have mentioned AIDS since it presupposes the answer to an extent. The 1998 KDHS combined responses to the two questions into one variable, resulting in both sexual and non-sexual behavioural change.

The limitations of reported behaviour change are outlined in Chapters 5 and 6. In addition, the limitation of spontaneous responses vis-à-vis prompted, described earlier in this section, is a fact this study has to acknowledge when interpreting behavioural change results. Behaviour change could be influenced by perception of risk or could influence perception of risk. Table 3.4 shows the categorisation of sexually experienced women and men who were aware of AIDS who reported different forms of behavioural change in response to AIDS into '1' A mix of sexual and non-sexual change, '2' Only sexual change, and '3' Only non-sexual change/don't know).

Table 3.4: Categorisation of responses of behaviour change, KDHS 1998

Original responses on forms of behaviour change categorised into:
Only sexual change Mentioned at least one or more of the following: stopped all sex, started using a condom, only one sex partner, reduced sex partners
Mix of sexual and non-sexual change Mentioned any of the above and a non-sexual change and/or asked spouse to be faithful
Only non-sexual change/don't know Mentioned only non-sexual change and/or only asked spouse to be faithful or did not know

The rationale of the categorisation adopted in Table 3.4 is based on the assumption that behaviour change of a sexual nature, which involves change of one's own sexual behaviour (stopped all sex, started using condom, only one sex partner, reduced sex partners, and avoided sex with prostitutes), is categorised as only sexual change and is considered a more effective risk-reduction strategy. However, this measure of effectiveness is to some extent a measure of subjective efficacy because it requires the active participation of the respondent. Self-efficacy or the extent to which respondents feel able to reduce the risk of HIV infection through their own action is a key component of the health behaviour theories reviewed in Chapter 2. The ability of people to institute effective sexual behaviour change may play an important role in risk-reduction in Kenya where 80% of adult HIV infection is through sexual contact and about 15%-20% of infections are accounted by mother to child transmission, an indirect pointer of sexual transmission.

Change in behaviour that is somewhat passive in nature, that is, does not involve specific change of one's own behaviour (such as asked a partner to be faithful and any non-sexual change) is categorised as non-sexual change and is considered less effective. Behavioural change considered less effective may also be used as an indicator of inefficacy particularly for women whose own behaviour change may prove futile because their ability to reduce the risk of infection could be invalidated by their partner's risky behaviour. Often, studies indicate that women are less likely than men to engage in high-risk sexual practices but the behaviour of their partner places them at risk (UNAIDS, 2000a). The negligible number of individuals who did not mention any change was grouped with those who cited only non-sexual change/asked partner to be faithful because this was considered not to bias the results. The last category of people who mentioned only non-sexual change and/or asked spouse to

be faithful or did not know is referred to as the "only non-sexual change" group throughout this thesis.

Ever use of condoms to avoid getting HIV/AIDS. This variable is used to measure the objective level of behaviour change of respondents. The ever use of condom variable is used as a predictor variable in Chapters 5 and 6. Measuring condom use is problematic because of the likelihood of respondents overstating or understating its use, particularly in distinguishing between use for fertility regulation or disease control, or in regular and casual sexual activity (Dodoo, 1998). In the family planning module of the 1998 KDHS, for example, respondents were asked whether they had ever tried or were currently doing anything to delay or avoid a pregnancy with their partner(s). If they answered 'yes', they were asked what method they had used or were using. Condom users were then identified. These questions fail to identify condom use that is unrelated to family planning needs or that is used both to protect against pregnancy and STIs, and potentially overstates or understates the level of use for STI protection. Some women and men who use condoms in extramarital or casual relationships for prevention of either or both pregnancy and disease may not report this.

However, in the modules on marriage and AIDS, respondents who reported knowing that condoms can be used to avoid getting AIDS or sexually transmitted diseases were specifically asked, "*...Have you ever used a condom during sex to avoid getting or transmitting diseases, such as AIDS?*" Because the focus of this thesis is on sexual behaviour and the risk of HIV, condom use is only examined at ever use to avoid getting AIDS. Use of condoms to avoid getting AIDS provides a more direct indicator of risk-reduction behaviour, though information about the correctness and consistency of use of condoms was not collected. Condom use is a dichotomous variable coded '1' for ever-use of condoms to avoid getting AIDS and '0' for non-use.

3.4.4 Individual Level and Intermediate Socio-demographic variables

Factors at the individual and intermediate levels significantly influence sexual behaviour and the spread of HIV/AIDS in Kenya, and so it is important to control for their effects in multivariate analyses. The individual and socio-demographic factors used in this study include region and rural-urban residence, education level, work status, age, ethnicity, religion, age at first sex, and marital status.

Age. Age is measured in completed years as reported by the respondent at the time of the survey. It is grouped as follows: 15-19, 20-24, 25-39, 40 years and above. This approach is

similar to that used in the analysis of the WHO/GPA Kenyan data on sexual behaviour (Cleland and Ferry, 1995). The categories are used in order to distinguish between teenagers (15 to 19 years) and young adults aged 20 to 24 years. The broad grouping of 25 to 39 is meant for older adults and finally, the oldest cohort of 40 years and above is distinguished on the basis that their experiences, knowledge, attitudes and behaviour may be distinctive from the rest of the respondents (Cleland, 1995).

Education Level. Schooling can either be represented in the form of years of schooling or in terms of the highest level of school attended. The highest level of schooling was used because preliminary analyses based on years of schooling did not yield different results. Thus the categorisation no schooling, primary, and secondary/higher is used.

Work Status. Having paid work is likely to influence people's risk-taking behaviour because of the availability of disposable income or living away from regular partners. Work status was a dichotomous variable coded '1' if working and '0' otherwise.

Rural or urban residence. Urban or rural residence has consistently been shown to be associated with sexual behaviour and the prevalence of STIs and HIV/AIDS in Kenya (Brockerhoff and Biddlecom, 1999; NCPD, CBS, and MI, 1999; 1994; Ocholla-Ayayo and Schwartz, 1991). As noted in chapter one, HIV prevalence rates in Kenya vary between urban and rural areas, though rural areas have more PLWHA because over 80% of Kenya's population live in rural areas (GOK/CBS, 1996). This variable has two categories: rural or urban residence.

Region of residence. Sexual behaviour and HIV/AIDS prevalence in Kenya differ by regions. Districts and, to a large extent Provinces, tend to be inhabited by people who speak a common language and have similar cultural practices, with the exception of Nairobi and Mombasa that are cosmopolitan. Seven regions (provinces) are used in this study: namely, Nairobi, Central, Coast, Eastern, Nyanza, Rift Valley, and Western provinces.

Ethnicity. Ethnicity is closely related to regions of residence in Kenya, particularly districts that form provinces that are predominantly occupied by people of the same ethnic group. The cultural diversity that exists in Kenyan communities negates uniformity in the application of mechanisms that would help prevent the spread of AIDS. Kenya has over 41 ethnic groups with the three broad groups being the Bantu (Kikuyu, Kamba, Meru, Luhya and Mijikenda); the Nilotes (Luo); and Nilo-Hamites (Kalenjin, Maasai and Samburu). All these groups are

associated with specific traditional practices and norms regarding sexual behaviour. In addition, each ethnic group has its own unique traditional social organisational structure. This diversity of ethnicity in Kenya means that categorisation has to be done based on proximity of ethnic groups to each other in the sharing of some or most of the traditions, beliefs and practices. Nine broad groups are used: Kalenjin, Kamba, Kikuyu, Kisii, Luhya, Luo, Kisii, Meru/Embu, Mijikenda/Swahili/Taita-Taveta and "Others".

Religion. Christian and Islamic religious leaders have been reluctant to introduce sex or family life education in schools and the promotion of use of condoms for the prevention of STIs. Such attitudes have not been very helpful in enhancing safer sexual behaviour particularly among young people. It is hypothesised that adherence to any religion has a positive relationship to safer sex practices and low perception of risk of HIV infection. Religion is categorised into three groups: Catholic, Protestant/other Christian, and Muslim/Other.

Age at first sexual intercourse. The 1998 KDHS did not seek further information on familiarity with the first sexual partner and whether that first partner became a regular partner or spouse. The reliability of information on age at first sexual intercourse is further addressed in sections 3.6.2 and 3.6.3. Respondents were asked: "*How old were you when you first had sexual intercourse?*" Age at first sexual intercourse is categorised into three groups: under 15 years, 15 years and over, and don't know/missing.

Marital status. The institution of marriage is a significant variable in population studies since it is associated with continuous exposure to sexual risks. The 1998 KDHS data indicated that among women of age 30 and above, 94% were, or had ever been married. However, marriage as used in the 1998 KDHS was defined in an unusually broad manner to encompass informal sexual partnerships (or living together arrangements), as well as relationships that had been endorsed by legal, church, or traditional (other) ceremonies. Thus, cohabiting consensual unions are all referred to as marriage. The questions used in the measurement of marital status were:

"Have you ever been married or lived with a man/woman?"
"Are you currently married or living with a man/woman?"
"What is your marital status now: are you widowed, divorced, or separated?"

Four categories, never married, formerly married, married-monogamous, and married-polygamous are used in this study.

3.5 Methods of Analysis

Qualitative and quantitative methods of data analysis were applied depending on the type of data. Only quantitative data analysis methods are briefly mentioned in this section as details about qualitative data analysis were outlined in section 3.2.1

3.5.1 Statistical Methods

The statistical methods used in this study are multinomial logistic regression, ordered logistic regression, and binary logistic regression models, all accounting for survey design effects. Multivariate logistic regression modelling is used to examine the adjusted effects of selected factors on the outcomes of interest namely, perception of AIDS risk and risky sexual behaviour. Ordered logistic regression is used in Chapter 5 where the outcome variable, perception of AIDS risk has three categories of an ordered nature – none, small and great. Logistic regression is used for the binary outcome risky sexual behaviour, in Chapter 6. Each of these statistical methods is fully described in the respective chapter in which it is applied. Statistical analyses were done using SPSS (SPSS User's Guide, 1999) for data manipulation and, STATA statistical software (StataCorp, 2001) for bivariate and multivariate analyses. The unit of analysis was the individual woman or man. Graphical presentation of results was done in Excel software (EXCEL User's Guide, 2000).

The tables in each chapter present either probabilities or odds ratios depending on the multivariate regression procedure used. The probabilities and the odds ratios are used to show an estimate of the magnitude of the association between the outcome and explanatory variables while *p*-values are used to identify statistically significant associations. However, the rest of the parameter estimates (coefficients and confidence intervals) for each table in the main text are shown in the appendices. Confidence intervals present information on the precision of each estimate, and if necessary, can be looked up in the relevant appendix. The Pearson chi-square test for statistical significance is used in the bivariate analyses.

3.5.2 Accounting for Survey Design Effects

The multivariate statistical regression models were fitted using STATA statistical software release 7.0 (StataCorp, 2001) that has a component for accounting for three important elements of survey data, that is, sampling weights, clustering and stratification. Statisticians acknowledge that the sample design features affect data analyses and need to be accounted for in order to obtain unbiased point estimates and fairly realistic standard errors and confidence intervals (StataCorp, 2001; Brogan, 1998; Eltinge, Parson and Jang, 1997; Korn and Graubard, 1995; Skinner *et al.*, 1989; Smith, 1988).

As mentioned in section 3.2.2, the KDHS used a two-stage stratified sampling strategy. Some districts were over-sampled, thus rendering the data hierarchical and at the same time, not self-weighting. Although multilevel models are considered appropriate for regression modelling of hierarchical data as they account for clustering at higher levels, they often fail to take into account the impact of the complex survey design on parameter estimates. Inferences based on the estimates may be biased since individuals from the over-sampled clusters will have heavier weight than is the case in the population. Because of this limitation, this study used models accounting for sample design effects for calculation of parameter estimates. The approach that is adopted in this study is to control for the hierarchical structure, but not to quantify the degree of clustering, better handled by multilevel models. Software that fits multilevel models while accounting for the complex survey design at the same time is not publicly available (Pferrerman *et al.*, 1998). More about complex survey data analysis can be read in Appendix 3.8 and in Stata Users' Guide, (StataCorp, 2001); Brogan, 1998; Eltinge, Parson and Jang, 1997; and Korn and Graubard, 1995.

3.6 An Assessment of the Quality of the 1998 KDHS Sexual Activity Data

It is important to note that the interpretation of results in these analyses has to be cognisant of the problems of reliability and validity inherent in sexual behavioural research in general, and particularly population-based and cross-sectional surveys. Reliable data on sexual activity are necessary for the effective assessment and monitoring of HIV prevention programmes. Poor reporting of sexual activity might mask risk behaviours and thus mislead policy and programmes, thereby leading to ineffective programmes or targeting of prevention interventions to wrong groups of people. The reliability and validity of sexual activity data largely depend on the quality of responses to survey questions that concern such private and sensitive aspects of people's sexual behaviour. Doubts have been cast on the reliability of sexual behaviour information due to its personal and sensitive nature (Ferry *et al.*, 1995; Gage, 1995; Ankrah, 1989; Johnson and Delamatar, 1976; Clark and Wallin, 1964). It is observed that respondents commonly report normative sexual activity particularly for behaviour that is not socially approved such as pre-marital or extra-marital sex (Blanc and Rutenberg, 1991). Normative reporting of sexual activity might undermine the ability of programmes to design and implement AIDS prevention campaigns, hence the need to evaluate the quality of data obtained from population-based surveys.

There is no golden standard for measuring the validity of self-reported sexual behaviour data, thus it is difficult satisfactorily to validate survey data on sexual activity that relies heavily on the willingness of respondents to report details of their behaviour. However, because

STD/HIV/AIDS interventions are based on self-reports of sexual behaviour, it is important to assess some aspects of reliability and validity of such data. In this thesis, response rates to questions on four aspects of sexual activity are used to assess the quality of sexual behaviour data. These include:

(1) aggregated data on the response rates to specific questions on sexual activity,
(2) the trend in the median age at first sexual intercourse and first marriage,
(3) the consistency of information given by respondents on age at first sex compared to age at first marital union and age at first birth, and
(4) consistency of responses to questions on HIV/AIDS knowledge and behavioural change in response to the threat of AIDS.

The issues of plausibility of the patterns of results and interrelationships between variables are addressed in later chapters. It should be noted that the presence of inconsistencies in the data might not necessarily suggest they are unreliable or invalid. Similarly consistencies might not be indicative of the reliability of responses. However, though consistency checks might not be definitive, an assessment of the consistency of reporting of various aspects of sexual activity can at least help ascertain the relative reliability and validity of the data.

3.6.1 An Examination of Response Rates of Sexual Activity Questions

The response rates for the general survey and questions of interest are given in Table 3.5. The response rates for some sexual activity questions were examined in order to check the implications of missing data on the results. Researchers acknowledge that information on sexual behaviour when data are missing might bias results (Raab and Donnelly, 1999). If non-response or missing data are not at random, that is, if they are selective of specific sub-groups of the study sample, then bias in results is likely. Since the focus of this study is on perception of AIDS risk and sexual behaviour, most response rates and data quality checks are based on respondents who reported having heard of AIDS and who reported being sexually experienced, although a few checks are done for all interviewed women and men. However, the internal consistency of responses between sexual experience and reasons for levels of self-perceived risk was checked only for women and men who reported never having sexual intercourse. This is done in order to check whether people who claimed never having sexual intercourse also avoided giving sexual reasons for levels of self-perceived risk.

The examination of response rates to the questions on sexual activity in Table 3.5 reveals that the percentage of cases for which the data are missing, or for which a respondent reported "don't know" or gave inconsistent answers was quite low for most questions except for age at

first sexual intercourse and reports on having had an STD in the last 12 months. The level of non-response (missing data) or inconsistent information ranges from almost zero among women reporting number of sexual partners in the last 12 months to 4.5% (men) for age at first sexual intercourse information. Further checks on the distribution of inconsistent responses or respondents with missing data on age at first intercourse by background characteristics (results not shown) revealed that the cases were proportionally and randomly distributed across sub-groups of respondents. These cases were included in the analysis as a separate category of age at first sexual intercourse because they formed a substantial proportion of the AIDS-aware and sexually experienced sample.

Table 3.5: Non-response rates and inconsistencies[10] in questions on sexual activity by women and men who have heard of AIDS and ever had sexual intercourse, KDHS 1998

Characteristic	Percentage of cases with missing data/inconsistencies	
	Females (n=6,554)	Males (n=2,973)
Age at first intercourse[11]	4.0	4.5
Number of sexual partners in the last 12 months	0.04	0.4
Last intercourse used a condom	0.4	0.7
Had STD in the last 12 months	3.8	1.4
Ever received/given money or gifts for sex	0.1	0.2
Type of last sexual partner	0.5	0.5

3.6.2 Sexual Initiation and Trends in Median Age at First Sexual Intercourse and First Marriage

Table 3.6 illustrates the pattern of sexual experience for different cohorts of women and men. As expected, the majority of women and men at young ages reported not to have had sexual intercourse and never to have been married. However, by the age group 20-24, almost 90% of women and men have initiated sexual intercourse, and only about a third of women (35%) have never been married by age 20-24 compared to over three-quarters of men (77 %).

[10] Inconsistencies between age at first intercourse and age at first marriage or first birth or current age.

[11] The cases for age at first intercourse include those who gave inconsistent reports between age at first intercourse and age at first marriage or age at first birth. The DHS-III flagged the following types of inconsistencies to code 97 (inconsistent) if the following were found: (a) respondent reported age at first sexual intercourse that exceeds current age, (b) respondent reported age at first sexual intercourse as occurring more than one year after the conception of first child, (c) respondent reported age at first sexual intercourse as occurring up to one year after the conception of first child, (d) respondent reported that first sexual intercourse was at the time of first marriage, but the respondent was never married, (e) respondent reported that first sexual intercourse was at the time of first marriage, but first marriage occurred after the conception of first child, and (f) respondent reported first sexual intercourse as being after first marriage – a common scenario in traditional settings in which marriages are formalised at a fairly early age but cohabitation and consummation occurring later in life.

Table 3.6: Percentages of women and men who reported never having had sexual intercourse and never been married according to current age, KDHS 1998

Current age	Percentage never had intercourse		Percentage never been married	
	Female (n=7,881)	Male (n=3,407)	Female (n=7,881)	Male (n=3,407)
15-19	56.4	45.8	83.3	99.3
20-24	11.1	9.0	34.9	77.4
25-29	1.8	1.1	12.7	35.1
30-34	0.2	0.7	6.1	9.4
35-39	0.0	0.3	2.8	3.4
40-44	0.0	0.4	2.8	3.7
45-49	0.0	0.3	1.7	1.2
50-54	-	0.0	-	0.3
Total	15.8	12.9	30.1	43.7

Ascertaining the expected pattern of the median age at sexual debut is difficult. If sexual activity occurs largely within marriage, trends in the age at first sexual intercourse might closely follow trends in the age at first marriage. But where premarital sex is common, the trends in the age at sexual debut and the age at first marriage may differ. Trends in the median age at first intercourse were examined according to cohorts of women and men. Findings on sexual activity in Kenya suggest that the age at first intercourse has been increasing over time and this has been attributed to improved education levels among women (NCPD, CBS, and MI., 1999; 1994; 1989; Kenya *et al.,* 1998). It may be possible that age at first sex for men has been falling due to delay in age at first marriage, the breakdown in traditional sexual practices that regulated pre-marital sexual activity, and the influence of the mass media.

The trends in age at first sexual intercourse compared to age at first marriage are illustrated in Figures 3.2 and 3.3. Generally, the median ages at first sexual intercourse and at first marriage follow similar trends for women but not for men. The median age at first sexual intercourse rises consistently over time for women, from 16.0 years for the oldest cohort to 17.3 years for the youngest age group, whereas for men, it decreases from 18.0 years for the oldest cohort to 16.0 years for the youngest age groups. Similarly, age at first marriage for women in Kenya appears to have risen from about 18 years among the oldest cohort of women (40-49 years) to 20 years for women age 25-29.

Figure 3.2: Median age at first sexual intercourse for women and men according to current age, KDHS 1998

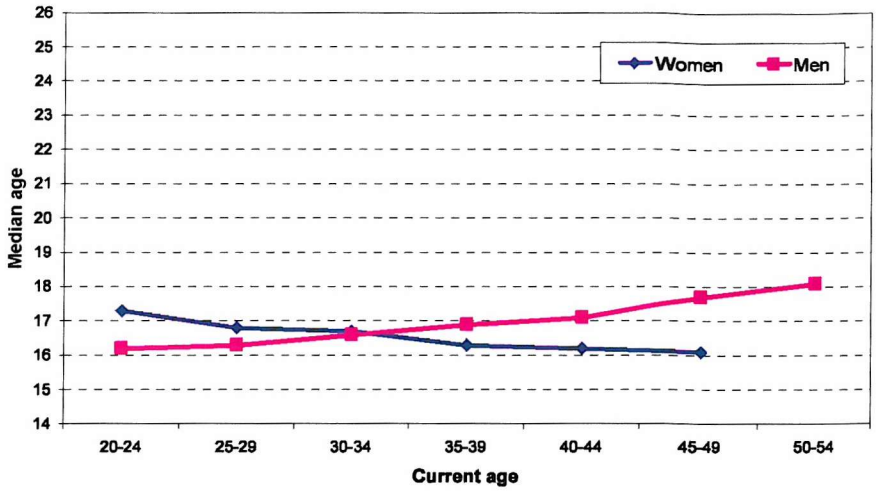
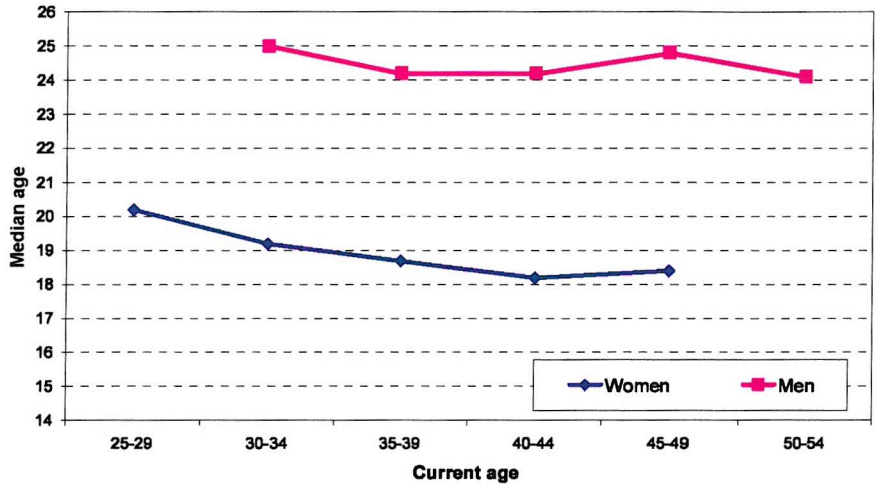


Figure 3.3: Median age at first marriage for women and men according to current age, KDHS 1998



A comparison of age at first sexual intercourse and age at first marriage suggests that, among more recent cohorts, men marry at a later age than women do by an average of 5 years although they initiate sexual activity at an earlier age. It is difficult to tell whether the observed differences between women and men in trends in age at first sexual intercourse and first marriage are genuine or are outcomes of mis-reporting by some cohorts of respondents, although it should be noted that the age at first marriage for women follows a similar trend to age at first sexual intercourse, thereby giving an indication that reporting of age at first sexual intercourse is relatively reliable.

There is little evidence to suggest mis-reporting of age at first sexual intercourse, but the trends in median age at first marriage give an indication of slight age displacement among women and men in the older cohorts. Women age 45-49 have a median age at first marriage that is 0.5 years higher than for the 40-44 age group and men age 45-49 have a median age at

first marriage that is at least 0.7 years higher than that for the two adjacent age groups. These differences may have resulted from mis-reporting of either the age at first marriage or the current age, in addition to differences in cultural definitions of marriage that may have compounded mis-reporting of age information. The difficulty in reporting age at marriage may arise due to the ambiguity in the definition of and timing of marriage, particularly in communities where marriage is not a one-day event but occurring in stages that evolve over time.

3.6.3 Aggregated Consistency of Data on the Interval between Age at First Sexual Intercourse and First Union among Ever-married Women and Men

The distribution of ever-married women and men by interval between age at first intercourse and age at first union by current age is presented in Table 3.7. This analysis checks on the internal consistency of the data. A high proportion of respondents reporting that they had first sexual intercourse a year or more after first union may indicate inaccurate reporting of either age at first sexual intercourse or age at first union. In addition, the proportion of respondents who report that they had first sexual intercourse before first union can be used as a proxy for the prevalence of pre-marital sexual activity, as well as the onset of women's and men's exposure to sexual risks.

Overall, about 62% of ever-married women and 86% of ever-married men reported that they had sexual intercourse prior to first marriage (Table 3.7). The results for women indicate an increasing trend in sexual intercourse outside marriage from about 50% reported in the 1993 KDHS (see Gage, 1995). Over a quarter of women (27.4%) reported that they were virgins at the time of marriage compared to about 5% of men. There was little variation in patterns of reporting of age at first intercourse across age groups, though the proportions reporting sexual intercourse before marriage are slightly more among the younger than the older cohorts for both women and men, suggesting that pre-marital sexual activity is becoming more common in Kenya. Using the 1993 KDHS, Gage (1995) observed that premarital pregnancies are prevalent; 25% of women reported that they had their first birth prior to first marriage.

Table 3.7: The percentage distribution of ever-married women and men who were aware of AIDS and sexually experienced by interval between first sexual intercourse and first union by current age, KDHS 1998

Current age	Age at first intercourse less than age at first union by 11+ years	Age at first intercourse less than age at first union by 6-10 years	Age at first intercourse less than age at first union by 1-5 years	Age at first intercourse same as age at first union	Age at first intercourse greater than age at first union by 1-9 years	Intervals cannot be calculated because of missing data	Total
				WOMEN			
15-19	NA	2.6	58.3	29.1	9.3	0.7	302
20-24	0.3	10.7	54.6	25.9	4.9	3.6	995
25-29	2.4	16.1	46.7	23.2	4.8	6.9	1182
30-34	4.5	13.6	45.1	24.4	6.9	5.5	917
35-39	5.8	11.8	42.7	26.9	9.7	3.0	955
40-44	4.6	10.6	38.6	35.5	6.2	4.4	611
45-49	5.0	11.7	37.0	36.0	5.4	4.8	478
Total	3.3	12.2	46.1	27.4	6.5	4.6	5440
				MEN			
15-19	NA	NA	NA	NA	NA	NA	NA
20-24	11.5	38.5	33.8	3.1	6.9	6.2	130
25-29	21.1	43.2	26.5	3.1	1.7	4.4	294
30-34	24.8	38.5	22.6	4.3	2.7	7.0	371
35-39	22.5	39.9	26.1	4.2	3.4	3.9	356
40-44	21.8	38.9	27.6	3.3	2.9	5.5	275
45-49	24.2	30.1	23.0	9.7	7.8	5.2	269
50-54	19.9	30.4	33.7	6.1	6.6	3.3	181
Total	21.8	37.5	26.6	4.8	4.1	5.2	1883

NA = Too few cases to calculate percentages.

About 6% of women and 4% of men had a negative interval between the age at first intercourse and first union giving an indication of mis-reporting or non-consummation of marriage for a period. Mis-reporting appears to be slightly higher among women and men in younger and older cohorts, suggesting either problems of recall of dates or normative reporting of sexual activity to conform to socially acceptable behaviour.

In summary, there is little evidence to suggest common mis-reporting of age at first intercourse by older cohorts of women or men, whereas reporting of age at first union suggests slight errors of age displacement. The errors of recall or displacement of ages at first intercourse and first union seem to be spread across all age groups with slight variations across cohorts. However, the overall impression is one of some consistency.

3.6.4 Internal Consistency of Responses to Questions on AIDS Knowledge, Attitudes and Sexual Behavioural Change

The focus of this section is on the consistency of responses given by individual respondents to different items in the questionnaire related to HIV/AIDS knowledge, attitudes and sexual behavioural change in response to the threat of AIDS and condom use. Consistency checks on reporting of past behaviour and intended behaviour can be used as an indirect proxy of the achievements of HIV/AIDS prevention efforts as well as the level of normative reporting. If responses between past sexual behaviour and intended behaviour are inconsistent, it may suggest that individuals who say they have engaged in specific behaviour or have changed their sexual behaviour say so more to reflect that the knowledge they have from HIV/AIDS messages is for a need to change, rather than because they have actually done anything in response to those messages.

Table 3.8 gives the results of the cross-classification of responses between knowledge of sexual ways of HIV transmission and knowledge of sexual ways to prevent HIV/AIDS and between condom use as a behavioural change in response to the threat of HIV/AIDS and patterns of condom use. However, interpretation of this cross-classification has to acknowledge that responses to questions on AIDS transmission and prevention were spontaneous, hence likely to depict some inconsistencies. The observed levels of inconsistencies range between 0.2 and 1.0%, perhaps more attributable to errors arising from data processing rather than respondent error. Overall, the results indicate a high level of consistency.

Table 3.8: Cross-classification of responses between knowledge of sexual ways of HIV transmission and knowledge of sexual ways to prevent AIDS and cross classification of responses between condom use as a behavioural change in response to the threat of AIDS and patterns of condoms use among AIDS-aware and sexually experienced women and men, KDHS 1998

Cross-classification	Per cent giving inconsistent responses	
	Females (n=6,554)	Males (n=2,973)
Say don't know how AIDS is transmitted yet mention a sexual way of preventing AIDS	0.5	0.3
Don't mention AIDS can be transmitted through sexual intercourse yet mention sexual ways of preventing AIDS	1.0	0.8
Say have never used a condom but report condom use as a behavioural change in response to AIDS threat	0.7	0.0
Say have never used a condom but report they don't know if condom was used during the last sexual intercourse	0.4	0.0

It is expected that respondents who say they have never had sexual intercourse will not give responses that imply they are sexually experienced. Table 3.9 indicates that about 7% of

women and 9% of men who said they had never had sexual intercourse gave reasons for perception of risk that implied they were sexually experienced. Nevertheless, these inconsistencies could also be a result of errors arising from data processing, interviewer carelessness or spontaneous responses.

Table 3.9: Cross-classification of responses between perception of risk and sexual reasons for levels of self-perceived risk among women and men aware of AIDS and reporting to have never had sex, KDHS 1998

Cross-classification	Percent giving inconsistent responses	
	Females (n=1,224)	Males (n=423)
Say the reason for perceiving no/small risk is because they use condoms or have one sexual partner or limit number of partners, yet reported they have never had sexual intercourse	3.4	5.0
Say the reason for perceiving moderate/great risk is because they use condoms or have one sexual partner or limit number of partners, yet they reported they have never had sexual intercourse	3.9	3.8
Overall inconsistency between lack of sexual experience and implied sexual experience based on reasons for self-perceived risk	7.2	8.8

3.7 Summary

This chapter has described the qualitative and quantitative data used in this study. An outline of some limitations of sexual behaviour and HIV/AIDS data that can occur because of methodological and response errors was also presented. In particular, socio-cultural beliefs and practices and the tendency to give normative responses to sexual behaviour questions are notably difficult to overcome. The chapter also defined the variables used in the study outlining limitations where applicable. Lastly, an assessment of some aspects of the quality of the 1998 KDHS sexual behaviour data was carried out.

The assessment of the quality of sexual behaviour data in the 1998 KDHS presents slightly mixed results. The age at first marriage data is suggestive of slight age misplacement by older cohorts of women and men, which could be attributed to recall errors and cultural differentials in marriage patterns. As already noted errors arising out of recall or cultural biases are not easy to overcome. However, the results of examining non-response and reporting of age at first sexual intercourse are reasonably consistent with other sources of data in Kenya. The cross-classification between knowledge of HIV/AIDS transmission and prevention and between sexual behavioural change and patterns of condom use among sexually experienced respondents and, reasons for self-perceived risk among sexually inexperienced respondents are not indicative of serious errors of inconsistencies to render the analyses in this study implausible.

The results of this study, in which both qualitative and quantitative techniques are applied, are presented in subsequent chapters. The next chapter is based on qualitative results addressing the social context of sexual behaviour component in the conceptual framework described in Chapter 2.

CHAPTER FOUR

THE SOCIAL CONTEXT OF PERCEPTION OF AIDS RISK AND SEXUAL BEHAVIOUR

4.1 Introduction

This chapter presents results from the focus group discussions (FGDs) and in-depth interviews (IDIs) described in Chapter 3, section 3.2.1. The focus is on the social and cultural context of perception of AIDS risk and sexual behaviour, among women and men aged 15-45 years. The study contrasts views of younger people aged 15-30 years and older people aged 31-45 years, and for the married and unmarried. The importance of studying the sexual behaviour of young people has gained prominence in developing countries as the AIDS pandemic takes its toll on people of reproductive and economically productive ages.

During the conduct of FGDs and IDIs, open-ended questions were used to elicit community and individual level perceptions about the nature and patterns of sexual relationships, perceptions of AIDS risk and risk-prevention behaviour. A detailed description of the qualitative research process is presented in Chapter 3, section 3.2.1. The discourses and themes that emerged from FGDs and IDIs are summarised in this chapter. Section 4.2 gives the profile of study participants and Section 4.3 describes participant's knowledge about AIDS transmission and prevention. The sources and types of sexual and HIV/AIDS information are outlined in Section 4.4. The socio-cultural context of sexual relationships and the perception of AIDS risk are examined in Sections 4.5 to 4.6.3. Section 4.7 describes the preventive measures participants reported to have taken against contracting HIV. Section 4.8 discusses the implications of the study findings for AIDS prevention messages and sexual behaviour change. Conclusions are presented in Section 4.9.

4.2 Profile of Study Participants

Fourteen FGDs involving 122 participants were conducted in two study sites. Table 4.1 shows the characteristics of the participants. Most of the participants were aged between 15 to 24 years and 38 people were aged between 31 to 45 years. Whereas most women were married, the reverse is observed for men. Almost all participants had primary or secondary level of education. Only a few participants reported that they were students, perhaps because the study was conducted during school term. Most participants in Kiambu reported being in paid employment, compared to Kisumu in which the majority was in small-scale farming or business activities. The most common religion reported was Protestant.

The focus groups included both sexually experienced and inexperienced women and men. Nonetheless, findings from FGD respondents (collected at the end of the discussions, see Appendix 3.4) showed that almost all never married participants were sexually experienced and this was the same for both genders.

Table 4.1: Profile of focus group participants' socio-demographic characteristics

Characteristic	Female (n=59)		Male (n=63)	
	Kiambu (n=31)	Kisumu (n=28)	Kiambu (n=32)	Kisumu (n=31)
Age	No.	No.	No.	No.
15-19	8	6	11	5
20-24	10	10	10	9
25-30	2	4	3	6
31and above	11	8	8	11
Marital status				
Not in union	11	10	19	20
In union	20	18	13	11
Highest level of schooling				
None	3	0	1	0
Primary	18	10	17	8
Secondary and above	10	18	14	23
Occupation				
Paid employment	20	6	10	3
Business person	0	10	6	8
Farmer	6	4	5	11
Domestic worker	3	2	4	4
Student	0	1	4	1
Other	2	5	3	4
Religion				
Catholic	9	8	12	8
Protestant	22	11	19	22
Muslim/other	0	9	1	1
Among never married, sex experience				
Yes	8 out of 11	8 out of 10	19 out of 19	10 out of 11

Table 4.2 gives a summary of the sexual behaviour characteristics of the 29 respondents of the in-depth interviews. Of these, 21 respondents were aged 15-30 years and eight were over 30 years. Although the number of participants is small to warrant further subgroup analysis, the findings depict some gender differences in sexual behaviour. Most male and female respondents reported to have had first sexual intercourse at age 15-19 years. The age at sexual debut reported in IDIs by young women ranged from 13-22 years with most citing 16 years, and for the men the range was 10-20 years with most stating 15 years. These ages are nearly the same as those reported in the 1998 KDHS (16 years for women and 17 years for men), and in FGDs. All women reported first sexual partners that were older by a range of one to five years or more. This pattern is similar to the age differences observed for recent or current sexual partners. On

the contrary, men in Kisumu reported having had first sexual intercourse with partners younger by a range of one to five years or more, or someone of the same age. This pattern is the same as for recent or current sexual partnerships. Two men in Kiambu reported older partners.

Table 4.2: Profile of in-depth participants' sexual behaviour characteristics

Characteristic	Female (n=15)		Male (n=14)	
	Kiambu (n=9)	**Kisumu (n=6)**	**Kiambu (n=8)**	**Kisumu (n=6)**
Age at first intercourse	No.	No.	No.	No.
≤15	2	1	2	1
15-19	5	5	5	5
≥20	2	0	1	0
Number of lifetime sexual partners				
≤2	6	1	1	1
3-4	1	4	2	2
5 or more	2	1	5	3
Number of sexual partners in last year				
1	9	5	5	5
2 or more	0	1	3	1
Number of sexual partners in last month				
0	4	2	5	2
1	5	4	3	4
Age difference of first sexual partner				
Same age or 1-4 years younger	0	0	4	6
1-4 years older	2	4	4	0
5 or more years older	7	2	0	0
Age difference of recent/current partner				
Same age or 1-4 years younger	0	1	4	3
5 or more years younger	0	0	2	3
1-4 years older	4	1	2	0
5 or more years older	5	4	0	0
Condom use				
Never used	9	3	6	3
Used with first sexual partner	0	2	0	0
Used with recent/current partner	0	2	2	3

From the IDIs, the number of lifetime sexual partners reported by women and men ranged from 2 to 20. Women reported fewer lifetime partners (range from 2 to 6) with a median of 2 compared to men (range from 2 to 20) with a median of 6. Almost all respondents reported only one sexual partner in the last 12 months, and all unmarried women and men reported no sexual intercourse in the last four weeks before the study.

Condom use was low among all participants, more so in Kiambu. All women and almost all men in Kiambu had never used condoms. Only two women in Kisumu who reported having initiated

sexual intercourse in 1999 and 2000 reported having used condoms consistently. All the four unmarried respondents in Kisumu reported to have used condoms with their current or recent partners.

4.3 Knowledge of AIDS

According to the health behaviour models outlined in Chapter 2, section 2.2, awareness of a disease and knowledge of ways to reduce chances of infection forms the first stage of the behaviour change process. As a result, this study sought to examine the levels of sexual and HIV/AIDS knowledge and attitudes, particularly regarding the causes of HIV/AIDS and its prevention, which people possess and which are likely to influence their perceptions of risk and sexual behaviour. The findings reveal that people in the study sites are well informed about AIDS and misconceptions are minimal. Differences were negligible across the sub-groups of participants. Participants explained AIDS transmission in both biomedical and socio-cultural ways.

A consistent theme that emerged from all groups is the knowledge that HIV/AIDS is a sexually transmitted disease, acquired through risky sexual behaviour. When asked how HIV is acquired, not only did the FGD participants chorus *"sexual intercourse"*, but they also added that it was unprotected risky sexual contact, in particular, that was a problem. Multiple partnerships, casual and extramarital sex, sex between young and older people, and sex for monetary and material favours without use of condoms were explained to elevate a person's risk of getting HIV. Married women implied that men's infidelity was the major cause of HIV infection among partners, and that married women were less likely than their husbands to have extramarital sex. A few participants demonstrated deeper knowledge by stating that HIV could be transmitted even with use of condoms since they can burst or that some individuals intentionally pierced them, a concern strongly expressed by women. Details about condom use are discussed in section 4.6.2.

Participants asserted that blood is a channel of HIV transmission saying, *"What we have been told is that blood contact is the major mode of transmission" (Kiambu, FGD, older married males)*. The main sources of blood infection mentioned include transfusion of infected blood, sharing of contaminated injections or syringes, and sharing of cutting or shaving instruments such as razors and circumcision knives. Discussants also had plausible explanations of how the

HIV virus could be transmitted through blood by contact with saliva and other body fluids especially if cuts, sores, or dental bleeding are present.

Participants' misconceptions about AIDS were negligible. They agreed that sharing of eating utensils, beds, and shaking hands could not transmit HIV, suggesting high levels of accurate knowledge. Only older married women in Kisumu believed that one could get HIV through caring for an infected person and sharing food, fears that could be reflecting their sources of AIDS information and the high HIV prevalence rate in the region that places the burden of caring for the sick on women.

Younger participants in both study sites spontaneously mentioned mother to child transmission, while older participants were probed. However, all discussants expressed clear understanding of the mechanism of mother to child transmission stating a mother could pass infection to the child either during childbirth or breastfeeding. Women discussants also mentioned the possibility of getting HIV infection through receiving or giving assistance to someone during childbirth if gloves were not used.

Participants were well aware that certain cultural practices such as widow inheritance, polygyny, belief in witchcraft and *"chira"* (or a curse that results from breaking of a taboo), marriage and fertility goals, place them at risk of HIV infection. These are discussed in detail in section 4.5.2.

4.4 Sources and Types of Sexual and HIV/AIDS Information

It was not the intention of this study to examine the impact of the various public awareness messages or community level networks, but rather to understand what is learnt from different sources. It is apparent that the type of sexual information people gather from different sources may have varying influences on their attitudes and behaviour. On this note, FGD participants were asked about the sources from which they learn or hear about matters concerning sex, contraception, STDs and HIV/AIDS, mentioning the nature and type of information acquired.

4.4.1 The Mass Media

There was evidence from FGDs of the penetrative influence of the mass media as sources of sexual and HIV/AIDS information. Apart from the formal sources such as the radio, television

and newspapers, people are also exposed to an array of other communication channels such as films, magazines, books, and videos, among others.

Undoubtedly, the FGD findings indicate that the mass media have led to high AIDS awareness levels. Discussants often referred to specific radio programmes and the type of messages relayed. The HIV/AIDS communication appears to emphasise AIDS prevention through condom use, abstinence, monogamy and fidelity. All the participants reported receiving much information on the radio. They stated:

> *R4: For instance the radio talks about those infectious diseases...like gonorrhoea... diseases like that...*[12]
> *R4: It is the KBC radio, which talks about these things.*
> *R1: All the radio stations...nearly all the ten of them talk about AIDS.*
> *R1: Radio programmes especially the channel KAAYU (local Kikuyu dialect radio) that highlights the dangerous impact of AIDS (Kiambu, FGD, unmarried male).*
>
> *"Through the radio we get information on how STDs spread. Through programmes like 'Ushikwapo Shikamana' (government-sponsored), we get important information on sexual matters and diseases" (Kisumu, FGD, married male).*
>
> *"From the radio and also TV. For example radios advertise 'Trust'" (a brand of condoms) (Kiambu, FGD, unmarried female).*
>
> *"They show us such programmes on TV. They show us how people fall in love; how they get AIDS and how it makes people look and how AIDS orphans are taken care of" (Kisumu, FGD, married female).*
>
> *"We also get information from radios about AIDS and how to avoid risky sex" (Kiambu, FGD, married female).*

The television was said to be more informative because of the audio-visual effects likely to have lasting impressions, though the participants acknowledged that the TV is expensive and is affordable by only a few people.

The discussions also revealed the influence of 'role models' as depicted in films, videos and sometimes TV programmes:

> *"When young boys go to films and video shows within the community they acquire sexual information by seeing how actors behave" (Kisumu, FGD, unmarried male).*

[12] Quotations are indicated in reference to the place, method of data collection, and category of respondents. For example, an ending of the format (Kiambu, FGD, unmarried female) indicates that the source of the quotation was from a focus group discussant that was an unmarried female in Kiambu site. Where applicable, 'M' stands for moderator or interviewer and 'R' for respondent.

The print media (newspapers, magazines, books, and posters) were mentioned as sources of information on AIDS statistics, personal life experiences, and other information as illustrated by these discussants:

> *"Yes, you read or see a photo of someone who died of AIDS or you find statistics of a given area showing the number of people affected" (Kisumu, FGD, married male).*

> *"Also magazines, you read and get ideas e.g. Parents Magazine which gives stories about people's experiences" (Kiambu, FGD, unmarried female).*

> *"...Maybe you read...how a girl got pregnant and was just left alone by a boyfriend" (Kiambu, FGD, unmarried female).*

> *"You can read about new family planning methods or forms of contraceptives launched in the market" (Kiambu, FGD, unmarried male).*

4.4.2 Community-Level Networks

Friends and peers. Much discussion about sexual matters was reported to occur among friends or peers because "*it is people of your age group...they are the ones you can talk with without ...feeling shy or embarrassed" (Kiambu, FGD, unmarried male).* The context of such learning may be at school or at home, but usually people considered friends or acquaintances as major sources of information. Discussions between same-sex groups were reported to be the commonest and mixed-sex discussions were rare. Respondents expressed that whether discussions were in groups or one-to-one basis depended on the nature and the seriousness of the matter. Same-sex group discussions are usually with acquaintances and other peers, in which individuals acquire information about sexual matters (both correct or incorrect) from group members with more sexual knowledge and experience. Information exchanged in the group often emanates from an array of other sources already mentioned. A discussant stated:

> *"One can learn from discussions that take place in groups... As you talk you can pick one thing at a time. You get something from here, then from another place and the another tomorrow. In the end you have acquired all those things" (Kiambu, FGD, married male).*

There was evidence to suggest that group discussions are more common among men than among women. The group talks seldom address the issues of HIV/AIDS or pregnancy, but matters regarding physical attraction and sexual experiences with the opposite sex as expressed by several unmarried male participants in Kisumu district:

> *M: How do boys like you know about matters concerning sex and HIV/AIDS?*

R2: ...Friends. Most of the time we are together with these people. We even sleep together with them in common houses...We exchange views about sex and listen to their sexual experiences, which we are then influenced to adopt.
R1: Peer groups influence people to adopt different sexual habits and acquire different types of sexual information. When we are in groups, most of the things we discuss are sexually related. We mainly dwell around topics concerning girls.

Married discussants suggested that they sometimes exchanged information related to doubts and suspicion about their spouses and misunderstandings that occurred in marital sexual relations. One male participant in Kiambu alleged that it was difficult to talk about marital sexual relations with one's friends, but this was quickly refuted by other discussants: "*...there is no difficulty in talking to a friend. You can tell a friend very private issues with much ease" (Kiambu, FGD, married male).*

The one-to-one discussion may involve a close, trusted friend of the same sex or a sexual partner. The one-to-one level is used to discuss more serious and intimate issues that surround relationships such as the use of contraception, fears regarding STIs or pregnancy and issues to do with misunderstanding between partners.

"From your girlfriend... She may request you to use contraceptives, especially when she fears unwanted pregnancy. Sometimes she may request some few coins to buy the pills" (Kiambu, FGD, unmarried male).

The one-to-one level of communication appears to be the most common form of discussion among women as expressed in these dialogues with unmarried women in Kiambu:

M: What questions do you ask friends concerning sexual matters?
R1: Let us say that you love a boy who is giving you a lot of problems so you go to a girlfriend like Wanjiru (a girl's name) and ask her how to resolve it.
M: What things would you then talk with Wanjiru?
R5: Like if he is disturbing you so much you can ask for advice from other people and they tell you what to do, and so you can only go to a friend in that case.
M: Anything else?
R3: May be he is "double dealing" you with another person. You see you talk to a friend to advice on what steps to take.
R3: Boyfriends give you advice on how to prevent diseases or pregnancy.

One group of married men in Kisumu pointed out that they hardly broached the topic about AIDS with their partners because of the fear of being suspected of unfaithfulness. They prefer women to raise such matters since they are considered more trusted.

Parents and Siblings. Almost all groups that mentioned parents as sources of information acknowledged that there was little openness between parents and their children and so there was

little discussion about HIV/AIDS and other sexual matters. The involvement of parents in communication is limited to giving warnings to their daughters or sons about the risks of pregnancy and infection. This kind of information is prompted by the children's behaviour such as coming home late at night and drunkenness. Parents also caution their children when they send them out on errands. Sometimes the discussion of sexual matters with parents is considered disrespectful or taboo. The opinions from both unmarried and married females and males from the two study sites allude to this fact:

> *"Parents advise on not moving around and to avoid having many friends" (Kiambu, FGD, unmarried females).*

> *"Talking with parents about sexual matters is very difficult as sex is considered something that should be treated with much privacy...Moreover, there should be respect maintained between parents and children such that issues like sex cannot feature as subjects of discussion...When such a discussion starts you may find one of the parties (parent or child) going away" (Kisumu, FGD, married males).*

> *"It is not easy to discuss these issues with parents, as it is taboo to discuss issues related to sex..." (Kisumu, FGD, unmarried males).*

Some participants observed that the home environment, such as the sleeping arrangements in which parents share bedrooms with their children, expose children to sexual matters early in life. It was alleged that this is the case for rented premises, a common feature in urban and peri-urban areas.

On the other hand, there was evidence from some parents that they talk to their children, though the breadth and depth of such talks appeared to be limited and one-sided. The parents give the instructions with little or no parent-child discussions; *"...We tell them to take care about moving around and having many sexual partners" (Kiambu, FGD, married female).* The married participants who mentioned that they talked to their children indicated such talks were prompted by media messages, the prevalence of AIDS deaths and sex education at school that exposed children to facts about AIDS, though they expressed being shy and embarrassed. The following excerpt from married women in Kiambu sums the views of many:

> *M: Do you find it easy or difficult talking about these issues (sexual) with your children?*
> *R4: ...These days we don't find it hard...It has become easy because of the many people that have died of AIDS. Yes, there is no shame now.*
> *R2: Because even the radio talks about it when the family is together. You won't switch the radio off because there are children...Though you as a parent you may be ashamed, but because these things are now being talked about there is no way you will have a problem with it.*

R6: ...Children will still...narrate how at school they were taught about AIDS and even shown a video.

The educated parents were said to have greater openness when discussing sexual matters with their children. Perhaps this is because educated parents are less likely to adhere to the traditional communication structure of strict distinctions between parents and children, consequently having a more open attitude towards sex.

Siblings were also mentioned as sources of sexual information. Like the parents, discussions of sexual matters between siblings appear to be rare. Learning from siblings may involve observing the behaviour of an older brother or sister with members of the opposite sex as this respondent said, *"We learn through an older brother; through his actions such as the way he relates to girls" (Kisumu, FGD, unmarried male).* Married discussants reported discussing their marital problems with their siblings, whereas one unmarried woman in Kiambu dismissed the whole idea saying, *"We have never talked with our brothers and sisters".* Evidence from IDIs showed a few cases where older siblings warned their younger kin about sexual risks, and also provided the younger siblings with contraceptives. For example, an in-depth interview with an unmarried female respondent indicated that her older sister gave her a packet of contraceptive pills after realising she was sexually active. In the end, the respondent ran short of pills and finally got pregnant and dropped out of school.

Clinic/Health workers and community-based organisations. The FGDs suggest that information from health sources is obtained through health talks given to patients at maternal and child health and family planning clinics (MCH/FP), posters, and community health workers (CHWs). The health talks are usually given at the health facilities in the morning before the start of provision of services, and so clients who arrive late or for other health reasons generally miss the health talks. The CHWs liaise with women groups to organise AIDS awareness seminars, though women groups also provide an opportunity for "gossiping" about sexual relations. The female discussants, more than the males, mentioned health workers as sources of sexual and AIDS information. Perhaps this is because women are more likely than men are to visit MCH clinics since it is women who go for antenatal care or take children to health clinics.

Women said that they learn little from health talks and posters at health facilities. They stated that health workers are rude and do not give patients time to ask questions. When unmarried males in Kiambu were asked if they get any information from hospital, they simply said *"we do*

not go to hospital; we rely on herbal medicine". The negative attitude of health workers appears to limit the communication dynamics of sexual matters with patients and this deters people from asking questions or seeking STI treatment. Similar findings have been reported from previous research in Kenya (Fapohunda and Rutenberg, 1999; Ndhlovu, 1999).

There was general evidence to suggest that government leaders were actively involved in AIDS awareness campaigns. The leaders inform the public at funeral gatherings that usually draw huge crowds, as well as during community leaders' meetings such as celebrations to mark public holidays. Some discussants had this to say:

> *"Also through funeral ceremonies. The Assistant Chiefs advise the youth not to have sex because of the HIV prevalence" (Kisumu, FGD, unmarried female).*
>
> *"...In funerals it is announced if somebody has...been found to have died of that disease (AIDS)" (Kiambu, FGD, married female).*

Schools. Female participants were more likely than the males to mention schools as a source of information. The 1998 KDHS indicated that just over 10% of women and men reported schools/teachers as a source of AIDS information (NCPD, CBS, & MI, 1999). The FGD discussions indicated that the topics covered in school include puberty, pregnancy, HIV/AIDS and other STDs and sexual abstinence, with emphasis on menstruation. Some said:

> *"In schools we are taught and get information on how to prevent diseases and pregnancy" (Kiambu, FGD, unmarried female).*
>
> *"They (teachers) tell us that we can get diseases like gonorrhoea, HIV and syphilis if we get involved in sexual activities" (Kisumu, FGD, unmarried female).*
>
> *"...We get information about AIDS and human physiology from teachers in schools" (Kisumu, FGD, married male).*

Evidence from older women suggests that AIDS education is now offered at school and children talked about being taught and shown videos regarding AIDS. However, it appears that AIDS education is being imparted without consideration of the student's age and so information is likely to be misinterpreted by young students as illustrated in a view expressed by a married woman in Kiambu:

> *M: What about learning, is there anywhere they are taught?*
> *R: In some schools they learn. Like mine is in standard five (about 10 years) and she came to tell me about it at home... They were shown a video at school so even when the radio mentioned it she told her father too (Laughter). She said to him, 'father have you heard? We were shown a video but for me I want to get educated. I will live alone (no marriage) because I don't want to die' (Laughter).*

M: So she took it that if she marries she would die of the AIDS disease?
R: Yes, she is still young for advice but she knows that if you have sex with a man you will get AIDS. That is what she knows...

Churches. The accounts from FGDs show that churches are actively involved in communicating AIDS information in the form of either sermons or youth seminars revolving around the dangers of AIDS and the value of abstinence outside marriage and fidelity within marriage. Almost all the groups talked about church-organised AIDS awareness seminars. The nature and extent of the talks were considered not valuable because *"...they use idioms, they pass a long route before they deliver the message" (Kiambu, FGD, unmarried male).* The findings attest to the fact that talking about HIV/AIDS issues in church is constrained by the need for church leaders to abide by existing church doctrines concerning sexual matters. The Catholic Church was singled out as being non-supportive of condom use, which made it difficult communicating AIDS prevention messages in the church, suggesting a preference for value-laden messages that may not be practical for the majority of sexually active youth.

In summary, it is apparent that people gather sexual information from different sources, which may also have varying influences on their perceptions and behaviour. The widespread knowledge and sources of AIDS information among the participants under study may be attributed, in part, to the success of the countrywide AIDS awareness campaigns. There was no evidence from the discussions to suggest that there is HIV/AIDS communication related to voluntary HIV counselling and testing, gender relations, sexual decision-making and negotiation skills. People seem to rely on general exhortations about AIDS that target the general population or their social networks. Such information, if not properly targeted, is most likely to be misinterpreted or ignored altogether by the majority of people, particularly the young.

4.5 The Socio-Cultural Context of Sexual Relationships

As noted in Chapters 1 and 2, heterosexual behaviour is the primary cause of the spread of AIDS in Kenya, as well as sub-Saharan Africa. Studies in sub-Saharan Africa have documented the important role of cultural practices and behavioural factors in the spread of AIDS (Cohen and Trussell, 1996). To gain an understanding of the social context of sexual behaviour likely to heighten the spread of AIDS in the communities, FGD and IDI participants were asked if premarital and extramarital sexual relations were common in the local communities and their

opinions on such relationships. Unmarried participants were asked about the motivations for premarital sexual activity. These are described below.

4.5.1 Premarital Sexual Activity

The opinions expressed in FGDs and IDIs concurred that premarital sex is a pervasive sexual culture in the study communities. All participants agreed that a large number (about nine out of ten) of unmarried women and men were sexually active despite their high knowledge of AIDS. All except two male FGD groups in Kiambu mentioned that more men than women were sexually active. However, the IDIs suggested that unmarried women were about the same as unmarried men to engage in premarital sexual intercourse, as all married participants interviewed in-depth were not in union with their first sexual partner. Similarly, information collected from FGD participants at the end of the discussions showed that out of 30 never married men who participated in the FGDs, only one stated that he had never had sexual intercourse. And out of 21 unmarried women only five said they had never had sex (Table 4.1).

There was agreement in opinions expressed in all FGDs that both boys and girls start sexual activity at an early age, but the girls started much earlier than the boys because they mature faster and *"men notice girls when they are young and can easily be cheated" (Kiambu, FGD, unmarried females).* All FGD participants in Kisumu cited much lower ages at sexual initiation than the Kiambu groups. In Kisumu, the range was nine to12 years for girls and 10 to 15 years for boys, and in Kiambu it was 10 to 20 for girls and 10 to 22 for boys. Perhaps among the Kiambu participants, traditional circumcision practised for both girls and boys may promote delay in sexual debut. There are no initiation ceremonies in Kisumu. Except for the women, ages at first sex reported in IDIs by men did not reveal striking differences from those reported in FGDs. The age at sexual debut reported in IDIs by young women ranged from 13 to 22 years with most citing 16 years, and for the men the range was 10 to 20 years with most reporting 15 years. The ages cited in IDIs are slightly different from the median age of 17 years reported in the 1998 KDHS (NCPD, CBS & MI, 1999).

Among all male FGD participants in Kiambu, initiation of sexual intercourse for boys was linked to the time immediately after circumcision, said to take place at the age of 15 to 18 years or when they complete primary school. For the girls in the same area, sexual initiation was reported to occur when they are in standard 5 or 6 (level of primary education where most children would be aged between 10 to 13 years). A discussant in Kiambu said of the boys:

"It is mostly around 16 years of age. Because that is when they get circumcised after say leaving class 8" (Kiambu, FGD, unmarried male).

The age that was considered appropriate for initiation of sexual activity was 18 to 20 years because at that age "... *you are learned and know about good and bad" (Kiambu, FGD, unmarried female).* Nonetheless, all married participants advocated abstinence till marriage. The married discussants considered 18 to 20 years as ages in which people are both physically and mentally mature to start a family, stating that currently the age at which girls and boys start having sexual intercourse was too early because they cannot manage a family. *Both girls and boys should start having sex when they are ready for parenthood" (Kisumu, FGD, married male).* These views could be linked to AIDS awareness campaigns in Kenya that promote the delay of sexual debut. In addition, most boys and girls in Kenya complete secondary school around the age of 18-20 years. After secondary school, one is considered marriageable.

When FGD participants were asked if premarital sex is acceptable in the communities, all discussants acknowledged that it was unacceptable and that *"even the government does not approve of it" (Kisumu, FGD, married females).* But although not sanctioned premarital sexual activity is implicitly tolerated and accepted. The increase in premarital sexual activity was attributed to the collapse of traditional restrictions and sanctions that regulated premarital sex in the past. A group of married men in Kiambu stated that among the Kikuyu, traditional circumcision ceremonies for girls and boys used to be marked by a period of seclusion, in which initiates were taught about sexual matters. Similarly, among the Luo who did not traditionally circumcise, literature suggests that grandparents played a major role in teaching adolescents about responsible sexual behaviour that emphasised premarital virginity (Ocholla-Ayayo, 1997; 1976). Traditional sex education made a strong distinction between sexual experimentation and sexual intercourse, of which is no longer the case in the communities of study. An unmarried female discussant said:

"In the past, virginity was highly valued than nowadays. Nowadays almost all girls are not virgins" (Kisumu, FGD, unmarried female).

The married males in Kisumu stated that traditionally, those found to engage in premarital sex were punished through a curse. A man said:

"Previously the punishment given to those who engage in premarital sex was by placing a symbol of an outcast within the house they were sleeping. These people shall be treated as outcasts such that they do not live a normal life. All Their children die in future" (Kisumu, FGD, married male).

4.5.2 Motivations for Premarital Sex

Motivations for premarital sex could be strong enough reasons to preclude adoption of strategies to reduce the risk of HIV. Young people have a range of reasons for having sexual relations. Varga (1997) observed among the youth in Kwa-Zulu, Natal in South Africa, that among men sex was for physical pleasure whereas among women it involved an emotional element. Young unmarried participants in FGDs, as well as in IDIs, were asked why young people in the have sex. The reasons mentioned showed high agreement between FGDs and IDIs. The broad reasons mentioned for sexual relationships among participants are: socio-cultural norms, peer influence and sexual pressure, economic reasons, and media influence. Participants frequently mentioned the first three reasons and media influence was less reported.

Socio-cultural Norms. According to the "male sexual drive" and the "have-hold" discourses exemplified by Holloway (1989), masculinity is connoted with the desire and the need for sex and that women are there to fulfill this purpose. The "have-hold" feminity discourse embraces the notion that women's need is to get into a long-term relationship that would eventually culminate into marriage. Adulthood in Kenya is synonymous with marriage and young women place value on their motherhood and wifely roles. Miles (1993) observes that women desire a secure relationship to fulfill their marriage goals. Findings from the FGDs and the IDIs show that men's sexual activity appears to be driven by the desire to experience unprotected penetrative sexual intercourse in order to prove their manhood and to be like other men. To that end, the men took advantage of opportunities that arose to accomplish their motives. Almost all men expressed the same reasons for having sexual intercourse, and were supported by views expressed by women:

> *"You expect to prove to people that you are capable of having a girlfriend. In case a girl has been rebuking you as being useless and incapable of having sexual intercourse you can lure her into sex to prove to her that you are a real man" (Kisumu, FGD, unmarried male).*

> *"Some want to know whether they are mature or not e.g. by making a girl q pregnant" (Kisumu, FGD, unmarried female).*

For men, sexual activity is considered a natural reaction that is difficult to control. This fact was even supported by women. An unmarried woman in Kiambu interviewed in-depth said that she had sex because *"it is the normal thing for men."* Young unmarried men in Kiambu believed that it is natural for men to have sex or else retained sperm can make a man ill.

"There comes a time that when the back begins to pain ... I am talking about something that I have experienced ... it riches a point, after staying longer without having sex, that your back begins to give you problems" (Kiambu, FGD, unmarried male).

The ultimate aim for having sex among women was to have a marriage partner and to raise children in a family environment. Some men also supported these views. When asked why she had unprotected sexual intercourse with her current partner, an unmarried woman in Kiambu said: *"Because I want to be married. I love him and he loves me."* Other participants said:

"For ...looking for a husband; you want to get married" (Kiambu, FGD, unmarried female).

"Friendship for marriage. This especially applies to girls from distant places e.g. in-laws who you can eventually end up marrying" (Kisumu, FGD, unmarried male).

The unmarried women stated that they preferred to have serious long-term relationships that culminate in marriage, but men who engaged in casual and concurrent partnerships either for sexual pleasure or to gain sexual experience curtailed this. Unmarried women reported that they are forced to terminate their partnerships once they realise that the partner is *"double-dealing"* (has concurrent sexual partners). Consequently, women end up in short-term serial monogamous relationships whereas males tend to have short-term concurrent partnerships.

Although FGDs with unmarried women also suggested men often had two sexual partners; *"one for the future (*for marriage*) and another one for sex"*, findings of IDIs did not support this claim. Almost all women and men interviewed in-depth reported to have had serial monogamous relationships, except one woman and man who reported to have had concurrent sexual partners

It was apparent that men felt a sense of great achievement and contentment at first sexual intercourse and this was evident on how it was readily and explicitly discussed with friends. Unmarried men in Kiambu and Kisumu said:

"I felt good. I felt I was a man...I talked to my friends at school about what went on and other experiences I had" (Kiambu, IDI, unmarried male).

"... I felt very happy and relieved because I had scored the goal...I talked to a friend of mine who was of the same age. We talked about the girl I had slept with. I was very excited about my first sexual encounter" (Kisumu, IDI, unmarried male).

On the contrary, for nearly all women, first sexual intercourse evoked feelings of hatred and regret. When women were asked how they felt after first sexual intercourse and if they discussed the experiences with anyone, some said:

"I felt pain. I felt I would never do it again. I hated sex...I did not talk to anyone about it" (Kiambu, IDI, unmarried female).

"...I felt like I had done a bad thing... I never told anyone" (Kisumu, IDI, unmarried female).

Peer influence and Sexual Pressure. Conformity to the normative behaviour plays a significant role in young people's sexual behaviour (Blanc, 2001; Gage, 1998). Individuals would want to do what others do so as to feel a sense of belonging to their circle of friends.

"Friends also have that habit (have sex)... And if you want to fit with them, you have to do what they do" (Kiambu, FGD, unmarried male).

"I had sex because of the influence from my friends. They kept on saying stories about their girlfriends. It was also because of my age, I just started feeling like I wanted to have sex" (Kisumu IDI, unmarried male).

Men compete to outnumber each other on the number of sexual partners they have and they boast about their sexual prowess.

"...You also engage in sex due to peer competition. Age mates would like to outdo one another or prove their manhood; that they are mature. You also engage in sex to match your peers or confirm that you are still active. If so and so has a girlfriend and also tells me how he has sex why should I also not engage in sex or have a girlfriend" (Kisumu, FGD, unmarried male).

"To feel great by setting a record based on the number of partners one has" (Kiambu, FGD, unmarried male).

It was a common belief among all participants that true love must involve sex. Some said:

"Yes, I had sex in order to make the girl remain mine because...without sex, there is no love...." (Kisumu, IDI, unmarried male).

"For you to have true love you must have sex" (Kisumu, FGD, unmarried male).

"To trust you and to believe that you love him you must have sex" (Kiambu, FGD, unmarried female).

Sexual pressure was evident either as a form of forced/coerced sex from a male partner (and to a lesser extent a female partner), or from peers. The views that pressure from boyfriends, influences many girls to engage in sex were common among both young unmarried men and women.

"Some girls have sex due to pressure from boyfriends who have been giving them money for sometime. In this case they are easily influenced" (Kisumu, FGD, unmarried male).

Forced or coerced sex was a recurrent theme among women interviewed in-depth, particularly in first sexual intercourse, and to a lesser extent, in recent/current relationships, and also in FGDs. Almost all women interviewed in-depth reported that they did not want sex the first time compared to men who all said they wanted to experience sex. It should be acknowledged that women might have reported that their first sexual experience was unwanted simply because of a need to give a culturally perceived acceptable response, rather than the "truth". Responses to subsequent probing attest to this fact. When asked why they had sex when they did not want to, most women alleged that they agreed to have sex because the men insisted and they did not want to annoy them. Some women expressed having acquiesced to sexual intercourse for fear of termination of the relationship and sometimes because sex is synonymous with love and is therefore used to please men. One said, *"I did it because I loved him" (Kiambu, IDI, unmarried female).*

Although forced sex was not referred to directly in FGDs, there were many statements to support the fact that it is common in the communities. The IDI results imply that most women engaged in first sexual intercourse not because they wanted to but because they felt obliged to do so. In addition, the opinions expressed suggest that coercion is gradual; in which a woman is persistently manipulated and pressured to a point she relents to sexual intercourse:

> *" ...I didn't know anything...He told me we go to his place. Then he did it (had sex with her). I really didn't know anything. I was then 18 years old and he was 21. He cheated me into it. I didn't know that is what he wanted. I went to his place innocently (Kiambu, IDI, unmarried female).*

Four women interviewed in-depth stated having been forced/raped during first sexual intercourse, and alleged that they did not resist because of being in an isolated environment and the fear of repercussions of being sexually uncooperative. In addition, the secrecy of the affair made the women remain silent about the rape and, as alleged by one woman, because nobody would have believed. An unmarried woman said:

> *" No! He forced me to. We were in his home attending a birthday party. Most people had left and finally we were left alone... He suggested it and I refused. He dragged me to one of the bedrooms and raped me (Kiambu, IDI, unmarried female).*

Findings from IDIs revealed that situational factors far outweigh the risk of HIV infection in influencing premarital sexual activity. Typically, the IDIs revealed that sexual intercourse appears to occur spontaneously by a man creating situations (e.g. asking the girl to visit him at his house or a friend's, meeting at an isolated field or place) that would easily end up in the

woman agreeing to have sex even if this was not in her mind in the first place. Women appear to agree to the invitations, not knowing that consenting to the boy's proposal is likely to lead to sexual intercourse. Thus, premarital sexual activity takes place out in the fields or *'green lodges'*, in the men's houses (own house or a friend's), referred to as *'cubes' or 'simba'*, in boarding schools, at the back of classrooms, at discos, parties, funeral gatherings, and in rented places (lodges).

Both the FGDs and IDIs reiterate the subtle manipulative process men employed in sexual intercourse. Evidence from IDIs suggests that men always played the leading role in deciding when, where and how sexual intercourse took place. When asked who decided that sex should take place, most men simply said, *"it is me"*, or *"I did"*, and some men expressed how they persuaded the woman:

> *"It is me. I had to struggle. It wasn't easy...She lacked self-control, and I took advantage of that" (Kisumu, IDI, unmarried male).*

Some men said they negotiated with their partners or that the woman decided: *"Me. It is a man's responsibility to do so" (Kisumu, IDI, unmarried male).*

The desire to explore and to experiment with different partners influences premarital sex and for some, sex is for pleasure and fun. An unmarried woman in Kiambu said:

> *"I had not done it before so I wanted to try in order to know how it feels" (Kiambu, IDI, unmarried female).*

Another woman remarked that though she was scared and felt pain at first sex, she did not mind having sex and so *"after all the touching I actually started enjoying it and so I allowed him to go all the way" (Kiambu, IDI, unmarried female).*

Economic Motives. Previous research shows that some people, particularly young girls, have sex for economic or material gain (Nduati and Kiai, 1997; Meekers and Calvès, 1997). Receiving money and material favours was a common theme cited by all FGD groups and by some women interviewed in-depth as a reason for premarital sex, and usually linked to the rising poverty levels in the communities. An interview with an unmarried woman in Kisumu illustrates both elements of manipulative sex, as well as, the allure of monetary and material gain for women:

> *R: The first one (boyfriend) was due to influence because the guy was too powerful for me. He had that convincing power that I wasn't going to resist because I loved him*
> *M: Why did you have the relationship then? How did he convince you?*

R: By telling me that he would give me school fees.
M: What else was he offering?
R: Help, like buying me lotions and such like things.
M: Anything else that made you agree to the relationship?
R: Only those.

The theme of sex for economic motives is discussed in detail in section 4.6.2.2.

Media Influence. The important role of the media in influencing reproductive behaviour has been noted in several studies (Westoff and Bankole, 1997; Westoff and Rodriquez, 1993). The influence of the mass media was directly made reference to only in the Kiambu site. As mentioned in Chapter 3, section 3.2.1 Kiambu is a peri-urban area in close proximity to Nairobi, and so is influenced by the urban lifestyles. A discussion with unmarried males in Kiambu indicated that young people learn about sex from watching films or from printed literature. They said:

R7: It is psychological issues, after probably watching a movie or reading a magazine. You tend to experiment as watched or read.
R6: You could be watching TV with her and you are tempted to have sex.
M: Anything else
R2: Adult films.

An in-depth respondent said:

"... I thought I should adventure now. I have been reading magazines, watching movies...I wanted "to experience it" and do everything as instructed in the magazines to make her satisfied. So I never looked at it as a serious relationship, it was use and dump" (Kiambu, IDI, unmarried male).

Some participants alleged that sex education at schools also influences girls and boys to learn about sex and to experiment at an early age. A participant said:

"We shouldn't forget that due to education more young unmarried people are indulging in sexual activities. The introduction of sex education explains this where even the innocent children are exposed to sexual matters and many of them go ahead to have sex out of curiosity" (Kiambu, FGD, unmarried male).

Discussions with unmarried men in Kiambu indicated that condoms are believed to promote premarital sexual activity, because people believed that they fully protect against HIV infection.

"The use of condoms. People look at condoms as absolutely safe. They therefore engage in sex anyhow. Condoms have made some people believe that there is no HIV/AIDS" (Kiambu, FGD, unmarried male).

The context of condom use is discussed in detail in section 4.7.2.

4.5.3 Extramarital Sexual Relations

Previous research suggests that extramarital sexual relations are responsible for the HIV infections among partners in marital union (FHI, 1999; Reid, 1999). The FGDs with married women and men were asked why people have extramarital sexual relations. All married participants in the two study sites were unanimous that extramarital sex is common though not acceptable. Further discussions suggested that the men more than women, perpetuate extramarital relations.

Interestingly, the IDIs with married women and men did not suggest that extramarital relations are common. None of the IDI participants admitted being in an extramarital relationship. The reason for the discrepancy in FGD and IDI results are not clear but perhaps it could be related to the small number of participants of IDIs or the reticence of people to talk about individual sexual experiences particularly if it is not the normative behaviour. As was mentioned in FGDs and IDIs, extramarital sexual relations are frowned upon and *"it is something that the community strongly condemns..." (Kisumu, IDI, married female).* Alternatively, it might just be that none of the IDI respondents had engaged in extramarital sexual activities within the period considered in the study. The AIDS messages in Kenya emphasise fidelity in marriage and possibly people have taken up these messages seriously or they were just echoing AIDS awareness messages.

When asked why married women and men have partners outside marriage, men tended to ascribe their extramarital affairs to their wives' behaviour, whereas women mostly linked extramarital sex among women with poverty or economic motives and lust. The common reasons for extramarital sexual activity mentioned by both female and male groups in the two study sites were: poverty and the sugar daddy/sugar mummy culture, lust or promiscuity, work away from home, spousal conflicts, revenge for a partner's sexual infidelity, and lack of care and concern by spouse. Some men and women said:

> *"Lack of sexual satisfaction from the wife. Hostility from the wife can also result to a man having an extramarital affair" (Kisumu, FGD, married male).*
>
> *"...Another thing that makes a man have a partner outside marriage is disagreements between him and his wife. She may become stubborn" (Kiambu, FGD, married male).*
>
> *"If the woman lacks money in the house, she will look for someone" (Kisumu, FGD, married female).*

"It is both men and women. Rich women take on young men, and the rich old men take young girls out. So you cannot say it is some people only, it is both ways" (Kisumu, FGD, married female).

Married men attributed some of their extramarital sexual relations to the special care and personal attention given to them by the non-regular sex partners. Such care is reported to be lacking at home because wives are always nagging and cruel. A group of married men in Kiambu concurred that some women are *"cold because they have used contraceptives over a long period" (Kiambu, FGD, married male).* A female group in Kisumu mentioned that some men engaged in extramarital sexual activity because of the need for variety since some *"cannot eat 'sukuma' (type of vegetable) everyday" (Kisumu, FGD, married female).*

4.6 Perception of AIDS Risk

As mentioned in Chapter 2, section 2.2, perception of risk is considered the first stage towards behavioural change, from high-risk to low-risk behaviour. Focus group discussions and IDIs were used to explore the extent to which participants thought AIDS was a threat to their community and the reasons for their fears. The FGDs, therefore, reflect community level perceptions of AIDS severity and vulnerability, and what people believe and hold as the common behaviours heightening people's risk of HIV infection.

However, self-efficacy or the ability of an individual to effect risk-reduction behaviour amidst social pressures and interpersonal factors is important in influencing the adoption of risk-reduction behaviour. Therefore, individual in-depth interviews (IDIs) were used to explore the more personal and sensitive issues of how people perceive, interpret and respond to their personal vulnerability to AIDS under different contexts and stages of their sexual lives, that would otherwise not be possible in FGDs. Unlike opinions raised in FGDs, it was not easy to simply categorise IDI participants into those who perceive and those who do not perceive themselves at risk since respondents interpreted their own risk in a range of ways, sometimes with contradictions, so that a person could both acknowledge and deny risk at different points of the interview. In IDIs, risk was conceived differently at different contexts and stages of people's sexual lives – at sexual initiation, in subsequent sexual relationships, and in marriage or outside marriage.

4.6.1 The Worry About AIDS

When FGD and IDI participants were asked in general what sexual risks they worry about, HIV/AIDS appeared to be a distant concern. Married participants worried more about having too many children to be able to care for properly, shame, embarrassment, and sometimes divorce due to marital infidelity. Unmarried women and men worried most about pregnancy, abortion, and school dropout for girls as illustrated by these segments of dialogues with unmarried men in Kiambu:

> *M: What do young men fear most about sex?*
> *R1, R4: Pregnancy.*
> *R1: It is pregnancy. None of you is willing to take the responsibility. She may opt for abortion. If she dies the police will come for me. I will be imprisoned as well as pay for the damages.*
> *R5: You know AIDS takes long to kill but abortion is a fast killer.*
> *M: What of girls?*
> *R2: Pregnancy.*
> *R8: Sometimes her parents ...would not like their daughter to be married off before completing her studies.*
> *R7: Also you have made her life miserable by losing her education.*

Interestingly, when specifically asked whether they feared the AIDS disease, all participants then acknowledged the severity of AIDS, stating the fatality of HIV infection as the most worrying consequence of AIDS. Thus, asking about AIDS in a more direct and personal manner brought the reality of AIDS closer to home and made participants suddenly realise its enormity. An unmarried man in Kisumu summed the views of many when he said:

> *"AIDS is a risk and is very common within the community. Very many people already have the disease as reflected by the number of orphans who end up being street children (referred to as 'ninjas'). The number of widows is also on the increase. Most of their husbands have died of AIDS but some people who are the traditional die-hards do not accept this. When knowledgeable people are dying within the community, this is a sign of risk to the community. Indeed, AIDS is a threat to the community" (Kisumu, FGD, unmarried male).*

All FGD groups recognised that AIDS is decimating families, the old and the young, married and unmarried, the educated and uneducated, so *"it is a problem to everyone; the infected and the affected" (Kiambu, FGD, married male).*

Participants expressed their realistic worries about AIDS in terms of its social and economic impact to families. All groups and individuals mentioned orphaned children as a major effect of AIDS to the families. The death of parents was described as leaving children to fend for

themselves or under the care of the elderly and other relatives who may be unable properly to care for them.

It was repeatedly mentioned that families incur loss of earnings through household expenditures for medical expenses and funeral costs when the breadwinner dies. It was also frequently mentioned that AIDS has led to the disintegration of the family unit. There was strong evidence of stigmatisation and ostracism of HIV infected individuals and affected children and families of people who got sick of or died of AIDS. Some participants said:

> *"They (children) are stigmatised by people because of fear of contracting the disease. People tell their children not to mix with them because they fear their children can get infected" (Kiambu, FGD, married female).*

> *"I am most worried about the AIDS disease...When you have AIDS it is coupled with much social stigma. Community members do not want to associate with you. You always feel guilty" (Kisumu, IDI, married male).*

Some FGDs alluded that poverty has escalated due to the reduction in labour productivity both at the macro and micro levels, attributed to the time spent caring for the sick or seeking for care. The views of other participants suggested that AIDS has led to low levels of development in the communities since the disease kills people in the economically productive ages and causes children to drop out of school.

4.6.2 Reasons for Participant's Perception of AIDS Risk

The FGD participants were asked the question: To what extent do you think HIV/AIDS is a risk to this community? Participants in IDIs were asked two questions regarding their perception of personal risk of HIV infection. The questions were: "In your opinion, do you fear that your sex life might have put you in danger of getting AIDS?", and "Would you say currently you are in danger of getting AIDS?" The reasons for perceiving or not perceiving risk were sought. The reasons mentioned are broadly classified as behavioural, economic, socio-cultural, and environmental, and to a lesser extent, attitudinal and bio-medical factors. These are summarised in Table 4.3 below. Participants clearly indicated a mix between the social construction of risk and the contemporary bio-medical explanation as to what constitutes risky and non-risky behaviour. Perception of risk tended to be described from lived realities and cultural beliefs and practices, though knowledge gathered from the media appeared to be dominant in people's conceptions of risk.

While acknowledgement of high risk was unanimous in FGDs, respondents interviewed in-depth employed varying subjective measures of HIV risk, often acknowledging and denying at the same time. The tendency to perceive and deny HIV risk concurrently suggests that interpretation of AIDS risk at the personal level was seen as distant – perhaps an illusion of personal invulnerability -"it can't happen to me". Participants tended to speak in the third person when they acknowledged risk, such as "In case I get a woman/man already infected....", or "Those who have it (AIDS) continue to have sex...". Conversely, participants spoke in the first person if they denied AIDS risk, usually starting "I am not at risk....". Though some of the criteria may appear unrealistic, they seem to be what people in the study communities use to estimate their HIV risk.

Table 4.3: Summary of participants' reasons for different levels of perceived AIDS risk

Perceive risk:	**Do not perceive risk:**
Behavioural factors • Prevalence of risky sexual behaviour e.g. premarital, casual, extramarital and multiple sex partners, non-use of condoms and condom failure, rape *Economic factors* • Sex for exchange of monetary and material favours • Cost of HIV testing • Labour migration *Socio-cultural Factors* • Widow inheritance • Marriage patterns and reproductive goals • Denial and fatalism, witchcraft, and "*chira*"(a curse against breaking a taboo) *Environmental Factors* • Increase in AIDS orphans and widows • Difficulty of knowing the infected and deliberate transmission • Stigma related to HIV testing • Alcoholism and idleness among young people *c) Bio-medical factors* • Blood-related mechanisms mainly contaminated cutting instruments and needles.	*a) Behavioural factors* • Young/virgin partners • Trustworthiness and fidelity • Familiarity/proximity with partner • Use condoms • No casual and multiple partners • Marriage goals • Abstaining *b) Bio-medical factors* • Had HIV test • Would be sick by now

4.6.2.1 Behavioural Factors

Risky sexual behaviour. Both the focus group discussants and in-depth interviewees were aware of the role of sexual intercourse in HIV transmission, and all strongly believed that individuals who engage in unprotected risky sexual behaviour are vulnerable to HIV infection. Risk was constructed as having sex with certain categories of people considered "high risk". FGD participants were asked about the people considered at high HIV risk. Prostitutes, bar maids, alcohol and drug users, truck drivers, bus drivers and touts, widows, orphans, policemen, urban dwellers, and business or rich people were mentioned. Others were the poor, subordinate women, schoolgirls and boys, and religious people who are thought to consider themselves invulnerable as God protects them. The risky sexual behaviour cited by participants is described below.

Extramarital sex, casual and multiple partners. The theme of unfaithful partners was strongly exemplified by married women and men, though it was also recurrent among unmarried participants. The main cause of worry was that though individuals may remain faithful in their relationship, the behaviour of their partners could put them at risk of HIV. Extramarital sex is linked to the high rate of HIV infections among faithfully married women in most of sub-Saharan Africa (UNAIDS, 2000a; FHI, 1999).

> *"...Even here one can sleep with a woman knowing that she is someone's girlfriend or wife. That is a fact. Adultery is everywhere. Again this place is like a settlement scheme. There are many tribes here because of the tea plantations" (Kiambu, FGD, unmarried male).*

> *"Yes, I am in danger since we are both sexually active. My wife could decide to engage in sex outside the family. In case she contracts the disease, I will also get it" (Kisumu, FGD, married male).*

It emerged that though women and men were suspicious of their partners' fidelity, almost all felt they were exempt from the risk of HIV. Generally both women and men took trust as being personal, stating that they, themselves, did not engage in extramarital or casual sex but that they had doubts about their partners. For most participants, it was not an outright statement but rather as a supposition that their faithful partner could have been (or maybe) unfaithful. The women and men alike qualified their statements and placed emphasis on their partner's behaviour as their main source of worry. Some participants said,

> *"I don't know whether my wife can cheat on me or not. I am sure that I can't cheat on her but I don't know about her since I can't judge her" (Kiambu, FGD, married male).*

"Yes, especially for the woman, because when her husband moves outside, he might have different people ...it is especially the men who bring AIDS" (Kiambu, FGD, married female).

"You can be faithful as a woman but your husband is unfaithful. He can make you get AIDS (Kisumu, FGD, married female).

One group of married men in Kisumu purported that a woman could engage in extramarital sexual relations in retaliation to her husband's infidelity that could make both partners vulnerable to HIV infection.

Most participants associated the high vulnerability of young unmarried people to casual and multiple partnerships. The opinions expressed in FGDs indicated that most of the partnerships are of a casual and serial monogamous nature, although unmarried participants alleged that men tend to have multiple concurrent partners, commonly referred to as *"hit and run"* or *"use and dump"* type. Perhaps, this is because of men's non-restricted movement outside of the community in which they live. If a community is much more mobile there is greater opportunity for having concurrent partners than in a somewhat cohesive community.

Participants interviewed in-depth perceived themselves at HIV risk due to their past risky sexual behaviour such as having an unprotected sex. But this acknowledgement of risk was readily denied as some individuals alleged that AIDS was not present at the time or that they had recently modified their behaviour.

"Yes, there are times I had sex without a condom" (Kisumu, IDI, unmarried male).

"Yes, I would be dead by now. Even after I got married, we had problems because my husband was violent...This made me leave my matrimonial home to go back to my parents. Here, I got a boyfriend even though I loved my husband. We had this affair for about one month but I didn't like. By then AIDS was not so prevalent; that was in 1994" (Kisumu, IDI, married female).

Rape. Though not a common theme, a group of married men in Kisumu said that rape places many young girls at risk of HIV. This is not surprising given that findings from IDIs suggested that some women were manipulated/coerced or forced into sexual intercourse (see section 4.5.1).

Premarital sex. All participants, regardless of age and marital status, acknowledged that premarital sex was common and believed to heighten young people's vulnerability to HIV. Young unmarried people were said to have *"hot blood"* or high sexual urge because they are *"agile and active"* and this makes them highly vulnerable to HIV infection. Some said:

"They are sexually active but they do not have steady partners..." (Kisumu, FGD, married male).

"This is because young people at times have many sexual partners and this is the method that spreads it (AIDS) most" (Kisumu, FGD, unmarried females).

4.6.2.2 Economic factors

Sex for exchange of material and monetary favours. Both married and unmarried women and men in the two study sites repeatedly admitted that poverty motivates people to have sex in exchange for favours, money or gifts and this makes them vulnerable to HIV/AIDS.

"You see as a married woman you may be in a financial problem and so get an outside partner who may infect you with AIDS" (Kiambu, FGD, married female).

"Sugar daddies look for young girls and also sugar mummies look for young men" (Kisumu, FGD, unmarried female).

"A boy for instance may not discriminate. If there is an elderly promiscuous woman, ...this boy will sleep with her as long as he can get some little money for himself" (Kiambu, FGD, married male).

An IDI with a woman in Kisumu suggested that abstaining is difficult under the influence of peers and that sex for money or material favours occurs between young women and men. She stated:

"We are told to abstain, but I can't abstain. Peers influence me. They are bought gifts by their boyfriends, so even me, because my boyfriend assists me financially" (Kisumu, IDI, unmarried female).

When married women were asked if young unmarried people are at risk of AIDS, all admitted that they are at great risk because they had multiple partners and could catch AIDS from older partners with money and spread it to their younger partners. Some women said:

"It is worse for them because if parents are poor and a girl meets with somebody with money she will accept him and he might be infected. She will also have a boyfriend at school and they all get it" (Kiambu, FGD, married female).

"The young men like sugar mummies who are sometimes infected. They say that these women especially the married ones don't disturb them" (Kisumu, FGD, married female).

Older men and women (business people) were said to lure young girls and boys using their wealth. On the other hand, older men stated they prefer relationships with younger inexperienced girls, referred to as *"ripe oranges"*. An older married man in Kisumu said: *"I think they (men) go out with women who make them happy; who satisfy them, like the young ladies. For example, like I am 45 years. I will not go for a woman of 45 years. I will go for one of 18 years."* Though

the older men go for younger women, it seems obvious that the allure for material and monetary favours, a practice made common by the rising poverty, influences the pattern of age mixing in sexual relationships. In communities where poverty is high and unemployment rising, most young women and men would fall prey to older men and women's pursuit of sexual pleasure, putting them at high risk of getting AIDS.

Both women and men alluded to the prevalence of sugar daddies and sugar mummies, and this seems to be generally taken as the norm and to be the typical prevailing sexual culture. Sexually experienced older men act as a bridge in HIV transmission as they were alleged to infect young women who in turn infect young men. The IDIs revealed that most women reported to have had first sexual intercourse with someone five or more years older. Men reported slightly younger partners or someone of the same age. Age differences between partners has been linked to the high HIV prevalence rate among young people in Kenya (Baltazar *et al.*, 1999; Kenya et al., 1998). The existence of sugar daddies and sugar mummies has been noted in previous research in Kenya and the rest of sub-Saharan Africa (Nduati and Kiai, 1997; Kiragu and Zabin, 1993). Some said:

> *"Poverty...You find that in secondary schools, some girls have so much shopping and you don't. If you find some rich man somewhere, you will use your body to get whatever you want" (Kisumu FGD, Unmarried female).*

> *"Some girls engage in sex for money especially girls from poor families such that the only source of livelihood is sex" (Kisumu, FGD, unmarried male)*

Although commercial sex was mentioned as a high-risk factor, it was linked to the increasing levels of poverty in the communities rather than as a prime motive for sex.

Cost of HIV testing. The cost of HIV testing was less discussed except in two FGDs among married women in Kisumu and unmarried men in Kiambu and, in one IDI with an unmarried man in Kiambu. Much of what was discussed about HIV testing related to its role in behaviour modification rather than the cost. Participants stated that the HIV test should be used as a means of establishing the sero-status of partners in order to maintain fidelity and monogamy in sexual relationships or for marriage purposes. The cost of the HIV test was alleged to deter people from getting tested. The cost of the test within government facilities in Kenya differs according to whether it is voluntary counselling and testing (VCT) or for medical reasons. A VCT costs between Kenya shillings 50 to100 ($0.7-$1.3) and for medical or diagnostic reasons is shillings 450 to 500 ($7). Within private health facilities, the cost ranges from shillings 800 to 1,000 ($11-

$13). In addition to the cost, the stigma attached to the HIV test is a constraint to some people who want to undergo the test as implied by an unmarried man in Kiambu:

> *M: Have you ever had HIV test?*
> *R: No, I haven't gone because of financial difficulties. If you can offer me a free AIDS test now, then I can go for it but it has to be very private; only between you and me. I would not want anybody to know that I have gone for a test as this would lead to stigma (Kiambu, IDI, unmarried male).*

Labour migration. Migration due to work-related reasons was mentioned in only one FGD among unmarried women in Kisumu and by one married woman interviewed in-depth. One said:

> *"Separation of partners due to work. The man goes to work leaving the wife at home. Both may get sexual urges which they satisfy with other people who are not their spouses and this is risky" (Kisumu, FGD, unmarried female).*

4.6.2.3 Socio-cultural Factors

Almost all the participants were well aware that certain cultural practices place them at risk of HIV infection. The role of cultural practices was strongly echoed among participants in Kisumu. Previous studies in Kenya have observed that cultural practices are associated with people's sexual attitudes and behaviour (Kenya et al., 1998; Ocholla-Ayayo and Schwarz, 1991).

Widow inheritance (or "Tero"). This is a common practice among the Luo of Kisumu, and is considered a major agent of HIV transmission in the community. As noted in Chapters 1 and 2 a widow has to be ritually cleansed before she can be inherited or remarried. Women in Kisumu expressed their fear of the practice of widow inheritance, which they seemed to have no control over. A married woman summarised the fears of other vulnerable women when she observed:

> *"Customary practices. If my husband dies even if it was AIDS and my son also dies, I will have to be inherited first, so that my daughter-in-law can also be inherited according to the Luo custom" (Kisumu, FGD, married female).*

Both married women and men in Kisumu added that according to the culture of the Luo, most social activities have a sexual connotation. It is not just sexual intercourse in itself that people are afraid of but the fact that sex has to be unprotected for it to be considered traditionally appropriate is the main concern. A group of Kisumu men shared these fears as if to express the dilemma in which they find themselves:

> *R7: Most of the Luo culture, our culture goes with sex...If I am a man, the first born and I don't have a wife I will be forced to look for a woman to open the way for the others.*
> *R9: If you are in your home sexual practices also guide many activities. If you are to start ploughing you have sex; planting also requires that you have sex. Harvesting cannot take place without sex. All these are finished with sex (Kisumu, FGD, married males).*

Marriage patterns and reproductive goals. This emerged as a recurrent theme among participants in both sites, but more so, in Kisumu. Polygyny was considered common among the Luo in Kisumu and was a source of worry of HIV risk. Participants reckoned that a polygynous man could influence his wives to have extramarital sex as he might not be able sexually to satisfy all the wives or he may abandon older wives for younger ones. This makes the whole family vulnerable to contracting HIV.

An unmarried woman in Kisumu singled out marriage by abduction as another reason for high-perceived risk of AIDS. She expressed her fear as though the practice is long gone and as if only men could infect women and not vice versa:

> *"Marriage by abduction; in the traditional days, people used to abduct for marriage. An infected man may abduct you" (Kisumu, FGD, unmarried female).*

It was not clear what she meant by *"in the traditional days"*, but when asked if the practice is still common, she added, *"yes, in some parts half of the community abduct."*

A group of married female discussants in Kisumu alleged that cases of infertility in marriage might indirectly increase a woman's vulnerability to AIDS because the husband can allow the wife to sire children with her brother-in-law or anyone else. The women who maintained that the practice still happens discounted a woman who attempted to say that the practice no longer existed.

The societal expectation of marriage and reproduction seemed to be an overriding factor in perception of risk of a few unmarried female and male participants in both Kiambu and Kisumu. Adulthood in Kenya is almost synonymous with marriage. It is often a cause of concern to community members if a woman or man shows no interest in getting married. The participants alluded to the social expectation to get married as a source of worry about AIDS alleging that they could meet somebody already infected. Worry of this kind appears oblivious of the role of HIV testing in determining the sero-status of prospective marriage partners. An unmarried woman and man said:

> *"Because you want a husband and do not know his past and may be he had it (AIDS). You will give birth to children who also die because they are infected" (Kiambu, FGD, unmarried female).*

> *"...I am also in danger because I am supposed to marry. In case I get a woman already infected, then I will automatically get infected" (Kisumu, IDI, unmarried male).*

Sense of denial and fatalism, witchraft and "chira". As if in agreement, all participants in Kisumu and Kiambu stated that young people do not take AIDS seriously because they believed that AIDS does not exist or does not affect them. Denial of the reality of AIDS was sometimes explained by participants in Kisumu in relation to the belief that AIDS is witchcraft or *"chira"* (a curse due to breaking of a taboo) and not a disease. This form of denial of the existence of AIDS means that some people may not be motivated to change behaviour:

> *"The youth don't believe that AIDS exists. They end up engaging in sex not knowing that there is some risk behind it. They are ignorant so they are hard to convince" (Kisumu, FGD, unmarried female).*

The fact that some people deny the existence of AIDS is difficult to explain given the evidence of high level of knowledge about AIDS. Perhaps it reflects misinformation acquired from an array of sources or simply indifference to AIDS.

Some participants indicated that fatalistic attitudes are used to rationalise death and many people said they would die anyway and there is nothing they can do about it. Such beliefs make individuals more vulnerable to HIV infection because of a perceived lack of the need to change behaviour. Such expressions were common in both study sites:

> *"Yes, there are those who say it (AIDS) is just a cold. And that AIDS is the same. That death from an accident and from a disease is the same. There is nothing like a different death." (Kiambu, FGD, married females)*

4.6.2.4 Environmental Factors

The increase of AIDS orphans and widows. There was evidence to suggest that children orphaned and women widowed by AIDS were considered as high-risk groups in the communities as they were alleged to use sex as a survival strategy.

> *R6: This thing can happen even because of orphaned children who don't have parents but have sugar daddies to depend on. If he has AIDS, she will get it because they lack guidance.*
> *R2: They have no one to care for them so they look for men to satisfy them sexually and for money (Kisumu, FGD, married females)*

> *"And probably this woman going with young boys was widowed a long time and is very much in need of sex...And the boy will get it (AIDS) from her and pass it over to his young girlfriend" (Kiambu, FGD, married male).*

The difficulty of knowing the infected and deliberate transmission. All participants appeared to concur that anyone is at risk of getting AIDS and so it is difficult knowing *"...who has it and who does not" (Kiambu, FGD, unmarried female).* There was evidence that some infected

people were not aware of their HIV status and so continued to spread the disease unknowingly, making most people vulnerable. Yet, most groups maintained that some people spread the disease deliberately in order not to die alone. The issue of deliberate transmission of HIV was a recurrent theme in most groups and has been noted in previous qualitative studies in Kenya (Fapohunda and Rutenberg, 1999; Nzioka, 1996).

> *"HIV has really spread, unfortunately...we do not know who has it but it spreads fast. Again those who live here are not aware...Those who have it continue to have sex because they are not aware and this really spreads it" (Kisumu, FGD, married male).*

> *"Another way it spreads is that infected people say that they will not die alone so they deliberately move around to spread it" (Kiambu, FGD, married female).*

Stigma related to HIV testing. Both FGDs and IDIs indicated that there was a lot of stigma surrounding HIV testing and this deterred people from getting the test. Almost all FGD participants made it clear that they would not like to get the HIV test because they might be rejected by their partners, family, and friends if found to be infected. The issue of confidentiality seemed to be an overriding factor in the participants' fears about getting tested, and was related to misconceptions and the silence surrounding the disease. Some said:

> *"This is because when you get your girlfriend and you move ahead to have sexual intercourse, none of you is willing to open up and inform each other about his/her health status. In fact many people will probably go for a test after they have had sexual intercourse..." (Kiambu, FGD, unmarried male).*

> *M: Have you ever had HIV/AIDS test?*
> *R: No. I have not felt the need for AIDS test. The impact of the result can be difficult for the family (Kisumu, IDI, married male).*

Although FGD participants stated they were unwilling to be tested for HIV, 13 of the respondents interviewed in-depth admitted to have had the HIV test, whereas those who had not were willing to do so (see section 4.7.4). The difference in FGD and IDI results support the importance of using IDIs in studying sensitive and personal issues. Participants may have chosen not to discuss HIV testing in FGDs because of the need to conform to the social norms.

Alcoholism and idleness among young people was mentioned as AIDS risk factors in two FGDs with unmarried males in Kiambu. There was no much discussion on these issues to warrant fuller description.

4.6.2.5 Bio-medical factors

Blood-related modes of HIV transmission were rarely mentioned as risk factors in FGDs, but a few IDI participants alleged they were at risk because of the likelihood of infection through non-sexual or blood-related sources. Most married people assertively ruled out the possibility of risk from sexual intercourse as they claimed to have changed their behaviour to maintaining trusting, faithful and monogamous relationships, stating non-sexual forms of HIV transmission as their only possible risk source. None of the unmarried people raised this concern:

> *"I fear in case a doctor may use unsterilised needles for injecting me. In other words I worry about the non-sexual modes of transmission" (Kiambu, IDI, married male).*

4.6.3 Reasons for Participants Perceiving No Risk of HIV

As noted earlier, denial of risk was rife in IDIs. Participants stated a range of reasons to justify their own sexual behaviour as safe, often ignoring more risky sexual aspects of their own or partners' sexual lives. The criteria for denying risk, shown in Table 4.3, are described below:

4.6.3.1 Behavioural factors

Denial of HIV risk was in most cases attributed to safety based on a partner's or one's own sexual behaviour.

Partner was young or a virgin was a popular allegation among men who argued that they knew the partner was inexperienced, hence safe:

> *"For one thing, I knew she was a virgin. I had got the information from a reliable source. I knew about how she lived in her village" (Kiambu, IDI, unmarried male).*

> *"...We trusted one another. We were still young and did not think that we would have any disease" (Kisumu, IDI, married male).*

Whereas men perceived young women as safe, women did not consider young age in judging the safety of their male partners. Moreover, FGDs with unmarried women revealed that young women prefer to partner older men because such men are considered mature and responsible.

Trustworthiness and fidelity between partners. Some participants argued that they felt safe because their partners were faithful or that they trusted their partners. This was a recurrent theme among IDI respondents. Only in one FGD amongst young married men in Kiambu was denial of HIV risk so explicit. They argued hat they were faithful and trusting to their partners. Some IDI participants said:

"As per now I don't doubt her faithfulness" (Kiambu, IDI, married male).

"Because I trust him very much" (Kiambu, IDI, unmarried female).

The following dialogue with an unmarried male in Kiambu outlines the different ways in which HIV risk was assessed based on trust, and the contradiction between AIDS knowledge and behaviour:

M: Did you talk to your first sexual partner about her past sexual experiences?
R: No, The lady was trustworthy. Her movements could not be doubted. Her life was not promiscuous. The lady asked me if I had another girlfriend but I told her that I did not have another girlfriend.
M: Did you seek information about your sexual partner from anyone?
R: Yes, I sought information from friends who knew the lady and they encouraged me very much. I enquired both from girls and boys. All the same, it did not require many enquiries because the girl was my sister's friend. I therefore trusted her.
M: Did you use any form of contraception the first time you had sex with your first sexual partner?
R: No, I did not. We both trusted each other and we believed none of us could get sick. We did not even fear pregnancy.
M: After first sex, in which you did not use contraception, did you consider using any form of contraception later in you relationship with your first sexual partner?
R: No, I did not use any contraceptives in later sex.
M: Why do you think you never used contraception at all with your first sex partner?
R: I was serious with the girl. I did not therefore fear making the girl pregnant because I was ready to marry her. I was ready to accept her.
M: Did you talk about contraception with your first sexual partner?
R: Yes, we talked about contraception and condoms but we arrived at an agreement that none of us had a disease. We were both fine.
M: Who initiated the talk?
R: The lady, my partner. She talked about disease prevention and this was just before sex.
M: Can you remember how the subject was started?
R: The lady was from the rural area while I stayed within the town centre. She did not know my lifestyle in town and she therefore decided to talk to me about condoms. She had the mentality that those from the shopping centre were promiscuous.

In the above excerpt, both partners were aware of the risk of unprotected sex but they did not act on such knowledge basing their judgement on trust.

Familiarity/proximity of a partner. Some participants argued that they could not be at risk because they have/had known their partners for a long time. Even knowing that a partner had other partners was ignored. Women and men argued that because they had grown up with the partner in the same neighbourhood or even gone to the same school, they knew that their partner had not been promiscuous and did not have other partners, or else someone could have told them:

M: Did you talk to your first sexual partner about her previous sexual experiences?
R: No. Of course I had known her all the time. I had been in the relationship with her for almost one year and three months. I had all the time known her. Also, I was a school prefect and she was feared by other boys since she was 'pushing' with a prefect (Kiambu, IDI, unmarried male)

The results suggest that people gather information on a partner's sexual history either directly from the sexual partner or through informal networks, relatives and friends or what can be termed as "gossip". However, knowing a partner's sexual history was not consideration for being at risk of HIV infection and often not a serious aspect as one unmarried man in Kisumu claimed, "*I just used to ask jokingly.*" Individuals seemed to be more concerned about the numbers and general character of partners than about the risk of exposure to HIV from their partners' previous sexual experiences. Surprisingly two women who reported that their partners had had sexually transmitted infections (STIs) still argued that they trusted their partners and considered them safe from infections. Even among individuals who had initiated sexual intercourse in what could be termed the "AIDS era", the fact that AIDS has a long latency period was not applied when sexual histories were used to assess risk, so that knowing that a partner has had other partners was somewhat ignored:

"Because I knew those other relationships were not serious" (Kiambu, IDI, married male).

Using condoms. Some unmarried participants admitted that they consistently used condoms with partners they did not trust. However, one man admitted having had a lapse, and as if to exonerate himself of blame, he alleged having not used a condom because *"the lady insisted so much on having sex" (Kiambu, IDI, unmarried male).* Another said,

"No, I protect myself fully. I use condoms with those I do not trust" (Kiambu, IDI, unmarried male).

Some people reported that they used condoms only in casual sex or at the beginning of the relationship and once trust was established condoms were disregarded. Other people reported reliance on natural forms of contraception because of the fear of side effects of the clinical methods.

All married participants reported relying on trust, faithfulness and monogamy for AIDS prevention or when they knew their HIV status, and so other methods such as the pill, the injectable or natural contraception methods were used to prevent pregnancy. Some participants

were simply concerned more about unplanned pregnancy than AIDS because they had the assurance of safety based on their partner's characteristics:

> *"I used the calendar method. I was afraid of getting pregnant. I could not support a baby..." (Kiambu, FGD, unmarried female).*

Most older male respondents and a few young people simply admitted to having been ignorant because they were young at first sexual intercourse, so they did not know much about sexual risks and had not heard about condoms or AIDS. This might be a reflection, in part, of the time and context in which first sex took place. AIDS was not a serious threat in Kenya till late 1980s. Thus, older people in the study may have not been particularly aware of AIDS at the time of their first sexual intercourse. Among young people, sex education in Kenya has long been a contentious issue; so most of them could have been ignorant of sexual and AIDS diseases. Besides, for most respondents first sexual activity was almost spontaneous and not planned, so it would have been difficult for partners to initiate condom use at the time. A man who had first sex with his cousin's partner who was visiting illustrates this fact:

> *R: The room of my cousin had condoms but I never thought of it...I was overwhelmed. I cannot say I was carried away because if she never accepted I could not have done it...*
> *M: Are you saying you never talked about contraception with your first sexual partner?*
> *R: There was no time to talk. I think she thought if she asks me I would have told her let's not do it (have sex)" (Kiambu, IDI, unmarried male).*

And for some, the fun of having sex overrides the concern of AIDS risk, *"...I didn't even think about the risk involved in unprotected sex because I was having so much fun" (Kiambu, IDI, unmarried female).*

No casual, multiple or extramarital partners. Most respondents also argued that they were now safe because they were sticking to only one sexual partner or were not having extramarital sex.

> *"In my opinion I think I am well placed. I think I am not at risk unless I get other partners. I can only fear if I have many partners" (Kisumu, IDI, unmarried female).*

> *"Since I began taking the issue of AIDS seriously, I do not take any risks. In fact, I have completely refrained from extramarital sex" (Kisumu, IDI, married male).*

Abstinence. Abstinence was a common theme among some unmarried respondents for denying being at HIV risk, though for others the risk of HIV infection from previous sexual partners was often ignored. Some people abstained after having HIV test:

"I am not in danger now because I went for a test and it turned out to be negative. I now don't have a sexual partner" (Kisumu, IDI, unmarried male).

"We are currently not engaging in sex" (Kiambu, IDI, unmarried female).

Marriage goals. A few men stated that they had marriage intentions and so did not fear pregnancy or diseases. Similarly, some women alleged that their partners did not use condoms because they intended to marry them. Although claims of marriage intentions were mentioned, none of the married IDI respondents reported having married their first sexual partners. Women, more often than men, perceived their first sexual partner as serious because, with sexual intercourse, the relationship was thought to entail elements of emotional attachment, faithfulness, trust, and marriage intentions. The women's ultimate goal was marriage until they realised that the partner did not think of the relationship in the same way.

4.6.3.2 Bio-medical Factors

Had an HIV test. Thirteen people said they had been tested for HIV and were quite clear that they were not infected. Some participants even claimed to do the test frequently.

" Let me say that I usually go for medical tests including my wife. And we have been found to be uninfected" (Kiambu, IDI, married male).

I would be sick by now. Some individuals alluded to seriously falling sick as a sign of being HIV infected and so did not worry because they had not experienced serious illness.

In summary, it is apparent from IDIs that the context and patterns of sexual intercourse preclude protective sexual intercourse. HIV risk was perceived differently in FGDS and in IDIs. Whereas perception of risk was high and unanimous in FGDs, individuals tended to deny it.

4.7 Preventive Behaviour Against the Risk of HIV Infection

This section considers the methods that the participants reportedly use to avoid the risk of getting HIV/AIDS and, the social and cultural impediments to their attempts at maintaining low-risk sexual behaviour. FGD participants were asked the question: In your opinion, what are married women/men (or boys/girls) in this community doing to reduce their chances of getting STDs/HIV/AIDS? The IDI respondents were asked: What have you done to reduce your chances of getting STDs/HIV/AIDS? The strategies of monogamy and avoiding multiple partners, trust and fidelity, HIV testing, abstinence, and condom use, and to a lesser extent, communication

with partners or others, becoming religious, and stopping widow inheritance (mentioned only in Kisumu), were easily recited. But through probing, contradictions raised in FGDs and IDIs revealed the gulf between what respondents knew about AIDS prevention and what they believed they could realistically do to influence safer sexual behaviour. These are discussed below.

4.7.1 Trust, Fidelity, Avoiding Multiple Partners and Monogamy

These were the most recurrent themes in both FGDs and IDIs. The participants repeatedly declared that monogamy, trust and fidelity within or outside marriage was the best protection against HIV infection, though women were aware of the tendency for men to be unfaithful. Married women in particular were emphatic that, though they preferred trusting and monogamous relationships, it was difficult to control men's behaviour, thus revealing their powerlessness amid the sexual freedom that men enjoyed and over which women had no control. A married woman discounted the prevention strategy of trust and faithfulness and spoke as if assenting to fate:

> *"In my opinion it is difficult. Your husband can be unfaithful. So there is no way we as women can prevent the disease" (Kisumu, FGD, married female).*

FGDs and IDIs with unmarried participants suggested that the concepts of trust, fidelity and monogamy were interpreted to mean serial monogamy. Individuals believed that so long as they maintained one partner at a time, they were safe from the risk of HIV. No link was made between serial monogamous relationships and the number of partners and the risk of getting infected.

The problem of how to handle promiscuous partners, particularly spouses, drew more interest among married women than any other group. In the end women did not really settle on any one strategy to deal with unfaithful men since they were assumed too difficult to change. Yet, the same women said clearly that men have now started changing their behaviour because of the threat of AIDS. Some women claimed they trusted their husbands and could vouch for their husbands' fidelity.

Refusing sex was an alternative suggested by women if a partner was suspected to be unfaithful though this was seen to be unrealistic within marriage. The issue of refusing sex is discussed in detail under abstinence in section 4.7.3.

Avoiding multiple partners was a less cited AIDS prevention strategy, perhaps because of the overlap with other strategies such as monogamy and fidelity. Previous analysis of IDIs, indicated that most individuals maintained serial monogamous relationships, not multiple concurrent partners, and that the majority of men were more likely to have short-term relationships than women were. Nonetheless, the FGDs alluded to the prevalence of multiple concurrent partnerships. It is difficult to tell whether opinions expressed in FGDs indeed reflect reality or past sexual behavioural patterns in the communities under study.

4.7.2 Condom Use

All FGD participants mentioned the use of condoms as a strategy for protecting against HIV, yet only seven unmarried IDI respondents reported they currently used condoms. The IDIs indicated that the estimation of HIV risk associated with particular partners played an important role in determining condom use. This discussion is limited to the male condom since not much was said about female condoms in either FGDs or IDIs, though some participants claimed to have heard of them.

The timing and choice of contraceptive methods was also used to gauge how individuals assessed AIDS risk. When IDI respondents were asked if they used any form of contraception during the first sex, almost all women and men mentioned that they did not use or even think of contraception at first sex, though some individuals reported they later adopted hormonal (pill and injectable) or natural (withdrawal or periodic abstinence) methods of contraception for preventing unplanned pregnancy. Most respondents reported that they did not use condoms because they loved their partners or did not want to annoy them as condoms connote promiscuity and mistrust, and reduced sexual pleasure. A few women stated that they did not use a condom at first sexual intercourse because they were manipulated/coerced, forced or raped.

On the contrary, all unmarried IDI respondents in Kisumu reported having used/using condoms in their recent or current relationships (for dual protection against disease and pregnancy) as compared with only two males in Kiambu. Participants in Kiambu reported to have resorted to trustworthiness, fidelity and getting tested for HIV as precautions against AIDS, and used hormonal or natural contraception to prevent pregnancy.

All respondents interviewed in-depth in Kisumu admitted having discussed contraception with their recent/current sexual partners, particularly condoms for fear of pregnancy and STIs. On the

contrary, the discussions about contraception and AIDS noted among some Kiambu respondents were often limited and did not include talking about condoms, as these were considered to connote mistrust and promiscuity. Some remarked:

> *M: Did you talk about condoms?*
> *R: No, we did not...I was scared of suggesting them to him" (Kiambu, IDI, unmarried female).*

> *"I told her that I hate them (condoms)...And she knows I don't like them and she also told me they are not comfortable for her...I told her that she should forget about condoms in our love life. So I made a declaration which she supported" (Kiambu, IDI, unmarried male).*

Discussions of condom use in FGDs invariably stimulated vigorous debate regarding their acceptability, their effectiveness for HIV prevention, women's ability to negotiate their use, and the responses of partners when they were suggested. All participants acknowledged that condoms protect against pregnancy and sexually transmitted infections, but some raised concern on the effectiveness because *"a condom can burst and therefore is not a 100 per cent safe"*. A few feared that HIV could also be transmitted through saliva and doubted that condoms would be sufficient protection. A larger number of participants questioned the possibility of condoms having small holes and the rumours that condoms are laced with the HIV virus. Others alleged that condoms can disappear in the woman's womb and could result in death. Contrary to Varle's (1998) findings that condom use is common in Kenya, Rutenberg and Watkins (1997) observed similar fears and barriers to condom use in Nyanza, Kenya. Perhaps the differences in results lie in the study samples. Varle's study focused on young people in educational institutions, groups with higher educational levels and therefore most likely to appreciate the dual role of condoms, while this study, as well as that of Rutenberg and Watkins, were community based.

Although initially participants advocated condom use as one of the risk aversion strategies, almost all people in every group later reversed their opinion and talked of the disadvantages of condoms. The opinions expressed in FGDs and IDIs suggest that the major deterrent to condom use is attitudinal in nature. All individuals perceived that condoms reduced sexual pleasure, though this attitude was particularly strongly expressed by men. The question *"Are women/men (boys/girls) willing to use condoms?"* elicited a range of negative attitudes from both women and men FGDs as illustrated by these segment of a FGD among unmarried men in Kisumu:

> *R1: Some of them.*
> *R4: Very few boys are willing to use condoms. Very few girls are willing to use condoms. They claim that the condom makes them to have pimples. Boys do not want to use*

condoms as this reduces the sweetness involved in sex. Girls do not want to use condoms, as they fear that retention may result in death.
R11: The majority of boys are willing to use condoms because of HIV. When boys get strangers whom they do not know, they use the condom to have sex. It is evident that the disease (AIDS) is real yet blood screening is very costly. They would rather use the condoms to avoid getting the disease.
R6: Boys are willing to use condoms more than girls are.
R7: The lady will feel that you do not trust her. If she is sick, she will be alarmed and worried.
R1: She might suspect HIV infection.
R5: Some will agree to usage comfortably without getting annoyed while others will refuse to have sex with you once you suggest condom use.

And married women in Kiambu said:

R2: A man cannot accept a sweet in a wrapper! Few women can.
R4: He will think you don't trust him.
R6: Yes, he will suspect you of unfaithfulness.
R9: They refuse - you can only just pray.
R9: You have to be very tactful about how you ask and pray about it. Without God you cannot manage.
R2: I would not personally accept because if you accept to use, he will be free to use with other women. Some men also insist that they burst.
R9: Yes, they can puncture it at the tip and you end up getting pregnant.
R2: There is no one who will accept. They think women will suspect they are infected or they were with someone else and ask a lot of questions.
R1: They refuse even when they are told in hospital. I have seen a case of a man at a clinic who was told to go for treatment with his wife. He refused and went to another clinic where he bought pain killers and goes on with life uncured.
R2: They will even deliberately use them the wrong way.

Women and men were more concerned about their partner's response to a suggestion to use condoms. Both women and men stated that suggesting to a partner to use a condom would provoke him or her to accuse the partner of infidelity or a sexual disease, the only reason, they might allege, that the partner would make such a demand. Women asserted that men could never accept that they had other partners so that they should use a condom but instead turned the blame on them.

Surprisingly, participants revealed a lot of contradictions in their attitudes to condoms. The same people who advocated condom use in risky sexual encounters later strongly rejected the idea of using them in their own relationships. There was little differentiation in opinion within or across groups. Individuals tended to start by agreeing that women or men have a right to protect themselves from AIDS but qualified their views by outlining restrictive conditions under which

condom use is acceptable. Some women were outright that men did not want to use condoms. Similarly, men said the same concerning women.

All participants agreed that condom use is acceptable with casual or extramarital partners and prostitutes but not for women and men in long-term serious relationships or conjugal unions. Some male participants seemed to view their double standard of multiple relationships as if it were acceptable. They often prefaced their remarks with "if" clauses: *"If I must go out, I think I'll use condoms to reduce my chances of getting the disease" (Kisumu, FGD, married male).*

Despite their reservations and negative attitudes towards condom use, all FGD participants advocated the use of condoms if a partner is promiscuous. Following a hypothetical story of Fagia, a promiscuous man who lived in town and his partner, Kazuri, a faithful female partner who lived in their rural home, participants were emphatic that Kazuri should not have sex with Fagia without condoms, or else she should move out. Like abstinence, women suggested strategies for convincing Fagia to use condoms to include tactfully persuading the man (frequently mentioned by married women) or direct demand (commonly cited by unmarried women):

> *"Personally I would advise her to be patient and pray to God so that he will understand and able to talk in a way that he will not make noise at her. She should talk to him politely and God will intervene" (Kiambu, FGD, married female).*

> *"You can tell him that you don't trust him and so he needs to use a condom" (Kisumu, FGD, unmarried female).*

Some women suggested they could convince promiscuous husbands to use condoms under the guise of family planning since this is less threatening than directly confronting the issue of preventing AIDS:

> *"I can tell him to use it as a family planning method to space children" (Kisumu, FGD, married female).*

While it was apparent that men got their way in decisions regarding condom use, there was some evidence that young unmarried women are becoming more assertive in negotiating condom use. When asked who decided that condoms should be used, some unmarried women said,

> *"I did. I was in my unsafe period so I asked him to use condoms" (Kiambu, IDI, unmarried female).*

> *"I decided that we use the condoms...It not only prevents STDs but also AIDS...I always use condoms" (Kisumu, IDI, unmarried female).*

Similarly, some unmarried men alluded to their partner's active role in the decision to use condoms.

> *"We both decided. I raised the issue and she supported me" (Kisumu, IDI, unmarried male).*

Access to the condoms did not appear to be major factors affecting condom use. All participants agreed that condoms are easily available and could cite a range of sources from where they could be obtained free, such as in health facilities, at lodgings and hotels, and from community based distributors or health workers (CBDs/CHWs). Condoms can also be bought in shops.

4.7.3 Abstinence

Practicing abstinence was the most common AIDS prevention strategy amongst young unmarried respondents. There was indication from the FGDs and IDIs with young unmarried people that abstinence is being initiated voluntarily as a response to the threat of HIV infection. Abstinence in the context of HIV/AIDS prevention could either refer to the delay of initiation of sexual intercourse (primary abstinence) or a choice made to forego further sexual relations for a period of time (secondary abstinence). This study did not explore the extent of the practice of primary abstinence in detail because the IDIs focused on those with sexual experience. The FGDs may have captured the element of primary abstinence since the participants included the sexually inexperienced, though this is difficult to disentangle from group discussions. Some respondents interviewed in-depth reported to have adopted abstinence after having an HIV test.

There were often heated arguments in the FGDs amongst married participants regarding abstinence. Some recommended abstinence for the unmarried people only citing that condoms promote sexual promiscuity. Others argued that it was better to give young unmarried people condoms if they could not abstain or else they might have unprotected sex. A group discussion with married women in Kisumu revealed their attitudes about what they felt as appropriate protection measures for young people:

> *R8: We should just teach them to abstain from sex. They may not know how to use condoms and in the process hurt each other.*
> *R7: Just tell them to abstain from sex but if they have to have sex then they should use condoms.*
> *R5: I wouldn't tell them to use condoms. Rather, they should abstain because condoms are not 100% effective.*
> *R2: If you tell them not to use condoms, then they will have sex without it and this is risky. It is better to tell them to use condoms.*
> *R3: These sugar daddies cheat them not to use condoms after giving them money.*

The married women also suggested abstinence as a solution to preventing infection from a promiscuous spouse, particularly if he declines to use condoms. However, despite suggesting abstinence in a marriage relationship, the same women reversed their position when they argued that it was an unrealistic solution and even a frightening option that could lead to worse repercussions. Thus, women recognised that though they had a right to refuse sex for fear of AIDS, in reality their ability to refuse sex was not under their control. In fact, when women suggested refusing to have sex with their partners, it was usually a matter of deception rather than direct confrontation with a promiscuous partner. Women suggested many ways of refusing sex with an errant partner, namely feigning illness, fatigue, pretending to be menstruating, not being in the mood, and fear of pregnancy. Married women understood that deceptive strategies of refusing sex could only be temporary because it was not possible to refuse to have sex forever within marriage. In addition, tactics like pretending to be menstruating could backfire if the man decided to ascertain for himself as illustrated by a remark of a woman in Kisumu:

> *"It depends, if you tell him you are in your periods (menstruating), he will check (laughter)" (Kisumu, FGD, married female).*

Married women feared that refusal to have sex could be interpreted as meaning that they were unfaithful or infected with a sexual disease. Married women worried that suggesting abstinence could lead to physical abuse and the risk of making it easy for the man to contract AIDS from a relationship outside marriage. Unmarried women expressed similar fears. All women feared that their partners could find somebody more compliant if they refused to have sex, and for the unmarried women this spelt loss of a potential or future marriage partner, their ultimate goal in life, as most seemed to suggest. For unmarried women the need to hold onto the relationship overrode the AIDS risk. Married men never suggested abstinence as a strategy they used to avoid getting AIDS. Men expressed opinions that concurred remarkably with women's views on the difficulty of women protecting themselves against HIV infection from promiscuous partners. Most men appeared to agree that a woman had no right to refuse sex and said that they (the men) would use persuasion or force to have sex.

4.7.4 HIV Testing

The uptake of HIV testing as an AIDS prevention strategy was most frequently cited among respondents interviewed in-depth but not in FGDs, supporting the importance of using IDIs for the more sensitive issues. There was encouraging evidence that a number of people are now conscious of the importance of knowing their HIV status and have taken the positive step to undergo the test. Participants who reported having had the HIV test said they did so to allay fears

of an infection and as an antecedent behaviour for adoption of other AIDS prevention strategies such as abstinence, monogamy and fidelity. HIV testing was definitely more pronounced among Kiambu participants than in Kisumu. Out of the 17 participants of IDIs in Kiambu, 11 (five women and six men) had undertaken HIV test for various reasons – to know their HIV status and therefore maintain monogamous relationships, for medical or pregnancy reasons, and employment/study-related purposes. In comparison, of the 12 IDI participants in Kisumu only two men reported having had an HIV test; an unmarried man who wanted to know his own HIV status and decided to abstain from sex, and another for marriage purposes. None of the women in Kisumu had had the HIV test. Care was taken to establish the truth of the HIV testing claims because of the likelihood of misinterpreting the random anonymous testing conducted in selected sentinel surveillance sites in Kenya. People could have thought that they had been tested for HIV just because of having given out blood for other medical reasons, when in fact they had not. A number of hospitals in Kenya now require that pregnant women undergo HIV testing during the antenatal period.

Respondents who alleged knowing their HIV status alluded to having changed their sexual behaviour; that they were trusting and faithful to their partners. For unmarried individuals, HIV testing usually preceded abstinence or monogamy and fidelity in relationships. Some married people alluded to getting tested as a basis for maintaining fidelity and monogamy within marriage. Six of the men and women who had not had the HIV test stated that they had considered having one (three in Kiambu and three in Kisumu), and nine expressed that it was not necessary and so never thought of a test, as exemplified by a woman in Kisumu:

> *"I haven't just thought about it; perhaps if I fall seriously ill then maybe I could go for an HIV test." (Kisumu, IDI, married female).*

Only one unmarried woman in Kiambu alleged that she was scared of going for the HIV test and that she did not know where to go for it.

The challenges of HIV testing have been noted in earlier sections of this chapter and include cost, attitudes to testing and the possibility that people might misinterpret general blood tests as HIV tests (see section 4.6).

4.7.5 Partner Communication

Communication about AIDS was a less mentioned AIDS prevention strategy, but commonly cited by married women. The women opined that talking to the man about the threat of AIDS might convince him to give up risky behaviour. It was anticipated that by talking about the dangers of AIDS to the man, a woman could influence his sense of responsibility to protect his partner and also the family, though a few women discounted the idea of discussions because it could be misconstrued as a sign of unfaithfulness.

4.7.6 Change in Cultural Practices

As another response to avoiding AIDS, some FGD participants stated that they have stopped adhering to risky social and cultural practices such as widow inheritance. The Kisumu participants even alleged that some local administrators are enforcing arrests of people who inherit widows. The Kikuyu people practice circumcision for both boys and girls, and so Kiambu participants maintained that this is now performed at hospitals or special medical clinics. However, some male participants maintained that circumcision for girls is still practiced traditionally. Female circumcision is outlawed in Kenya and it is possible that girls are undergoing the rite secretly, and most likely using traditional methods.

4.8 Implications of the Study Findings

There is no doubt that the findings from FGDs and IDIs raise a number of practical, programme and policy issues likely to influence the spread of AIDS in Kenya. The implications are discussed in relation to AIDS messages and changes in sexual behaviour, with greater importance given to the discussion related to the delivery and interpretation of AIDS messages. This is because the findings suggest that the naivety with which people both acknowledge and deny the risk of HIV infection might be emanating from misinterpretation of AIDS messages. Moreover, sexual behavioural change was also discussed in section 4.7.

4.8.1 Implications for AIDS Messages

It is apparent that people in the study communities are extensively exposed to HIV/AIDS messages from a range of sources, even in rural areas of Kisumu that are considered disadvantaged in terms of mass media exposure. Accurate knowledge about AIDS is high, and there were no striking gender differences in awareness levels. People mentioned AIDS transmission mechanisms and prevention strategies that epitomised AIDS messages relayed through the media and other social networks. Misconceptions about HIV transmission occurred

with much less frequency and whenever mentioned, participants with more accurate information usually discounted them. People get sexual information from peers and other informal sources, much of which could be incorrect. People received much of their information through the community level networks and the mass media. Thus, it seems that AIDS awareness is not the problem but perhaps the content, the methods, and the timing of delivery of sexual and AIDS messages are. The messages people receive from different sources could be both accurate and inaccurate, and the time at which people receive the information, such as before or after initiation of sexual activity could affect how people interpret and act on such information.

The public HIV/AIDS awareness and prevention efforts in Kenya mostly rely on the radio, the television and the print media (newspapers, posters, pamphlets, and billboards). The non-governmental organisations (NGOs) have a strong preference for community-level networks, such as peer group educators, community discussion forums, women groups, theatre and audio-visual shows at market centres using mobile vans. The importance of the mass media in influencing reproductive behaviour has been noted in previous research in Kenya. Using the 1989 Kenya Demographic and Health Survey (KDHS) data, Westoff and Rodriguez (1993) demonstrated that women exposed to family planning messages through the mass media (radio, magazines, posters, pamphlets and television) were three times more likely to use contraception than women not exposed. Westoff and Bankole (1997), using the 1993 KDHS data, noted similar findings. These findings emphasise the importance of sources of information as mediating factors for change in behaviour. Likewise, the importance of each source of information in influencing individual sexual behaviour varies. Some sources, such as the radio, television and newspapers, mostly used for public awareness campaigns, to some extent, might convey accurate messages that have positive or desired influences, but could also be inconsistent and confusing to the listeners. The community level networks might contain more conflicting information (a mix of correct and incorrect) likely to result in negative or undesired behaviour.

The results in this study suggest that proper understanding of AIDS messages is lacking. Evidence from FGDs reflected certain levels of misinformation about AIDS transmission, which seemed to be reflected in perceptions of risk. Misinformation appears to have led people to unwarranted concern, stigmatisation, and ostracism of infected and affected individuals, belief in deliberate transmission, denial and fatalism. It appears public awareness campaigns have not managed to extricate from the communities the distorted knowledge about HIV transmission or to instil more accepting attitudes towards PLWHA and their affected families. Perhaps this is

because information about AIDS is gathered from an array of sources, which could be both correct and incorrect. Peers and friends, including the mass media are major sources of information for young people. Findings by Ajayi et al., (1991) and Maina (1995) quoted in Varle (1998) also found that peers and the mass media were the most common sources of sexual information among young Kenyans. A further explanation could be that AIDS deaths and illnesses are so widespread that individuals find it difficult to accept that social contact cannot spread AIDS.

Similarly, it was not clear whether the assertion that some people transmit HIV deliberately is true. However, further discussions suggest that perhaps the problem of deliberate transmission may be more to do with ignorance of one's own HIV status and the fear and stigma attached to HIV testing rather than intentional transmission. People who are HIV positive and would not go for the test are almost bound to transmit the infection. Besides, infected people are unlikely to alter their sexual behaviour unless they are aware of their own HIV status, and have a sense of responsibility to protect others. The realisation that it is difficult to recognise an infected person across all categories of men and women might also, in part, reflect a kind of fatalism and people's acceptance of their vulnerability because they feel that, there is nothing they can do.

IDI results also suggest that messages of being faithful to one partner or not having multiple partners are not being interpreted to mean sticking to one single lifetime partner. Individuals appear to interpret messages of "stick to one partner" as to refer to serial monogamous relationships, in which people maintain one partner at a time but subsequently form new relationships as soon as one ends. This behaviour is little different from having concurrent multiple partnerships in terms of its impact on the risk of AIDS. Individuals appear to feel invulnerable because they maintain sexual loyalty at a given point in time, suggesting that HIV/AIDS can happen only to people who are sexually unfaithful in their relationships. It is true that concurrent partnerships are risky, but it is also true that people who have had many sexual partners at different stages of their sexual lives might be relatively at risk of HIV infection due to the long latency period of the AIDS virus. Though based on a small number of participants, findings of IDIs suggest that the need to promote safer sex, particularly use of condoms, is relevant, as is the need to promote an understanding of how a person can be vulnerable to HIV infection in a relationship considered faithful and trusting but of a serial monogamous nature. Individuals who believe they are in monogamous relationships might still be at risk of HIV from the behaviour of their partners who have had unprotected sex with previous partners.

As noted earlier, perception of invulnerability may stem from the fact that an admittance of vulnerability would also mean being immoral. Thus, to rationalise the threat of AIDS, individuals may consider other people as vulnerable and not themselves. Sex workers, truck drivers, sugar daddies and sugar mummies, policemen and so on, were mentioned as high-risk groups – the groups identified by policy and programmes for targeted interventions. This deflection of vulnerability to others might appear, in fact, to have led to both a greater fervour in self-denial as noted in IDIs and a stigmatisation of the infected and affected evident in FGDs. Stigmatisation and discriminatory practices may lead PLWHA to conceal their infections in order to be accepted in their communities. Perhaps, the concealment of one's HIV status might explain the rampant fear of deliberate transmission of HIV in the communities.

The results show that perceptions of risk operate at different levels; the community and individual. At the community level, AIDS risk is generally perceived to be great. At the individual level HIV risk is not necessarily currently perceived to be a great risk. The division between those who currently believe themselves to be at risk and those who do not appears strongly linked to naivety. Those who do not feel themselves at risk stated that they are using prevention strategies, those who feel at risk acknowledge that potentially they are at risk due to their partner(s) behaviour or their own previous risky behaviour. The motivations for sexual intercourse suggest that the male sex drive highlighted by Holloway (1989) influences men to seek out for sexual experimentation and experiences, while women seek to marry and reproduce. The differences between women and men in motivations for sex indicate that people have differentiated information needs under specific contexts and stages of their sexual lives: at the social or individual context, married or unmarried status and, for sexually experienced or inexperienced people.

At the community level, the FGDs highlighted the strong influence of specific cultural practices on HIV risk, thus highlighting the importance of the social context in AIDS prevention messages. Previous research in Kenya has associated the high prevalence of HIV infections in Nyanza province, in which Kisumu district lies, to the practice of widow inheritance, polygyny, a belief in witchcraft and *"chira"* or a curse (Kenya *et al.*, 1998; Ocholla-Ayayo and Schwarz, 1991).

IDI results revealed gender differences in sexual-decision making and negotiation. Most women alleged that they had been coerced or forced to have first sex. In reality, manipulative, forced or

coercive sex precludes protective sex, suggesting that most young people of both genders are highly vulnerable to HIV infection at the beginning of their sexual lives. Indeed, if manipulative sex is common, then young sexually inexperienced people need to be targeted with messages that address the risks involved in forced or coerced sex, rather than condom and fidelity messages that are irrelevant and likely to create confusion. However, the reliability of reports on coerced or forced sex need to be reconsidered in current surveys. It emerged that most women reported unwanted or unintended first sexual intercourse, though they also indicated having consented to the prevailing courtship culture of accepting money, gifts or other favours from men, as well as visiting boys at their houses; behaviour typically taken to imply assent to sexual intercourse. It therefore becomes difficult to interpret exactly what women mean by coerced or forced sex. It was not an aim of this study to investigate the nature and extent of coerced or forced sex. This could be an area of further research.

The findings of the study also suggest that at sexual initiation, young people in the communities under study were typically poorly informed about how to protect themselves against getting STDs and HIV/AIDS. At first sex, most respondents interviewed in-depth were more concerned about pregnancy than disease, though in later sexual relationships all IDI respondents perceived AIDS risk, though they also denied to be at risk stating that they had changed their sexual behaviour. There could be a number of possible explanations for this scenario. The 21 people aged 15-30 years involved in this study initiated sexual activity between the ages of 11 and 22 years, approximately the period 1985 to 2000. Therefore, the social impact of AIDS during initiation of their sexual activity varies. Three respondents reported experiencing first intercourse between 1985 and 1990, a time when the reality of AIDS in Kenya was not visible. The majority (14 respondents) reported to have had their first sexual experiences in the last decade (1991-1998), when the impact of AIDS had come to light through public awareness efforts but not publicly acknowledged due to the fear, shame and stigma attached to the disease. The "AIDS disease" was still shrouded in mystery and people were reticent to talk about it. Only four respondents had their first intercourse during what could be termed the "AIDS era" (1999-2000), a time when the reality of AIDS had dawned and was felt in all circles of Kenyan life and publicly acknowledged.

It was not until 1999 that President Moi of Kenya declared AIDS a national disaster (*The Daily Nation Newspaper,* 1999). Since then, both political leaders and community members publicly acknowledge and talk about AIDS. The fear, shame and stigma that surrounded AIDS have

gradually waned. For example, in July 2001 a Kenyan family was reported to have "... *broken a major taboo, by decorating a newspaper death announcement with two red ribbons, to show their relative had died of AIDS" (BBC News online, 18 July* 2001*).* Since the first AIDS case in Kenya in 1985, the disease remained shrouded in mystery and nobody wanted to talk about it. It is said that some of the fears at the time were related to the effect public acknowledgement of AIDS disease would have had on the country's socio-economic base through tourism (Forsythe *et al.,* 1996).

Until recently, AIDS messages did not target young people. Sex education in Kenyan schools for a long time was a contentious issue, strongly opposed by church leaders and parents who connoted it with promiscuity (Forsythe *et al.,* 1996). Young people then entering into active sexual lives might not have been particularly informed or knowledgeable about AIDS at the time. Indeed, some respondents alleged they did not perceive HIV risk at first intercourse because they were young and ignorant about condoms and about sexual risks. Nonetheless, by the year 2000 the socio-economic consequences of the AIDS epidemic made it necessary to introduce sex education in schools, with an emphasis on AIDS prevention. Before the year 2000, the teaching of sex education was left to the discretion of the schools. Typically, religious sponsored schools avoided topics directly related to sexual relationships and contraception, but emphasised pubescent changes such as menstruation among girls. As a result, sex education tended to concentrate more on teaching girls about their physiology and excluded the boys. AIDS education is now part of the school curriculum in the Kenyan education system.

Being young could also have played a part in people's feeling of invulnerability at sexual initiation. At younger ages individuals might not perceive AIDS as a threat simply because of their short-lived realities so that they do not even think about death. But as people get older they might realistically conceive AIDS risk due to the influence of AIDS messages and their widening social networks.

Individuals interviewed in-depth relied on partners and social networks for information about their partners' sexual histories that were used to judge whether a partner was infected. The fact that partners and social networks could provide unreliable information was not taken into account in risk estimations. During the IDIs, four respondents stated not having told their sexual partners the truth about their own sexual histories because of the need to be seen as decent or not promiscuous. Previous research has shown that partners are often hesitant or afraid to introduce

the topic of protective sex early in the relationship for fear of being accused of mistrust or being labelled promiscuous (Futures Group, 1999; Fapohunda and Rutenberg, 1999; Ingham *et al.*, 1992b). Sexual partners may feel more comfortable sharing information if the partnership is long term and partners 'know' each other well. The period between meeting and 'knowing' a partner potentially puts the partners at risk of HIV and it may be too late when eventually the issue of protective sex is broached. Moreover, if both sexual partners expand their network of partners or if the relationships are of a short term and casual nature, little or no information may be gathered about a partner from the social networks.

The IDIs revealed that women could be at risk of HIV infection right from the beginning of their sexual lives. The women interviewed in-depth reported first and recent sexual partners that were older, while men reported younger partners. There was a recurrent theme of older men (sugar daddies) initiating sexual relationships with younger women and older women (sugar mummies) with younger men throughout the FGDs and IDIs. Participants believed that poverty influenced men and women to have sex for material or monetary favours. Relationships involving large age differences have been associated with the high HIV prevalence among young people in Kenya (Okeyo *et al.*, 1998). The older men act as a bridge whereby they infect younger women who in turn pass infections to younger men. The prevalence of young men partnering older women (sugar mummies) appears to have gained prominence over the last few years, though previous research has frequently alluded to the prevalence of the sugar daddy phenomenon (Nduati and Kiai, 1997). Or perhaps the shift towards gender-based studies and interventions has only just uncovered an old practice that tended to be ignored. These findings suggest that poverty may still fuel the AIDS epidemic in resource-poor contexts like in Kenya.

4.8.2 Implications for Sexual Behavioural Change

A discussion of the efficacy of different forms of behavioural change was done in section 4.7. Therefore this section points out the additional information arising from the contradictions raised in FGDs and IDIs that revealed the gap between knowledge, intentions, and actual behaviour. Though the extent of adoption of preventive behaviour cannot be determined from this single small-scale study, the impediments to behaviour change likely to be operating in the study communities need to be highlighted

The study reveals the challenges men and women face in trying to institute AIDS prevention strategies. The adequacy of these strategies as prevention mechanisms for both women and men

is flawed by many erroneous assumptions. A look at the strategies that are being advocated shows that they are all under men's control. The influence of gender in sexual decision-making is an acknowledged fact in sub-Saharan Africa (Harrison *et al.*, 1997; Moses *et al.*, 1994; Orubuloye, Caldwell and Caldwell, 1993; Standing, 1992), and these intervention approaches have obviously ignored women's inability to negotiate safer sex within or outside marriage. Nevertheless, there was some evidence to suggest that this is changing in the study communities, and some women reported that they sometimes decided on when and how to have sexual intercourse.

Despite the concern about the risk of HIV infection in the study communities, there was little evidence from the study participants of greater reliance on condoms (also known as *"mobile"*) for dual protection against pregnancy and disease. Contrary to popular belief that women lack the power to negotiate condom use, the results in this study reveal that this is not always true. Both women and men expressed outright dislike for condoms, suggesting that women and men alike are non-supportive of condom use. If, indeed, both genders portray negative attitudes towards condoms, it might be unrealistic to expect them to negotiate their use.

Surprisingly, participants revealed a lot of contradictions in their attitudes to condoms. The same people who advocated condom use in risky sexual encounters later strongly rejected the idea of using them in their own relationships because they connote mistrust and promiscuity, they reduce sexual pleasure, and that condoms are not 100 per cent effective. Perhaps people under-estimate the effectiveness of condoms and use this as a rationalisation of their dislike. Furthermore, the role of condoms in AIDS prevention has been a matter of many public debates in Kenya, which have highlighted misperceptions and discredited the efficacy of condoms in preventing HIV infection. Most women were quite clear that men did not want to use condoms because they connoted promiscuity or mistrust. Similarly, some men expressed the same about women. The tendency to blame partners makes it difficult to disentangle the gender-related barriers to condom use.

Previous research in Kenya and elsewhere has shown that men decide when to use condoms and few women can ever negotiate use (Balmer *et al.*, 1995; Gage and Njogu, 1994). The majority of women expressed their inability to use condoms since men do not want to use them. And when men were asked if they need permission to use condoms, they simply laughed with surprise and easily retorted, *"No"; "Permission! For What?"; Of course not!"* A study of young people's

sexual behaviour in Nyanza province of Kenya showed that only some women, particularly those in commercial sex work, could ably negotiate condom use (Habema, *et al.*, 1999). The FGD and IDI results have indicated that condom use is inhibited by the entrenched social and cultural attitudes. IDIs indicated that condom use varied according to the context and stage of people's sexual life; with non-use more likely at sexual initiation than in subsequent partnerships.

Misperceptions that condoms are unsafe and ineffective may be related to a lack of correct knowledge of use. Condoms not worn properly will slip or burst and this could be the real problem. In addition, trust and familiarity are analogous to safety and condoms to infidelity, mistrust and being infected, perhaps because of the way AIDS messages are interpreted. AIDS messages in Kenya have often emphasised that individuals should trust their partners and use condoms with partners that are not trusted! The implication is that where you lack trust, consider using condoms, hence the connotation of condoms with promiscuity. Moreover, individuals have a choice, to stick to one partner or else have multiple partners and use a condom. Certainly, IDIs suggest that individuals have a distortion of messages to suit individual behaviour. Loosely defined, serial monogamy would provide more sexual freedom to most people and hence be more popular than having one lifetime partner. Thus, most participants reported being in monogamous relationships even though all of them had had at least two or more partners at different stages of their sexual lives.

The prevention strategies of faithfulness, monogamy and abstinence seem to be unrealistic among women living with men who have much sexual freedom. Studies indicate that most women have no sexual partners other than their husbands. Therefore, women may be becoming infected with HIV due to their partner's risky sexual behaviour (Reid, 1999; Family Health International, 1999). For married women, abstinence and faithfulness of partners in a relationship is not within their power to bring about. And for many other girls and women, the possibility of sexual assault such as rape is a reality and this will increase the number of infected women as the number of infected men increases.

There was some indication from the FGDs and IDIs that young unmarried people voluntarily initiated abstinence (stopping sexual relations for a while) as a response to the threat of HIV infection. This study did not explore the extent of the practice of delaying sexual debut (primary abstinence) because the IDIs focused on those with sexual experience. The FGDs may have captured an element of primary abstinence since few participants were sexually inexperienced,

though this is difficult to pin down in focus group discussions. It might be important to focus on primary abstinence as an AIDS prevention measure given the lack of perception of AIDS risk at first sexual intercourse. In other words, given that individuals would naturally hesitate and be fearful to have first sexual intercourse, it would appear a more appropriate point of intervention. It might be plausible to state that once an individual is sexually experienced there is a considerably increased likelihood of further sexual intercourse. Nonetheless, evidence from this study has shown that targeting secondary abstinence is an equally important HIV prevention strategy. Perhaps the belief that once one is sexually active it is difficult to abstain is unjustified because this is not necessarily the case. The assumption that it would be difficult for sexually active individuals to abstain presupposes that human actions are driven solely by instinct rather than conscious choice. Arguably, though sexuality is a biological function, people's behaviour is also socially constructed. People are capable of learning and adapting to changes throughout their life course. Thus, emphasis on secondary abstinence may prove a more effective AIDS prevention measure than is generally thought.

HIV testing was an option some women and men, particularly in Kiambu district, relied upon as a precursor to maintaining trusting and monogamous relationships or abstinence. Yet, both FGD and IDI participants raised the concerns of stigmatisation and the high cost of HIV testing, issues that ultimately could influence people's uptake of an HIV test. Perhaps that is why HIV testing appeared a less popular AIDS prevention strategy in Kisumu than in Kiambu. However, it is also possible that the emphasis of AIDS messages in Kisumu and Kiambu differ. As noted earlier, all participants in Kisumu were drawn from rural areas, situated far away from Kisumu town. Kiambu is situated close to Nairobi and so tends to get a number of AIDS reduction initiatives before the rest of the country. Kiambu is, therefore, well served by government-sponsored AIDS prevention campaigns that could have emphasised HIV testing. A number of hospitals in Kenya now require that pregnant women undergo HIV testing during the antenatal period. It is possible that the pregnant women in Kiambu went through such a program as a good network of health facilities serves the area. On the contrary, Kisumu district (which consistently has had high HIV prevalence rates), has been flooded by NGOs offering a range of AIDS prevention interventions, but especially the promotion of condoms.

4.9 Conclusions

AIDS education and prevention programmes in the study communities show evidence of success. Individuals exhibited high levels of awareness about AIDS and were motivated to change behaviour to avoid getting HIV infection. Nonetheless, it is possible that some responses were influenced by the widespread media campaigns, and so people reported *expected* behaviour rather than *actual* beliefs and practices. In addition, individuals may have decided to respond to the survey in a way that portrayed them as responsible and sensitive people. These facts may account for previous difficulties in linking perception of risk and behaviour, since in this study only explicit questioning on the issue of HIV resulted in statements of severity of the diseases. However, it is also possible that behaviour change has occurred in the study communities and therefore current perceptions of risk, indeed, represent low-risk sexual behaviour. Individuals who are not sexually active or who use condoms in risky sex or restrict sex to regular partners may realise that their behaviour minimises the risk of getting HIV infection. Individuals who are sexually active and engage in risky sexual practices may realise their heightened risk of HIV infection.

The IDI results indicated that people are poorly informed and unprepared to guard against sexual risks at first sexual intercourse. Motivations for sexual intercourse preclude protective behaviour, a fact that may expose the majority of people at HIV risk in the course of their sexual lives. There were some differences in views at the community and individual levels. While AIDS was seen as a big threat at the community level, it was not necessarily perceived to be a threat at the individual level. Denial of HIV risk was common at the individual level and the partners' characteristics or one's own sexual behaviour informed these perceptions. Acknowledgement of HIV risk was mainly attributed to the possibility of infection from a partner's infidelity, self engaging in casual sex, risky cultural practices, poverty, and, to a lesser extent, other non-sexual modes of HIV transmission.

Results also suggest that efforts to reduce the risk of getting HIV/AIDS might be constrained by gender differences in sexual decision-making and negotiation. The frequency with which sex for monetary or material favours was mentioned suggests that in resource-poor settings like in Kenya, poverty may play a crucial role in the spread of AIDS.

The next chapter examines the characteristics of people reporting different levels of self-perceived risk in Kenya and the factors associated with different levels of self-assessed risk.

CHAPTER FIVE

FACTORS ASSOCIATED WITH SELF-PERCEIVED RISK OF HIV/AIDS IN KENYA

5.1 Introduction

This chapter examines factors associated with self-perceived risk of HIV/AIDS infection among women and men in Kenya using ordered logit regression modelling. The multivariate analysis in section 5.5 is preceded by an examination of the characteristics of the survey respondents by selected variables and, the distribution of women and men by selected characteristics and levels and reasons for self-perceived risk of HIV infection according to socio-demographic factors in section 5.4. The Pearson chi-square test for statistical significance is used in the bivariate analysis. A discussion of the findings is presented in section 5.6 and a summary and conclusions in section 5.7.

5.2 Measuring Perception of Risk

Perception of risk is critical in explaining the causes of people's health-related behaviour or the factors that motivate them to seek health care since it is the first stage towards adoption of less risky behaviour. An examination of perceptions of HIV risk is important in understanding what determines people's estimates of risks; how people receive and process AIDS information, and how people relate their sexual experiences to the risk of disease infection. Perceived risk of getting AIDS may, therefore, have important implications for health behaviour if the perceptions are rational and lead to a willingness to avoid high-risk behaviour (see Chapter 2, section 2.4.1 for definition of perception of risk).

Perceived risk of HIV is subject to an individual's own assessment of the actual threat from a disease, which may or may not be realistic. A number of factors may influence a person's perceived risk even though an individual may or may not be at high risk of HIV infection. These may include individual attributes, knowledge about AIDS, social and cultural beliefs, attitudes and practices towards behaviour that needs modification, personal experiences related to the disease and, the wider social context (Ingham *et al.,* 1992b; Cohen and Trussell, 1996). Because perceived risk is purely subjective, risk estimates may emanate from inaccurate interpretation of personal experiences, and fears and biases based on categorisation of other people as risk or non-risk groups. It is, therefore, difficult to distinguish between 'perceived' and 'actual' risk (Freudenburg, 1988). Some people may exaggerate their risk and become overly risk averse even though they may not be highly exposed to the risk of disease and, others may underestimate their risk levels than is actually

the case if AIDS deaths are low or not known. Conversely, others may accurately interpret their risk levels but be indifferent and choose to engage in risky behaviour (risk-takers) or, unable to effect any risk prevention behaviour due to circumstances beyond their control, such as subordinate women.

Though perception of risk is associated with sexual behaviour, causality is difficult to infer from cross-sectional data. Information collected in the1998 KDHS did not anchor perception of risk on past or current behaviour. Some people could have under-estimated their risk of getting infected if recent change from high-risk to low-risk behaviour is taken to mean safety, even though previous behaviour could have been risky. The possibility of reverse causality means that perceptions may influence or be influenced by behaviour. However, the analysis in this chapter is confined to an examination of associations and not causation due to the nature of the 1998 KDHS data.

Self-reported perceptions of risk and sexual behaviour might be based on normative expectations. People may report specific sexual attitudes and behaviour simply out of the need to report what is expected (normative) rather than what is actually practised. Hence, people's perceptions may be based upon what they think is rational and socially acceptable rather than their actual risk and sexual experiences (Cleland, 1995; Ingham and Holmes, 1991).

Perception of risk of HIV is not static but varies over context and time and can easily be referred to as stages or states rather than distinct levels of perceived risk. Individuals may perceive different levels of risk at different stages of their life course, and an individual might change from one state to another (e.g. from low to high perceived risk or vice versa) even with continued exposure to the same type of risk. Studies have shown that some individuals may perceive themselves at high risk in a new relationship and decide to use condoms but, stop using condoms once the relationship matures and some sort of trust and level of intimacy develops between the partners (Nzioka, 2001; Fapohunda and Rutenberg, 1999; Ingham and van Zessen, 1992a). Conversely, an individual with low perceived risk at one stage may progress to a high level of perceived risk because of intensive exposure to HIV/AIDS information. And in some cases, some individuals with perceived high risk can become fatalistic and engage in risky sexual behaviour if attempts at prevention are seen as futile.

In order to examine personal perceptions of the risk of HIV/AIDS in Kenya, female and male respondents were asked: *Do you think your chances of getting AIDS are small, moderate, great, or no risk at all?* The responses to this question are subject to the respondents' own interpretation and assessment of risk and may not be based on their actual risky behaviour. In this sense, individuals are assumed rational when they estimate their own risk of HIV. Personal perceptions of risk, therefore, cannot be interpreted literally since they might not reflect objective risk.

5.3 Data and Methods

5.3.1 Data

The analysis in this chapter uses data from the 1998 Kenya Demographic and Health Survey (KDHS). The information used is obtained from the female and male questionnaires that collected information on individual characteristics, sexual activity, AIDS-related knowledge, attitudes and behaviour, as well as sexually transmitted diseases (STDs). All respondents who reported to have heard of HIV/AIDS are considered for multivariate analysis in this chapter regardless of their sexual experience. AIDS prevention in Kenya largely lies in changing of people's sexual behaviour, from high-risk to low-risk sexual activity. Thus, it makes sense to examine all individuals who stated that they had heard about AIDS since some people might have resorted to abstinence as a way of avoiding getting AIDS. In the 1998 KDHS, 27% and 14% of sexually experienced never married women and men respectively reported no sexual partners in the last 12 months before the survey. Of women and men who had never had sex, 73% of women and 72% of men reported sexual abstinence as a behavioural change to avoid getting AIDS. In addition, HIV can also be transmitted through non-sexual routes and therefore anyone can be at risk. The analysis is based on a total of 7,804 women and 3,386 men who reported to have heard of HIV/AIDS and responded to the question on perception of risk. The analyses for women and men are carried out separately.

5.3.2 Ordered Logistic Regression Modelling

Ordered logit regression modelling was used to examine the determinants of perceptions of risk in Kenya because of the ordered nature of the outcome. In social survey data, it is common to ask respondents to select a response from a scale ranging from the lowest to the highest possible outcome. For example, it could be a scoring showing the severity of symptoms of a disease such as low=0, medium=1 or high=2; rating of grades such as poor=0, average=1, good=2 or excellent=3; or, opinions about a social problem ranging from strongly disagree to strongly agree. Thus, there exists a clear ordering of the outcome variable from

the lowest to the highest score but the values chosen are not quantitative and do not have an underlying interval scale between them. Unlike in linear regression, in an ordered logit model, the difference between the outcomes 1 and 0 is not necessarily the same as that between 2 and 1. The ordered logistic model is used in place of binary logistic regression for ordered categorical response, or ordinal data (Statacorp, 2001; Greene, 2000; Johnson and Albert, 1999). Thus, it uses the logistic link function. Such data can still be analysed using dichotomous outcomes by collapsing adjacent responses to a two-outcome variable, but this risks a significant loss of information contained in the data as the distribution of respondents by each category may be different (Agresti, 1996; Johnson and Albert, 1999).

The analysis of ordinal data is very similar to that of polychotomous response data. The difference is that the order of listing the categories is irrelevant in the polychotomous models whereas it is incorporated in ordinal response data. The model postulates an existence of a latent (unobserved) variable Z, associated with each response (Johnson and Albert, 1999; Greene, 2000). The latent variables are assumed to be drawn from a continuous distribution centred on a mean value that varies from individual to individual. This mean value is modelled as a linear function of the independent variables and a set of cut points, u. In this study, perceived risk has three categories: none (0), small (1), and great (2), thus requiring two cut points. The cut points are constrained to values that determine whether or not an individual gave a particular category of the response, which is a form of censoring. The cut point assumes that an individual giving a specific response will lie between a range of values of the latent variable, whereby a value below or equal to the cut point for response j is scored '1' and '0' otherwise. Letting the upper cut point for perception of no risk be denoted by u_1, for small risk u_2, this ordering constraint may be stated mathematically as:

$$-\infty < u_1 < u_2 < \infty$$

where, u_1 is defined to be unbounded at the negative end $(-\infty)$ and u_2 is assumed to be unbounded at the positive end $(+\infty)$. The distribution of Z *is* of the form:

$Z = \mathbf{x}'\boldsymbol{\beta} + u_j$, where:

$\mathbf{x}'$ = a set of explanatory variables

$\boldsymbol{\beta}$ = a vector of unknown parameters associated with the independent variables, and

u_j = a random variable assumed to have a standard logistic distribution; and

j=1,2…J, where J = Number of categories less 1.

Ordinal regression models are better interpreted in terms of cumulative probabilities rather than odds ratios. Ordered logit, therefore, models cumulative probabilities, that is, the probabilities that the response Y falls in category j or below for each possible j rather than

individual category probabilities. The cumulative probabilities reflect the ordering, with: $p(Y \leq 1) \leq p(Y \leq 2) \leq \ldots \leq p(Y \leq J) = 1$. The predicted probabilities are analogous to the MCA table for multinomial models. Stata's ordered logit regression command was used to estimate the predicted probabilities for the parsimonious models.

5.4 Preliminary Analysis

5.4.1 Characteristics of the Survey Respondents by Selected Variables

Table 5.1 presents the characteristics of the 7,804 women and 3,386 men who reported hearing about AIDS. The distribution of women and men shows similar patterns by background characteristics. For both women and men, the largest percentage of the population is in Nyanza and Rift Valley provinces, whilst the smallest percentage is in Coast province. Over 70% of women and men live in rural areas. Most women and men have primary level of education, though men are more likely than women to have secondary education and to be in paid work. Protestant/other Christian is the most common religion. The largest ethnic group is Kikuyu, followed by Luhya, Luo, Kamba and Kalenjin, in that order. The majority of women and men are aged 25-39 years, and about one in five women and men are aged 15-19 years. Men are more likely than women to have never been married. Over one half of women and men had their first sexual intercourse on or after age 15 years, although, slightly more men than women reported having had first sexual intercourse before age 15 years.

With respect to knowledge, men are three times as likely as women to report having been exposed to the mass media (radio, television and newspapers). Almost all women and men reported having heard about AIDS (99% each). Of these, over 50% reported hearing about AIDS from both formal and non-formal sources (AIDS awareness campaigns sources and community-level networks). Men were more likely than women to report hearing of AIDS from formal sources only. Over 90% of women and men knew that AIDS is transmitted through sexual intercourse. Nonetheless, about one in five women compared to 13% of men did not know how to prevent HIV infection. For both women and men, over 80% knew that a healthy-looking person could have AIDS, a mother can transmit AIDS to a child, and over 70% knew someone sick of or dead from AIDS. Self-perceived risk is discussed in section 5.4.2.

Table 5.1: Distribution of the survey respondents by selected variables (weighted), KDHS 1998

Variable	Women (n=7,804)	Men (n=3,386)
Socio-demographic factors	%	%
Region		
Nairobi	9.8	12.7
Central	10.7	10.0
Coast	7.6	7.0
Eastern	17.7	18.7
Nyanza	21.6	18.9
Rift Valley	21.1	22.3
Western	11.5	10.5
Residence		
Urban	76.7	73.1
Rural	23.3	26.9
Education		
No education	11.0	3.7
Primary	59.5	55.3
Secondary and above	29.5	41.0
Work status		
No	48.0	34.4
Yes	52.0	65.6
Religion		
Catholic	27.7	30.5
Protestant/other Christian	64.8	58.2
Muslim/others	7.6	11.3
Ethnicity		
Kalenjin	12.2	11.7
Kamba	12.8	13.1
Kikuyu	18.1	18.6
Kisii	11.0	10.2
Luhya	14.6	14.7
Luo	13.7	13.0
Meru/Embu	7.2	8.4
Mijikenda/Swahili/Taita-Taveta	6.0	5.0
Others	4.3	5.3
Age		
15-19	23.4	23.8
20-24	19.7	17.2
25-39	42.5	37.0
40-49 (54 for men)	14.4	22.1
Marital status		
Never married	30.1	43.6
Married (monogamous)	51.7	47.5
Married (polygynous)	9.7	5.2
Formerly married	8.5	3.7
Age at first sex		
Never had sex	15.7	12.5
Under 15 years	21.7	28.5
15 years and above	59.1	55.1
Missing	3.6	3.9

Table 5.1: Distribution of the survey respondents by selected variables (weighted), KDHS 1998, continued...

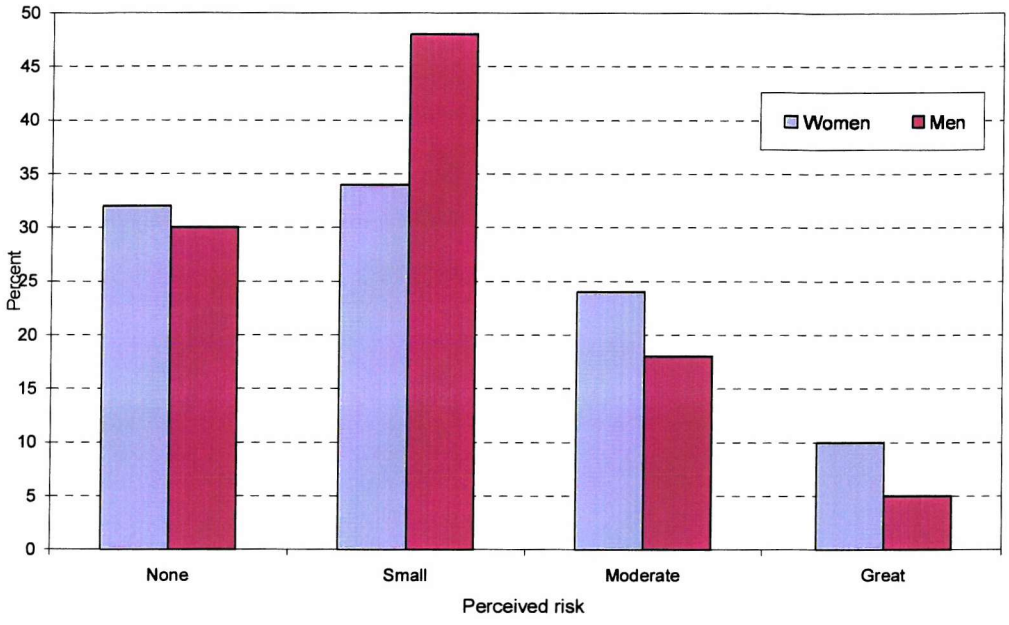
Psychosocial/Knowledge factors	Women (n=7,804)	Men (n=3,386)
Exposure to the mass media	%	%
None	30.6	10.2
Some	69.4	89.8
Source of AIDS information		
Mix of formal and non-formal	59.3	51.7
Only formal	25.6	42.9
Only non-formal	15.1	5.5
Knowledge of AIDS transmission		
Mix of sexual and non-sexual	58.8	60.1
Only sexual	37.7	37.7
Incorrect/Don't know	3.5	2.2
Knowledge of preventing AIDS		
Mix of sexual and non-sexual	18.6	19.0
Only sexual	62.2	68.3
Incorrect/Don't know	19.2	12.7
Knowledge of mother to child transmission		
No	14.0	14.9
Yes	86.0	85.1
Can a healthy-looking person have AIDS?		
No	20.9	14.7
Yes	79.1	85.3
Knowledge of someone sick of or died from AIDS		
No	28.3	29.9
Yes	71.7	70.1
Self-perceived risk of HIV infection		
None	32.1	29.6
Small	34.2	47.6
Moderate/great	33.6	22.8
Behavioural factors		
Sexual behaviour in last 12 months		
Never had sex/abstaining	23.2	18.0
Reported no risky sex	65.8	48.0
Reported risky sex	10.9	34.0
Ever used condoms with partner to avoid AIDS?		
No	90.8	63.4
Yes	9.2	36.6
Ever had HIV test?		
No	85.6	83.1
Yes	14.4	16.9
Reported behaviour change to avoid getting AIDS		
Mix of sexual and non-sexual	16.2	12.3
Only sexual change	53.2	76.2
Only non-sexual/don't know	30.6	11.5

Table 5.1 shows men were three times as likely as women to report having engaged in risky sexual behaviour in the last 12 months before the survey. About 36% of men compared to 9% of women reported ever-use of condoms with their partners to avoid getting AIDS. Slightly more men (17%) than women (14%) said they had been tested for HIV and, just less than 90% of men compared to 70% of women reported one or more modifications in sexual behaviour to avoid getting AIDS.

5.4.2 Levels and Reasons for Perception of AIDS Risk

Figure 5.1 depicts that though 68% of women and 70% of men perceived themselves to be at risk of HIV infection, higher proportions considered themselves to be at small or no risk than at moderate or great risk. Although 10% of women said their chances were great, only 5% of men reported the same.

Figure 5.1: Percentage of all women and men who were aware of AIDS by their perceptions of the risk of getting AIDS, KDHS 1998



Women and men were asked to give reasons for their perception of risk. Table 5.2 shows that over a half of both women and men cited having one partner as the commonest reason for small or no perceived risk. More men (19%) than women (3%) cited condom use as a reason for small or no risk. Over two-thirds of women felt at moderate or great risk because they feared their spouse/partner had other sexual partners (see Table 5.3). Only 23% of men reported the same. About 46% of men with moderate or great self-perceived risk said this was because they had many sex partners, almost corroborating women's fears of their partners' multiple sexual relations.

Table 5.2: Percentages of AIDS-aware women and men giving various reasons for small/no perceived risk of getting AIDS according to marital status, KDHS 1998

Marital status	Abstains from sex	Uses condoms	Has only one sex partner	Limits sex partners	Spouse has no other partner	Avoids prostitutes	No homosexual contact	Not had blood transfusion	Not had injections	Other	N
					WOMEN						
Never married	66.9	4.1	23.5	4.7	2.5	NA	1.4	3.7	4.5	4.6	1,808
Currently married	3.0	1.6	83.0	2.6	19.7	NA	0.5	3.4	2.7	3.7	2,912
Formerly married	59.4	5.7	26.3	7.3	2.2	NA	0.4	5.1	3.3	4.4	453
Total women	**30.3**	**2.9**	**57.2**	**3.8**	**12.2**	**NA**	**0.8**	**3.7**	**3.4**	**4.1**	**5,173**
					MEN						
Never married	42.8	26.4	27.8	9.3	3.5	4.6	0.3	2.7	3.1	5.9	1,177
Currently married	3.3	10.8	76.8	9.7	10.2	6.2	0.3	3.4	3.0	4.4	1,347
Formerly married	20.9	40.7	37.0	22.0	0.0	4.4	0.0	2.2	1.1	5.5	91
Total men	**21.7**	**18.9**	**53.4**	**9.9**	**6.8**	**5.4**	**0.3**	**3.1**	**3.0**	**5.1**	**2,615**

NA = Not applicable

Table 5.3: Percentage of AIDS-aware women and men giving various reasons for moderate/great perceived risk of getting AIDS according to marital status, KDHS 1998

Marital status	Doesn't use condoms	Has many sex partners	Spouse has other partner(s)	Has sex with prostitutes	Homosexual contact	Had blood transfusion	Had injections	Other	N
				WOMEN					
Never married	19.8	21.0	30.5	NA	1.9	28.2	33.4	16.4	536
Currently married	18.4	7.0	74.4	NA	0.6	14.8	20.6	5.3	1864
Formerly married	24.5	23.6	42.5	NA	0.5	11.8	21.2	11.8	212
Total women	**19.1**	**11.2**	**62.8**	**NA**	**0.9**	**17.3**	**23.3**	**8.1**	**2612**
				MEN					
Never married	25.8	46.5	20.2	3.0	0.0	11.4	21.1	13.1	298
Currently married	13.3	44.2	25.3	0.7	0.2	17.9	25.5	14.9	435
Formerly married	(17.6)	65.7	(22.9)	(2.9)	(0.0)	(0.0)	(11.4)	(8.6)	35
Total men	**18.4**	**46.1**	**23.2**	**1.7**	**0.1**	**14.6**	**23.2**	**13.9**	**768**

NA = Not applicable Figures in parentheses are based on less than 35 cases.

5.4.3 Socio-demographic Factors Associated with Perceptions of Risk

The distribution of women and men by their perceptions of risk according to socio-demographic characteristics is given in Tables 5.4 and 5.5 respectively. Generally, the results for women and men depict similar patterns in the levels of risk perception across sub-groups, and the chi-square test shows significant relationships at the 5% level.

High percentages of females and males in Nyanza province perceive themselves at great risk of HIV infection. Three times as many women (15%) as men (5%) in Nairobi province perceive themselves at great risk. More women and men in Western and Rift Valley provinces respectively perceive themselves at moderate risk. The highest proportions of women and men who perceive themselves at no risk at all are from Eastern and Coast provinces respectively. These regional patterns of risk perception seem to depict the spatial differentials in HIV prevalence in Kenya. Generally, prevalence rates have been notably high in Nyanza, Nairobi, and parts of Western and Rift Valley provinces (See Figure 1.3). Overall, HIV prevalence rates have been higher in urban than in rural areas, and this may explain why women in Nairobi, in which the capital city is located, tend to perceive themselves at high risk (Baltazar *et al.,* 1999; Kenya *et al.,* 1998).

Socio-economic differentials seem to depict the influence of access to information, education and work status. Education and work status are significantly associated with perception of high risk for both women and men. Place of residence was statistically significant only for women but not for men. Perhaps individuals with formal education are more likely to assess their risk as high because of exposure to AIDS information or because they live in urban areas that are often associated with lifestyles assumed to influence the spread of HIV/AIDS (Cohen and Trussell, 1996).

High proportions of Kisii women (22%) and men (19%) perceive themselves at great risk of AIDS. Although 17% of Luo women consider themselves at great risk, only 4% of Luo men report the same. Being a Catholic is slightly more associated with perception of high risk for both women and men compared to other religions.

Table 5.4: Percentages of women who have heard of AIDS reporting different levels of self-perceived risk of getting AIDS according to socio-demographic characteristics, KDHS 1998

Characteristic	Perceived risk					
	None	Small	Moderate	Great	Don't know	Total women
Region* **						
Nairobi	27.3	32.5	24.8	15.1	0.3	769
Central	33.1	49.0	13.7	4.2	0.0	831
Coast	25.2	41.5	18.8	4.5	0.0	597
Eastern	45.4	28.2	22.9	3.5	0.1	1,378
Nyanza	20.8	33.4	25.9	19.9	0.1	1,686
Rift Valley	36.0	32.2	23.2	8.3	0.4	1,648
Western	27.2	31.3	35.4	5.9	0.1	896
Residence* **						
Urban	30.4	33.1	22.4	13.8	0.3	1,821
Rural	32.7	34.5	24.4	8.3	0.1	5,983
Education*						
No education	30.0	34.6	28.2	7.1	0.1	859
Primary	33.7	33.9	23.1	9.2	0.2	4,644
Secondary and above	29.7	34.7	24.1	11.4	0.2	2,298
Work status* **						
No	36.9	36.1	18.8	8.2	0.0	3,740
Yes	27.8	32.4	28.7	10.9	0.3	4,058
Religion* **						
Catholic	29.7	36.9	22.8	10.4	0.2	2,158
Protestant/other Christian	33.1	32.6	24.6	9.6	0.2	5,054
Muslim/others	32.9	38.0	22.9	6.2	0.0	581
Ethnicity* **						
Kalenjin	33.8	36.2	24.6	4.9	0.4	955
Kamba	48.0	24.9	21.4	5.5	0.3	1,002
Kikuyu	33.5	40.9	17.4	8.0	0.1	1,410
Kisii	19.3	34.8	23.9	22.0	0.0	856
Luhya	28.3	30.9	32.5	8.0	0.3	1,143
Luo	22.8	32.6	27.6	17.0	0.1	1,072
Meru/Embu	33.4	35.3	26.8	4.4	0.0	563
Mijikenda/Swahili/Taita-Taveta	33.3	41.5	20.3	4.3	0.0	468
Other	46.7	29.7	16.1	7.3	0.0	330
Age* **						
15-19	45.9	34.1	13.2	6.6	0.1	1,828
20-24	31.7	34.4	23.1	10.5	0.3	1,536
25-39	25.7	33.2	29.2	11.8	0.2	3,319
40-49	29.3	36.8	26.9	6.7	0.1	1,122
Marital status* **						
Never married	42.7	34.2	15.7	7.2	0.1	2,351
Married (monogamous)	29.3	35.2	25.6	9.7	0.1	4,029
Married (polygynous)	15.5	25.9	42.2	16.1	0.3	756
Formerly married	30.8	36.9	22.1	9.6	0.3	669
All women	**32.1**	**34.2**	**23.9**	**9.6**	**0.2**	**7,804**

*=p<0.05 **=p<0.01 ***=p<0.001

Table 5.5: Percentages of men who have heard of AIDS reporting different levels of self-perceived risk of getting AIDS according to socio-demographic characteristics, KDHS 1998

Characteristics	Perceived risk					
	None	Small	Moderate	Great	Don't know	Total men
Region* **						
Nairobi	35.2	41.3	18.6	4.9	0.0	429
Central	26.0	53.1	16.2	4.7	0.0	339
Coast	48.8	32.5	15.4	2.1	1.3	240
Eastern	40.8	49.0	8.7	1.6	0.0	633
Nyanza	11.4	60.9	16.1	11.4	0.2	640
Rift Valley	34.5	35.3	25.1	4.9	0.0	753
Western	15.5	59.9	22.9	1.7	0.0	354
Residence						
Urban	31.5	44.4	19.1	5.1	0.0	908
Rural	28.9	48.9	17.2	4.8	0.1	2,476
Education* **						
No education	34.4	45.3	15.6	3.1	1.6	128
Primary	31.8	45.7	17.2	5.3	0.1	1,870
Secondary and above	26.3	50.4	18.7	4.5	0.1	1,388
Work status* **						
No	36.3	45.4	14.2	4.0	0.1	1,161
Yes	26.1	48.8	19.6	5.4	0.1	2,222
Religion* **						
Catholic	25.7	47.9	20.1	6.3	0.0	1,030
Protestant/other Christian	29.4	49.0	17.1	4.4	0.1	1,970
Muslim/others	41.5	39.6	14.6	3.7	0.5	376
Ethnicity* **						
Kalenjin	29.5	41.9	25.3	3.3	0.0	396
Kamba	33.0	55.3	10.6	1.1	0.0	443
Kikuyu	32.2	44.1	17.8	5.9	0.0	630
Kisii	17.7	49.6	13.9	18.6	0.3	345
Luhya	18.6	53.3	24.8	3.2	0.0	499
Luo	15.7	59.3	20.9	4.1	0.0	440
Meru/Embu	47.5	40.5	8.5	3.5	0.0	284
Mijikenda/Swahili/Taita-Taveta	52.9	27.9	15.7	1.7	1.7	172
Others	50.3	34.5	14.0	1.2	0.0	171
Age* **						
15-19	40.0	44.2	11.9	3.7	0.1	805
20-24	28.2	45.1	20.8	5.7	0.2	581
25-39	25.7	48.4	20.4	5.5	0.2	1,251
40-54	25.9	52.0	17.4	4.7	0.0	748
Marital status* **						
Never married	34.6	45.2	15.8	4.3	0.1	1,475
Married (monogamous)	27.2	49.3	18.3	5.2	0.1	1,609
Married (polygynous)	17.8	49.4	27.6	5.2	0.0	174
Formerly married	18.3	54.0	19.0	8.7	0.0	126
All men	**29.6**	**47.6**	**17.7**	**4.9**	**0.1**	**3,386**

*=p<0.05 *=p<0.01 ***=p<0.001

More women and men between ages 20 to 39 years perceived themselves at great risk of HIV/AIDS than older or younger persons, although for men the variations are modest across age groups. These results reflect the age pattern of HIV/AIDS prevalence in Kenya, in which

women and men in the intermediate age bracket are noted to be the most vulnerable to infections (Baltazar *et al.,* 1999).

High percentages of both women and men who have never been in marital union perceive their chances of getting AIDS to be nil. This result is not surprising since sexual intercourse accounts for over 80% of HIV transmission in Kenya, and therefore, those who are not in unions may not necessarily view themselves to be at any risk (Baltazar *et al.,* 1999; Kenya *et al.,* 1998). Marriage provides obvious exposure to sexual intercourse that may easily influence perception of risk. Women in polygynous unions and formerly married men have the highest proportions of those who perceive themselves to be at great risk of HIV infection. Higher proportions of women and men in polygynous unions also perceive moderate risk. Polygyny may create suspicion and uncertainty among spouses, since it is difficult to control the behaviour of other partners within the union. Perhaps formerly married women and men could be widow(er)s who suspect infection from their dead partners or they feel at risk because of having many partners outside marriage.

Bivariate analyses as presented in these preliminary results can easily result in spurious relationships, particularly when other covariates are not controlled for. In order to identify the most important correlates of self-perceived risk, it was important to take into account the multivariate effect of factors postulated to influence perception of risk. The next section presents results of multivariate analysis using ordered logit regression modelling that also accounts for the effect of complex survey design.

5.5 Results of Ordered Logistic Regression Modelling

5.5.1 Analytical Procedures

The final ordered logistic regression models were obtained using Stata version 7.0 statistical software, accounting for three elements of survey data, namely sample weights, clustering and stratification (StataCorp, 2001). A complete description of the significance of accounting for survey design effects (*defts*) can be found in Appendix 3.8 and Chapter 30 of the Stata 7.0 User's Guide (StataCorp, 2001). It made sense to combine perception of 'moderate' and 'great' risk categories to a single 'great' risk category because in the 1998 KDHS data set the reasons for perceiving moderate or great risk are the same and those for perceiving small or no risk are also the same. Combining the two categories, therefore, made it easier to interpret the results. In addition, preliminary multivariate results showed similar patterns between estimates for 'moderate' and 'great' risk. Combining the two categories made interpretation

of results less cumbersome and repetitive. The selection of potential explanatory variables for multivariate logistic regression is based upon the literature review and bivariate analyses.

Stata statistical software does not allow step-wise multivariate models to be estimated when accounting for survey design effects. The final model is thus obtained through a series of model fitting procedures. Starting with a model including all variables, systematic removal of insignificant variables was carried out at each stage using adjusted Wald's statistic at a 5% significance level, while re-estimating the coefficients and p-values of the remaining variables until a final parsimonious model was obtained.

For both chapters five and six, first-order interactions were examined systematically, while considering all possible interactions and those suggested by the literature. Again a series of models were fitted, starting with a model including all possible interactions alongside all the selected independent variables, systematically removing insignificant interactions at each stage while retaining all the selected independent variables, and re-estimating the coefficients and p-values of the remaining variables at 5% level until a final model was obtained. Interactions were fitted between socio-demographic variables such as education, residence and work status, between socio-demographic variables and knowledge factors, between socio-demographic variables and behavioural factors and, between knowledge and behavioural factors. The results of the final model are discussed below.

5.5.2 Ordered Logistic Regression Results

The predicted probabilities of significant factors associated with self-perceived risk of HIV for women and men are presented in Table 5.6. The details of the parameter estimates for the final models are presented in Appendices 5.1 and 5.2. Of the socio-demographic factors, age, marital status and ethnicity were statistically significant in both female and male models. Religion was significant in the male model only and education and work status in the female model. Although bivariate analyses showed a strong association between urban-rural residence and self-perceived risk of HIV for females, this was not significant in either the male or female models. The general impression from Table 5.6 is that in a majority of sub-groups, just about more women and men perceive themselves to be at small than great risk. Particularly higher proportions of men than women perceive themselves to be at small risk across all sub-groups. The likelihood of perceiving small risk among men of various sub-groups ranges from nearly 40% to 50% compared with 29% to 36% for women. More women than men consistently perceive themselves at great risk across all sub-groups.

Table 5.6: Predicted probabilities of levels of self-perceived risk of HIV for AIDS-aware women and men by significant factors, KDHS 1998

Parameter	Probability of perceiving a specific level of risk					
	Women			Men		
	None[R]	Small	Moderate/ Great	None[R]	Small	Moderate/ Great
Individual factors						
Ethnicity						
Kalenjin[R]	0.342	0.353	0.305	0.256	0.497	0.246
Kamba	0.445	0.334	0.221	0.370	0.468	0.162
Kikuyu	0.354	0.359	0.287	0.296	0.493	0.211
Kisii	0.208	0.317	0.476	0.179	0.488	0.333
Luhya	0.266	0.346	0.388	0.210	0.493	0.296
Luo	0.224	0.333	0.442	0.207	0.498	0.295
Meru/Embu	0.328	0.354	0.318	0.464	0.425	0.112
Mijikenda/Swahili/Taita-Taveta	0.366	0.348	0.285	0.487	0.411	0.102
Other	0.446	0.333	0.220	0.459	0.428	0.114
Age						
15-19[R]	0.464	0.323	0.213	0.400	0.441	0.159
20-24	0.315	0.353	0.332	0.266	0.485	0.249
25-39	0.250	0.346	0.405	0.257	0.491	0.252
40-49 (54 for men)	0.302	0.352	0.346	0.278	0.487	0.235
Marital status						
Never married	0.430	0.330	0.240	0.341	0.461	0.198
Married (monogamous)[R]	0.290	0.358	0.351	0.275	0.490	0.235
Married (polygynous)	0.139	0.287	0.574	0.187	0.490	0.324
Formerly married	0.319	0.356	0.324	0.214	0.484	0.302
Religion						
Protestant[R]	--	--	--	0.300	0.481	0.218
Catholic	--	--	--	0.256	0.479	0.265
Muslim/other	--	--	--	0.392	0.450	0.158
Education * Work status						
No education, Not working	0.326	0.349	0.325	--	--	--
Primary education, Not working	0.403	0.337	0.260	--	--	--
Secondary education, Not working	0.342	0.344	0.313			
No education, Working	0.279	0.347	0.377	--	--	--
Primary education, Working	0.270	0.344	0.387	--	--	--
Secondary education, Working	0.257	0.348	0.395			
Psychosocial/knowledge factors						
Knowledge of AIDS transmission						
Mix of sexual and non-sexual[R]	0.295	0.343	0.362	0.263	0.486	0.251
Only sexual	0.353	0.343	0.304	0.347	0.465	0.188
Don't know	0.393	0.330	0.277	0.374	0.453	0.173
Knowledge of preventing AIDS						
Mix of sexual and non-sexual	0.300	0.341	0.359	0.275	0.486	0.238
Only sexual[R]	0.319	0.345	0.336	0.304	0.476	0.220
Don't know	0.343	0.337	0.320	0.295	0.469	0.236

[R] = Reference category -- Not significant at 5% level

Table 5.6: Predicted probabilities of different levels of self-perceived risk of HIV for AIDS-aware women and men by significant factors, KDHS 1998 (continued...)

Parameter	Perception of risk					
	Women			Men		
	None[R]	Small	Great	None[R]	Small	Great
Knowledge of mother to child transmission						
No	--	--	--	0.334	0.462	0.204
Yes[R]	--	--	--	0.291	0.480	0.230
Can a healthy person have AIDS?						
No	0.417	0.332	0.251	0.410	0.438	0.151
Yes[R]	0.295	0.346	0.360	0.278	0.484	0.238
Knowledge of someone sick of or died from AIDS						
No	0.389	0.338	0.272	--	--	--
Yes[R]	0.293	0.344	0.362	--	--	--
Behavioural factors						
Sexual behaviour in last 12 months						
Never had sex	0.541	0.304	0.156	0.520	0.390	0.090
Reported no risky sex[R]	0.288	0.352	0.361	0.304	0.490	0.206
Reported risky sex	0.225	0.338	0.437	0.205	0.489	0.306
Ever used condoms to avoid AIDS?						
No[R]	0.329	0.342	0.329	0.345	0.468	0.187
Yes	0.237	0.345	0.418	0.215	0.492	0.293
Ever had HIV test?						
No[R]	--	--	--	0.293	0.477	0.230
Yes	--	--	--	0.317	0.478	0.205
Behaviour change						
Mix of sexual and non-sexual	0.235	0.328	0.437	0.283	0.488	0.229
Only sexual change[R]	0.344	0.344	0.312	0.275	0.484	0.241
Only non-sexual/don't know	0.324	0.348	0.328	0.457	0.421	0.122

[R]= Reference category -- Not significant at 5% level

Ethnicity was statistically significant for both women and men. Regions in Kenya are ethnically oriented, with homogeneous groups of people inhabiting specific parts of the country, thus it is not surprising that only one of these variables is significant. Table 5.6 illustrates that women and men of Kisii, Luhya, and Luo ethnic groups are more likely than Kalenjins to perceive themselves at great risk of HIV. Perception of small risk hardly changes at all for women and men of different ethnic groups. Perception of risk by ethnicity seems to be linked to the spatial pattern of HIV prevalence rates in Kenya. Table 5.7 illustrates the linkage between perception of great risk, ethnicity, region of residence and HIV prevalence rates. The Kisii, Luo and Luhya are also the dominant ethnic groups inhabiting Nyanza and Western provinces respectively, where HIV prevalence rates have consistently been high. Men belonging to the Mijikenda/Swahili/Taita-Taveta ethnic groups are less likely than Kalenjins to perceive themselves at great risk (10%), as are Meru/Embu men (11%) and men in the 'other' category (11%). The Mijikenda/Swahili/Taita-Taveta

ethnic groups are predominant at the Coast province and the Meru/Embu and Kamba are predominant in Eastern province. It appears women and men belonging to ethnic groups in neighbouring regions (e.g. Kikuyu, Kamba, Mijikenda/Swahili/Taita-Taveta) have similar levels of self-assessed risk even though the regional HIV prevalence rates are different (see Figure 1.3 and Table 5.7).

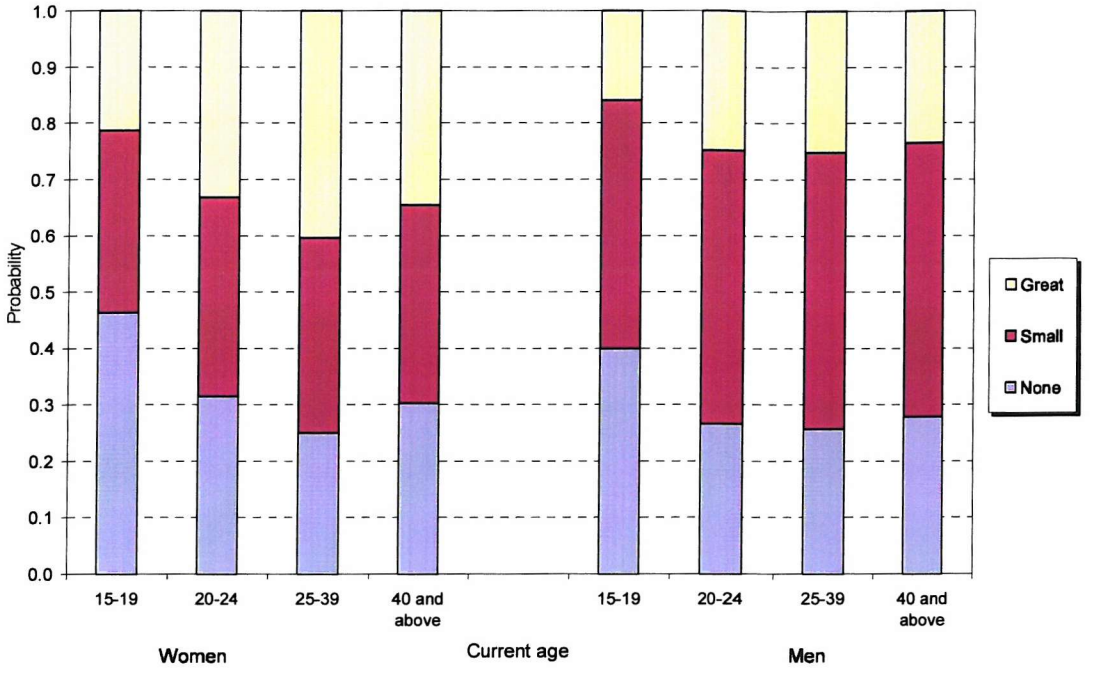
Table 5.7: The linkage between perception of great risk, ethnicity, region of residence and HIV prevalence rates in Kenya, KDHS 1998

Probability of perceiving great risk	Ethnic group	Typical region of residence	Regional HIV prevalence rate** %
		Women	
0.40 - 0.499	Kisii, Luo	Nyanza	22
0.30 - 0.399	Meru/Embu	Eastern	16
	Luhya	Western	12
	Kalenjin	Rift Valley	11
0.20 - 0.299	Kamba	Eastern	As above
	Kikuyu	Central	13
	Mijikenda/Swahili/Taita-Taveta	Coast	10
	'Others'	Mainly from North Eastern province	3
		Men	
0.30 - 0.399	Kisii	Nyanza	
0.20 - 0.299	Luo	Nyanza	
	Luhya	Western	
	Kalenjin	Rift Valley	Same as above
	Kikuyu	Central	
Up to 0.199	Kamba, Meru/Embu, Mijikenda/Swahili/Taita-Taveta	Eastern Coast	
	'Others'	Mainly from North Eastern province	

** Source of HIV prevalence rates: GOK/ACU, MOH and NACC, 2001

Figure 5.2 illustrates that perception of great risk for females steadily rises with increasing age to age-group 25-39, but is then slightly lower in age-group 40 and above. Women in the 15-19 age group are more likely to perceive themselves at no risk than women aged 20 and above. As with women, perception of great risk for men rises to age 20-24, but then plateaus at age 25-39 and is then slightly lower at age 40 and above.

Figure 5.2: Predicted probabilities of different levels of self-perceived risk for HIV among women and men aware of AIDS by current age, KDHS 1998

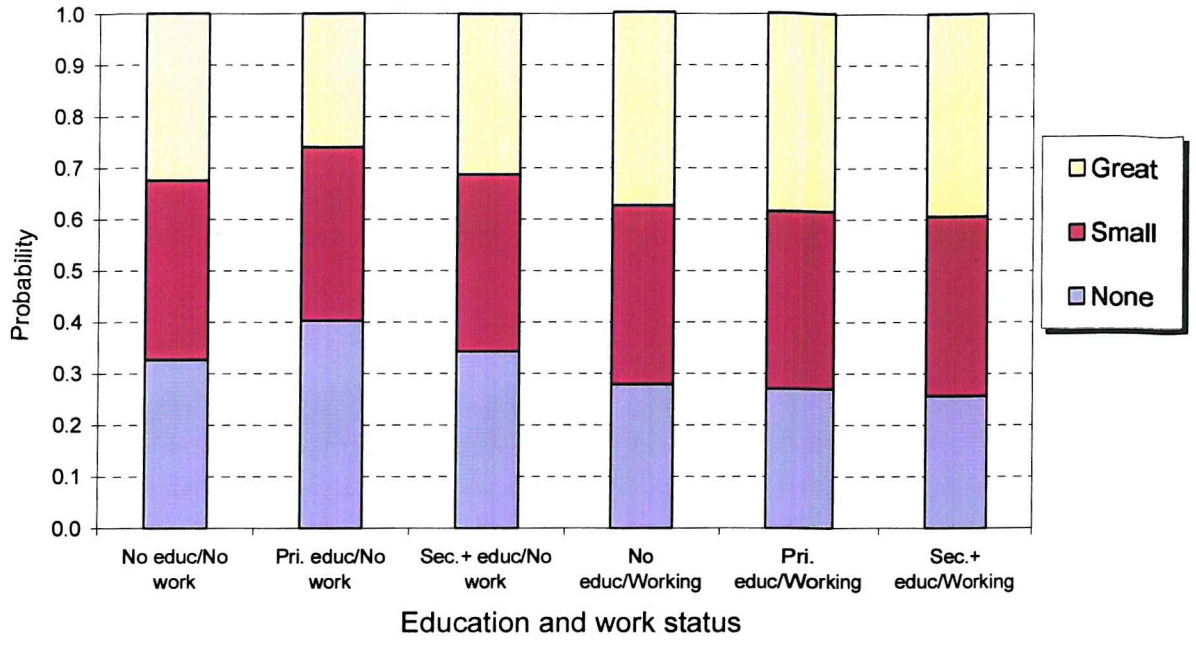


Marital status is significantly associated with perception of HIV/AIDS risk for both women and men. Married women and men, especially those in polygynous unions (57% of polygnous women and 32% of polygynous men), are more likely to perceive themselves to be at great risk of getting AIDS than women and men not in union. Never married women and men were more likely than the married to perceive themselves at no risk of getting AIDS.

Religion is significantly associated with perceived risk for males only, with Catholic men more likely to perceive themselves at higher risk than Protestant men. Muslim/'other' men are more likely to perceive no risk of HIV compared to Christian men.

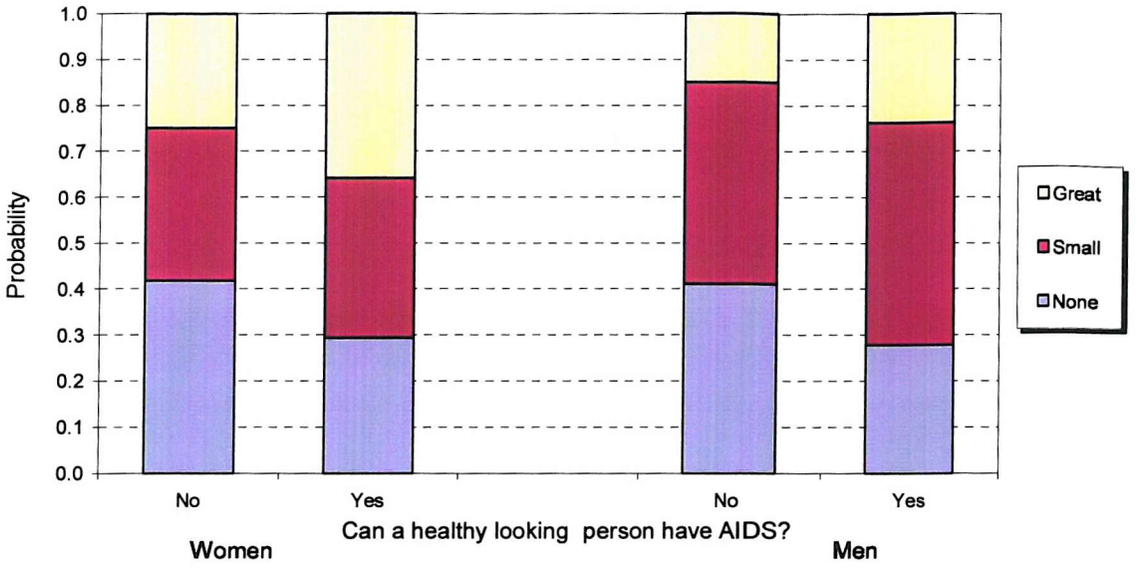
Figure 5.3 shows that women who are working compared to those not working are, in general, more likely to perceive their risk as great, regardless of education. However, high proportions of women who are not working and had no education also perceive their risk to be great. Almost no difference exists in the likelihood of perceiving small risk.

Figure 5.3: Predicted probabilities of different levels of self-perceived risk for HIV among women aware of AIDS by education and work status, KDHS 1998



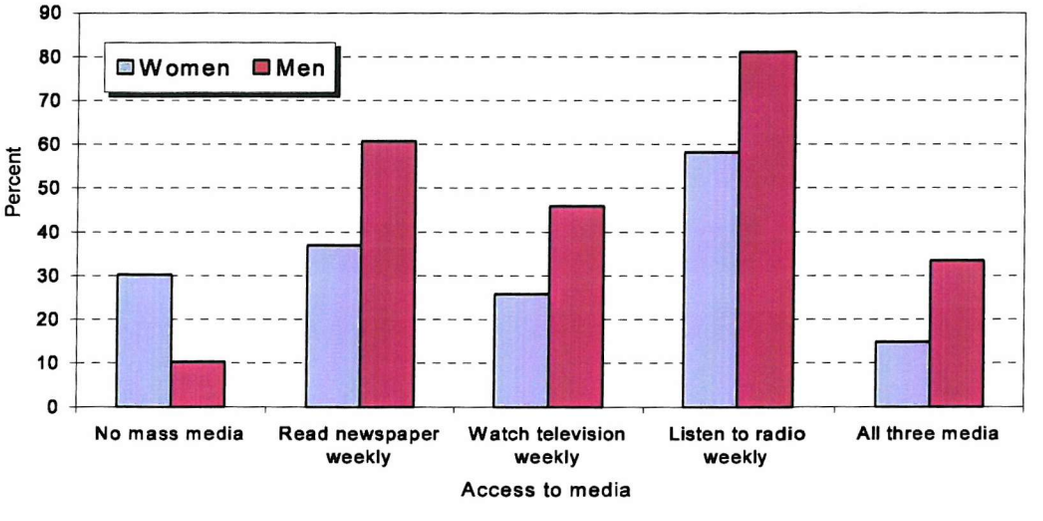
The results in Table 5.6 indicate that accuracy of AIDS knowledge and, not just exposure to AIDS information is important in influencing perception of risk. General exposure to the mass media and source of AIDS information were statistically insignificant determinants of perception of risk but specific aspects of AIDS knowledge proved significant for both women and men. Perception of risk is higher for women and men who reported accurate knowledge of AIDS transmission and prevention (both sexual and non-sexual) and knowing that a healthy-looking person can have AIDS than for respondents with inaccurate knowledge. Figure 5.4 illustrates that believing a healthy person cannot have AIDS is associated with perception of no risk of both women and men (42% and 41% respectively). Knowledge of mother to child transmission was significant for males only, whilst knowledge of someone sick of or dead from AIDS was significant for females. Perhaps these results partly reflect sex differences in access to various sources of AIDS information and, the burden of caring for AIDS patients that disproportionately falls on women.

Figure 5.4: Predicted probabilities of different levels of self-perceived risk for HIV for AIDS-aware women and men by knowledge that a healthy looking person can have AIDS, KDHS 1998



According to the 1998 KDHS, women are more likely than men to access AIDS information from community-level networks (e.g. friends, relatives, church, schools) than from the mass media and the work place. For example, almost two-thirds of women mentioned relatives and friends as sources of AIDS information compared to about a third of men who stated the same. As depicted in Figure 5.5, women are disadvantaged in exposure to the mass media. Twice as many men as women are exposed to the three common sources used for AIDS awareness campaigns in Kenya. Whereas 3 in 10 women have no exposure to the mass media, only 1 in 10 men stated the same.

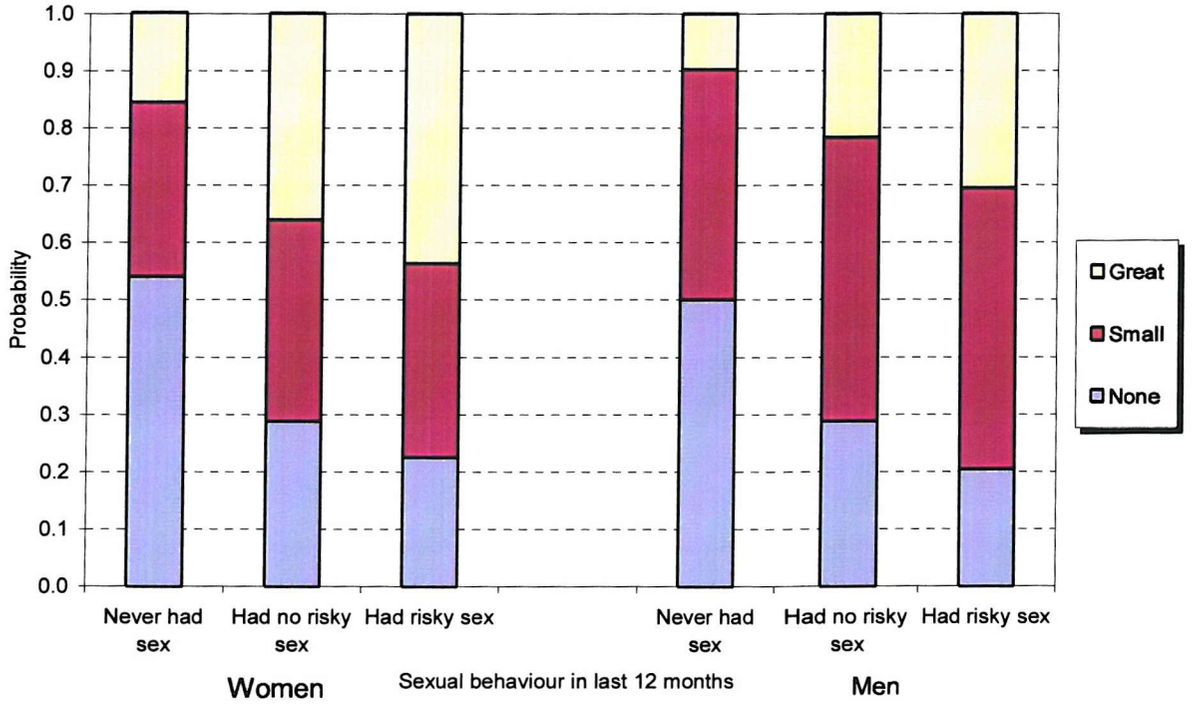
Figure 5.5: Percentages of all women and men who usually read a newspaper once a week, watch television once a week, or listen to the radio once a week, KDHS 1998



Women were more likely than men to report knowing someone sick of or dead from AIDS perhaps because they (women) are more likely to have cared for a sick person or gathered such information from their social networks. Women who reported knowing someone sick of or dead from AIDS were more likely to perceive themselves at high risk compared to those without such knowledge. Similarly, men who reported knowledge of mother to child transmission perceive slightly higher risk than other men.

Behavioural factors were statistically significantly associated with self-assessed risk for both women and men (risky sexual behaviour in the last 12 months, 'ever' use of condoms to avoid AIDS, and behaviour change to avoid getting AIDS). Figure 5.6 illustrates that women who reported high-risk sexual behaviour in the last 12 months have a 44% chance of perceiving themselves at great risk, in contrast to similar men who had a 31% likelihood of perceiving great risk. Women and men who had never had sex had over a 50% chance of perceiving themselves to be at no risk of HIV. The relationship between risk perception and sexual behaviour is further explored in Chapter Six in an attempt to understand the strength of this association net of the effects of socio-demographic, knowledge and behavioural factors.

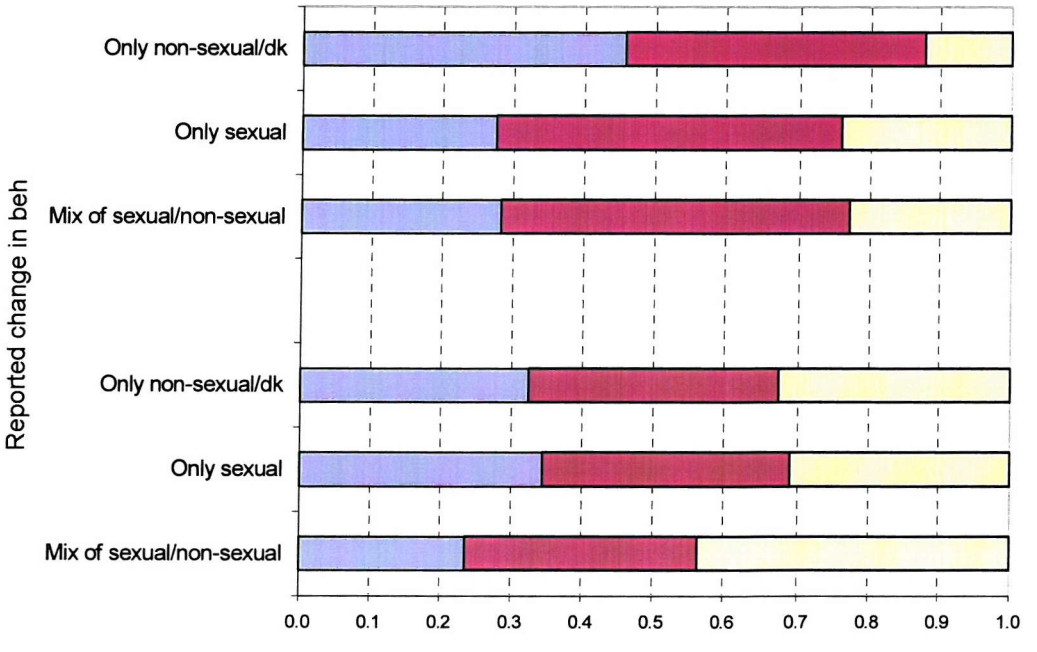
Figure 5.6: Predicted probabilities of different levels of self-perceived risk for HIV among AIDS-aware women and men according to sexual behaviour in the last 12 months, KDHS 1998



Women and men who reported ever using condoms with their partners in order to avoid AIDS are more likely to perceive themselves at great risk compared to those who had not used condoms for such purposes (Table 5.6).

The association between reported change in behaviour and risk perception shows some differences between women and men as illustrated in Figure 5.7. Among women who reported both sexual and non-sexual behaviour change, nearly 44% perceived their risk to be great. This compares with only 31% of women who reported only sexual change, and 33% of those who reported only non-sexual behaviour change. The majority of men (over 40%) perceived their risk to be small. Of the men reporting only sexual behaviour change or a mixture of sexual and non-sexual change, about 23-24% perceived their risk to be great. This contrasts with about 12% of those reporting only non-sexual behaviour change. For men, about 46% of those reporting only non-sexual behavioural change perceive no risk. Either they perceive no risk hence non-sexual behavioural change or, because they have modified their behaviour, hence they perceive small risk.

Figure 5.7: Predicted probabilities of different levels of self-perceived risk for HIV among AIDS-aware women and men by reported change in behaviour to avoid getting AIDS, KDHS 1998



5.6 Discussion

5.6.1 General Observations on Perception of Risk of Women and Men

The findings have shown that higher proportions of women and men are likely to state that they are at small or no risk than at great risk across all subgroups. The exceptions are women and men belonging to ethnic groups predominant in high HIV/AIDS prevalence regions, in polygynous unions, women aged 25-39, women and men reporting risky sexual behaviour in the last 12 months, women and men who have ever used condoms to avoid AIDS, and those women who reported having changed both sexual and non-sexual behaviour to avoid AIDS. Higher proportions of women are more likely than men to report themselves at great risk, and men are more likely than women to report themselves at small risk.

Perception of small or no risk could be related to the nature and intensity of public awareness campaigns conducted in the country. Although HIV/AIDS rates have been increasing over the years, public acknowledgement of the reality of AIDS did not occur until November 1999, when President Moi formally declared AIDS a national disaster (see Chapter 4, section 4.8.1.) This complacent attitude might have led to delivery of selected messages and less intensive mass media awareness campaigns, lack of open discourse about HIV/AIDS, and consequently a negative impact on the success of HIV/AIDS prevention programmes in the country.

Another possible explanation for the observed tendency for respondents to perceive small or no risk could be related to the extensive emphasis placed on faithfulness and monogamy by intervention programmes. Such emphasis might influence people to engage in risky sexual activity if they misinterpret the message of faithfulness and monogamy to mean serial monogamy, in which they maintain one sexual partner at a time but successively form new relationships once one is ended. This appears to be partly the case as observed from the qualitative findings in this thesis. Qualitative findings suggest that the feeling of trust and faithfulness is the most common reason for lack of current perception of risk in the study communities.

Although a majority of respondents felt at small or no risk, women on the other hand, are more likely than men to perceive themselves at great risk, perhaps due to their suspected partners' (or factual) multiple partnerships. Similar findings have been noted in Uganda (Sheppard et al., 2001). Results in this thesis (See Chapter 4) and from other studies have shown that women are economically and socially vulnerable, and therefore less likely to

control how, when and where sex takes place (Heise and Elias, 1995; Gage and Njogu, 1994; Kiragu, 1995 cited in Forsythe *et al.,* 1996). As noted earlier (Table 5.3) substantial proportions of women reported that they perceived themselves at great risk because their spouses/partners have other sexual partners. Similar feelings among men are rare. However, qualitative findings in this thesis indicate that both men and women currently feel at risk of HIV due to their partners' suspected infidelity.

The idea that "death is death" and could be caused by anything and "everybody will die anyway", compounded with denial of or indifference to the reality of AIDS may also be a possible explanation for women and men's perception of small or no risk. These sentiments were expressed in focus group discussions in Chapter 4. It is of concern that the 1998 KDHS showed that about 8% of women and men each said there is no way to avoid AIDS, and similar proportions indicated misinformation[13] on knowledge of AIDS transmission. In addition, 18% of women and 11% of men who said AIDS could be avoided did not cite any way to avoid AIDS. Likewise, only 39% each of women and men spontaneously mentioned at least two of the four AIDS prevention messages[14] relayed through the mass media. The prevalence of fatalistic or complacent attitudes towards AIDS has been noted in this thesis (Chapter Four) and in some qualitative surveys in sub-Saharan Africa (Hogsborg and Aaby, 1992; Fapohunda and Rutenberg, 1999), and these might influence people's perceptions of HIV. However, the results related to knowledge factors must acknowledge the limitations of spontaneous responses. People who reported that AIDS could not be avoided or that they "don't know" how to prevent AIDS, may have said so not because of ignorance but because AIDS is thought to be so prevalent that it would be futile to prevent it. Or some people felt that they were already doing all that they could to prevent AIDS, and so could not think of any other way. Some views expressed in the qualitative findings reflected these feelings.

5.6.2 Socio-Demographic Factors and Perceived Risk

Socio-economic factors, namely education, work status and rural-urban residence proved statistically insignificant as main effects in the multivariate model for men, net of other correlates of risk perception. The interaction effect of education and work status was

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[13] These include mention of mosquito bites and kissing as ways of transmission and care from a traditional healer or spiritual aid as AIDS prevention mechanisms.

[14] These include use of condoms, avoid multiple partners, being faithful to one partner, and abstain from sex.

significant in the female model. It appears that for men, the effects of socio-economic factors might have been masked by the strong influence of social, demographic and knowledge factors such as ethnicity, religion, age, marital status, and exposure to specific AIDS information. In analysing the WHO/GPA data for several African countries, Cleland (1995) also found that for some countries, the effects of education and rural-urban residence on perceived risk were attenuated when controlling for all other covariates, and in others, education was only significant as an interaction with risk behaviour. Similar results have been noted in Zimbabwe (Mbizvo *et al.,* 1997). Perhaps the dictates of socio-cultural and demographic dimensions have more effect on how people categorise their own risk than formal schooling or socio-economic class. Perception of risk might be a product of complex traditional systems within ethnic groups and communities as illustrated from the qualitative findings in this thesis.

Region and ethnicity are closely linked in Kenya. Specific ethnic groups with similar cultural practices live in proximity to each other within regions. The Luo and Kisii, for example, largely live in the Nyanza, the Luhya in Western, and the Kalenjin in the Rift Valley provinces. Interestingly, HIV prevalence rates in Kenya are more pronounced in Nyanza and parts of Western and Rift Valley provinces, in which observed sentinel surveillance of HIV prevalence rates among pregnant women range from 15% to 30%, and AIDS morbidity and mortality are notably high (GOK/ACU, MOH and NACC, 2001; Baltazar, *et al.,* 1999). High proportions of women and men in these regions perceive themselves to be at risk of HIV. Some authors have suggested that perceived risk may not only be based on people's own or partner's behaviour, but also on the level of AIDS-related morbidity and mortality within their community (Dodoo, 1998; Cleland, 1995; Prohaska *et al.,* 1990). Thus, seeing or experiencing AIDS-related death might have increased people's fears and uncertainties. Conversely, some people might become fatalistic due to the enormity of AIDS-related deaths if they see attempts at AIDS prevention as futile. The FGD results in Chapter 4 showed that the notion "death is death" was commonly cited as a reason for risk-taking behaviour in the study communities.

There is high heterogeneity with regard to culture and tradition in Kenya. The socio-cultural context can influence people's perceptions through internalisation of specific sexual beliefs, norms, and practices. Kenya has a mix of cultural beliefs and practices emanating from the existence of over 41 different ethnic groups. The diversity in culture has been a major hindrance in the successful implementation of intervention programmes since no single programme would be found applicable to all the different communities. The Luo and Luhya

communities, for example, value the practice of widow inheritance and cleansing that could easily influence self-perceived risk (Ocholla-Ayayo, 1976). Although the FGDs have highlighted the strong influence of culture on people's sexual practices, the extent and magnitude of such a problem is difficult to determine from qualitative findings. However, practices such as widow inheritance and widow cleansing make both men and women highly vulnerable to infection, but might not necessarily lead to increased perception of HIV risk if the practice is deemed necessary for social support, recognition, emotional and mental health of the individual and the family. As a result, individuals practising such rituals may under-estimate their risk of HIV infection if they value the practice more than their own health. This could also explain why women and men belonging to ethnic groups dominant in some high HIV prevalence provinces are more likely to perceive themselves at small or no risk at all despite the enormity of the AIDS pandemic.

Central and Eastern provinces have only recently realised high HIV/AIDS prevalence rates and this may explain why women in these regions were more likely to perceive themselves at small or no risk in 1998. Surprisingly, a large proportion of women in Coast province perceived themselves to be at no risk, although some parts of the region (e.g. Mombasa) fall among the high HIV prevalence regions. These results seem to be similar to findings from elsewhere in the world (Ingham *et al.,* 1992b; Memon, 1991; Abrams *et al.,* 1990) that have shown that despite being generally aware of the fatality of HIV, people often see the potential threat to others and not their own risk. Nzioka (1996) in a Kenyan found that some people consider some sexual behaviours immoral or unacceptable, and so denied being at HIV risk because an acknowledgement would seem to be an acceptance of having engaged in an immoral and shameful behaviour.

Also, owing to the widespread media campaigns to increase awareness of HIV risk and prevention strategies, it is possible that responses in some regions or ethnic groups reflected this, as opposed to actual beliefs and behaviour. Initial AIDS awareness efforts in Kenya focussed on value-laden information that was directed at segments of the population considered to be at high-risk of HIV infection. The population in general was, therefore, warned to be wary of catching the deadly disease from high-risk people. Unlike behaviour, knowledge can change very rapidly and a lot of publicity has been undertaken in Kenya over the last decade.

The importance of age in risk perception has been noted in studies elsewhere (Cleland, 1995; Prohaska *et al.,* 1990). Perceived risk tends to rise monotonically within the intermediate age

groups (20-39) in concordance with the current age-sex distribution of HIV prevalence rates in Kenya. Kenyan statistics indicate that women and men in the age range 20-45 are the most sexually active, hence vulnerable to HIV infection (Baltazar *et al.,* 1999; Okeyo *et al.,* 1998). Women and men aged 15-19 years are more likely to perceive themselves at no risk, and this perhaps, reflects the fact that a majority is still sexually inexperienced. Younger people with fewer or no sexual relationships might not necessarily view themselves at risk of HIV/AIDS. The fact that older respondents too perceive small or no risk might be related to their reaching or nearing the end of their active sexual life, particularly if past and current risky sexual behaviour is not considered. For some communities, old people are inclined to stop sexual relations if their sons or daughters start child bearing (sometimes referred to as the "grandmother effect"), and this might influence them to perceive themselves at no risk of AIDS (Population Studies and Research Institute/UNICEF, 1996; Ocholla-Ayayo and Schwarz, 1991).

It may also be plausible to suggest that younger and older people might be less exposed to AIDS information and therefore lack salient information or references to influence the evaluation of their own risks. The KDHS (1998), for example, indicates that young and old women and men are less exposed to the mass media and this is likely to limit their acquisition of accurate AIDS information. However, qualitative findings in this thesis suggest that knowledge of AIDS is high and both young and older people are aware of how to avoid AIDS, yet actual perception of risk is constrained by the prevailing sexual attitudes and gender inequalities in sexual decision-making.

Marital status significantly predicts perceived risk for both women and men. Women and men currently in marital union perceive themselves at greater risk than women not in union. For women, being in a polygynous union appreciably heightens risk perceptions, perhaps related to the fear of infection either by spouse/partner or through co-wives. Indeed, studies show that the majority of African women have no control over their reproductive health or their partner's sexuality, and often women who have remained monogamous have been infected by their husbands (Seidel, 1993; Cohen and Trussell, 1996). Generally, polygynous unions are likely to present situations of uncertainty and suspicion over sexual fidelity. It might be difficult to control the behaviour of all partners in a polygynous marriage.

Christian men, particularly the Catholics, had increased chances of perceiving themselves to be at great risk. Religious affiliation, practices and utterances can impact on HIV transmission control measures, particularly in a society where religious tenets are held in high

regard. It is not clear why being a Catholic increased men's perception of risk. Perhaps it reflects the Catholic's opposition to the use of condoms thus, placing men in a dilemma. Both Christian and Islamic religious leaders in Kenya have persistently been opposed to the use of modern contraception including condoms, which they associate with immorality. The only acceptable methods according to these leaders are abstinence and natural family planning. Consequently, until recently, sex education was excluded from the Kenyan school curriculum despite the importance and the clear need for concise sexual information to young people (Forysthe, 1996). Indeed, if people feel that religious doctrine is in conflict with current AIDS concerns, then perceived risk of HIV is likely to be high. It may also be possible that Muslim and Protestant men, have a more moralistic assessment of risk, a tendency to equate AIDS-related illnesses and deaths with punishment for people who transgress against God. Thus, they may not want to be associated with a disease of 'sinful' people.

5.6.3 Psychosocial Factors and Perceived Risk

People are believed to estimate their risk of infection by the type of information they process. The results observed by knowledge factors seem to suggest that it is not just general awareness of AIDS that is important, but acquisition of specific knowledge on HIV/AIDS prevention is. Perception of risk was higher among women and men who reported specific aspects of AIDS knowledge. The UNAIDS (2000b) National AIDS Programme guide on monitoring and evaluation acknowledges the fact that general awareness and knowledge about sexual modes of HIV/AIDS transmission are almost universal in most countries. Hence, national AIDS programmes are recommended to focus attention on measurement of misinformation or misconceptions that may influence people's attitudes and behaviour. Determination of the existence of incorrect knowledge may, therefore, be more important than general AIDS awareness indicators that no longer vary by population sub-groups. Rumours observed in qualitative findings such as condoms are laced with the AIDS virus may influence people's perception of HIV risk.

"Personalisation" of AIDS has been noted to influence people's sexual behaviour (Dodoo, 1998). Women with knowledge of someone who is ill or had died from AIDS-related illness had greater risk perceptions than other women, perhaps because such knowledge brings the reality of AIDS "closer to home". Similarly, knowledge that a healthy person can transmit AIDS increased people's risk perceptions, perhaps because of the associated fear of contracting HIV from social contact. Generally, correct information about modes of HIV infections are important in diffusing an irrational sense of personal vulnerability that might be adopted by individuals not particularly at high risk of AIDS. Views expressed in FGDs

reflected fears emanating from misperceptions about HIV transmission. People can also be ridiculously risk-averse because of panic. It would appear that prevention strategies, which are designed to trigger people's psychosocial reactions to a health threat, should be clearly relayed in order for such information to lead to rational risk estimates.

Cleland (1995) has noted that people's risk perceptions might also be influenced by the nature of the interviewing process. In the KDHS 1998 survey, the question on perceived risk was asked after the respondents had been exposed to questions on individual sexual activity, type of partnerships, condom use, and AIDS transmission and prevention mechanisms. This pattern of questioning can influence respondents' assessment of their own risk to reflect previous responses, so that they are not seen as "immoral" or insensitive to normative behaviour. As suggested by qualitative findings in Chapter 4, it is also possible that some respondents gave normative responses in relation to what they hear and see from AIDS awareness and prevention programmes. People exposed to public AIDS awareness campaigns may report what they feel is the expected behaviour rather than what they actually practice.

5.6.4 Sexual Behavioural Factors and Perceived Risk

Epidemiological studies indicate that the type of sexual activity, evidenced in the number and the type of sexual partners and practices, is a consistent predictor of STD or HIV infections. The probability of perceiving risk is expected to increase with people's exposure to behaviour considered risky or by a person's own awareness of the enormity of the health threat in the community. In this study, high-risk sexual behaviour significantly heightened risk perceptions for both women and men, though more among women than men. Women were more likely to perceive great risk if they had experienced risky sexual encounters, had used condoms to avoid AIDS and reported both sexual and non-sexual behaviour change. Men had a similar pattern except that men who reported both sexual and non-sexual behaviour change had increased chances of perceiving no risk. Cleland (1995) found similar results using the WHO/GPA data. The results in this thesis suggest that the influence of recent sexual behaviour change might have made men think they are safer. Women's perception may be reflecting their inability to influence their partners' risky behaviour even if they report current change in behaviour. However, because AIDS is fatal, men might have simply chosen not to acknowledge risk, or may just be indifferent. FGD results indicated that some men have adopted non-caring attitudes towards AIDS. It is difficult to infer a causal

link from the multivariate results in this analysis due to the cross-sectional nature of the data. Only an association between reported behaviour and risk perception can be determined.

The observed link between men's sexual activity and perception of risk may have a cultural basis. Belief in some sexual practices as noted from the qualitative findings, such as the perceived 'need for men to prove their manhood' or that 'men cannot do without sex' might be the driving force for men's consistency in perceiving themselves to be at small or no risk despite engaging in high-risk sex. In contrast, for women, some forms of sexual behavioural change might not be plausible or realistic AIDS reduction strategies in situations in which men dominate in sexual decision-making activities. For example, most of the sexual-risk reduction mechanisms advocated in AIDS prevention campaigns (e.g. use of condoms, monogamy, reduction of sexual partners, and abstinence) are usually under the control of men. Adoption of any of these changes in behaviour would require mutual negotiation and understanding between the sexual partners. In addition, these strategies may mean little to women on whom society already expects chastity and faithfulness in their sexual relationships. Lack of power and autonomy in sexual decisions could, therefore, in part, explain the observed differences between women and men in sexual behaviour and self-perceived risk. Further analysis of the association between self-perceived risk and sexual behaviour is done in Chapter 6.

HIV testing was significant in the male model and not the women's. This result could be reflecting two scenarios: either women's lack of self-efficacy in risk reduction even if they know their own HIV status because of their partner's risky behaviour, or lack of economic and decision-making power that hinders women from having an HIV test. The 1998 KDHS indicates slightly more men (16%) than women (14%) reported to have had an HIV test. The in-depth interview findings in this thesis suggested that whereas men decide when to have an HIV test, most women who reported having been tested for HIV benefited from free testing services at antenatal clinics or during medical requirements.

5.7 Summary

As hypothesised, when all factors are controlled for, a range of socio-demographic, knowledge and behavioural factors are associated with people's self-perceived risk of HIV in Kenya, though the degree of importance of each factor varies (see Appendices 5.1 and 5.2). The results suggest that most Kenyan women and men acknowledge they are vulnerable to HIV/AIDS, which is an indication of a positive step towards behaviour change, even though the majority perceive themselves to be at small or no risk. However, the low proportions of

women and men that perceive themselves to be at great risk even among those whose behaviour predisposes them to the risk of contracting HIV dampen these encouraging findings. The gender differences in levels of self-perceived risk are evident. Women seemingly acknowledge their appreciable vulnerability, probably associated with their partners' risky sexual behaviour.

In summary, a typology of levels or states of perceived risk can be discerned from the findings observed in Chapters 4 and 5. Table 5.8, which is not intended to be exhaustive, presents the broad categories of people. The first category is classified as people who perceive *"it might happen to me and there is something I can do"*. People in this group are considered to be having high HIV/AIDS awareness levels and perceptions of risk, and are assumed capable of reducing their HIV risk by actually instituting low-risk sexual behaviour. Loosely interpreted, findings in Chapter 5 would suggest that men are more likely than women to fall into this category as they perceived themselves to be at low risk because of having started using condoms or reduced the number of casual sex partners, measures considered effective in AIDS prevention. However, findings in Chapter 4 are in the contrary. Both men and women were non-supportive of condoms and would be offended if a partner suggested them. In addition, participants in the focus group discussions (FGDs) were unanimous that casual sex is prevalent, although respondents interviewed in-depth did not report such behaviour. From these findings, it is difficult to tell whether views raised in FGDs represent the expected behaviour or indeed the prevalent practices in the communities. The differences in results may be related to differences in data collection techniques. FGD participants may have chosen to raise views that conform to the normative behaviour so as to be seen to belong.

Table 5.8: Summary of different categories/states of perception of HIV risk

Group Type	Characteristics
Group 1: The assertive type who say *"it might happen to me and there is something I can do"*	• High accurate knowledge of HIV infection and prevention • Residing in areas that have had extensive awareness campaigns e.g. Nairobi, Nyanza • Individuals able to enact safer sex behaviours e.g. men, those with high education levels, in urban areas.
Group 2: The fatalist or subordinate type who say *"it might happen to me but there is nothing I can do about it"*	• Those with misinformation about HIV transmission and prevention – e.g. no education, older people, young people • Residing in high HIV prevalence areas, e.g. Nyanza, Western, parts of Rift Valley • Subordinate women – e.g. married women, particularly in polygynous unions
Group 3 The risk takers who say *"it might happen to me but I accept the risk"*	• High knowledge but indifferent – e. young people • Cultural die-hards – e.g. in Nyanza • Drug and alcohol users • Commercial sex workers – e.g. poor women
Group 4: The invincible or immune type who simply say *"it won't happen to me"*	• Those living in low HIV prevalence areas – e.g. Central, parts of Eastern and Rift Valley provinces • Those with misconceptions about HIV transmission – young and older people • Those who believe (trust) in the safety of their partners' or own behaviour – e.g. men, young people, married people.
Group 5: The ignorant type who *"do not know anything about risk"*	• Very young people with no AIDS awareness • People in remote areas with no media coverage or public awareness campaigns

A second category can be classified as people who feel *"it might happen to me but there is nothing I can do"*. This group, though aware of AIDS and feeling at personal risk, think that it is beyond their control to avoid infection. These are people who are fatalistic and have simply resigned to fate, either because of high HIV/AIDS prevalence in the area or a belief that HIV can be contracted from any other source (such as mosquito bites) so that attempts at prevention are seen as futile. Most FGD participants raised this concern. In addition, the majority of women stated that they were unable to institute safer sexual practices, such as condom use or abstinence because these require negotiating use and aspects of self-efficacy, which most women lack. The 1998 KDHS indicates that 63% of women who stated that they were at moderate or great risk of HIV said that this was because they feared their spouse/partner had other sexual partners and only 3% of women compared to 19% of men stated condom use as a change in sexual behaviour.

The third category is classified as the *"it might happen to me but I accept the risk"* group. These individuals appear to have simply chosen to disregard their knowledge and to indulge in risk-taking behaviour due to the indifference developed towards the disease, as was evident in regions with previously low HIV prevalence rates (Central, parts of Rift Valley and Eastern provinces). The majority of young people also fall into this group. To them, death is a fact and life is full of so many other risks that one in particular should not be given undue attention. People in Nyanza, in which is Kisumu, one of the study sites for qualitative research, also fall into this category. To these people their cultural beliefs more than their health is of paramount concern. Individuals who depend on earnings from commercial sex work may fall into this group. Participants in the qualitative study stated that sex for exchange was prevalent, and mainly attributed to increasing poverty levels and common among young people, particularly girls. Previous quantitative and qualitative studies in Kenya suggest that indifferent attitudes, cultural practices, and paid sex are some of the reasons for people's risk-taking behaviour (Habema et a., 1999; Futures Group, 1999; Fapohunda and Rutenberg, 1999)

The fourth category do not perceive risk of HIV - *"it won't happen to me"* - and so see no need to observe safer sexual behaviour. Individuals with such attitudes could be influenced by a belief in the 'safety' of their partners' or own behaviour. Findings in Chapter 4 and 5 suggest that these are the majority of people in Kenya. Similar findings have been noted in the study of young people's sexual behaviour in Britain, suggesting that young people's conceptions of risk may be same in any context (Ingham *et al,* 1992b). The authors found that young people stated they "trust" their partners because they give impressions of being "safe" - such as believing that they are not promiscuous, are faithful, they have had few previous partners, they always use condoms when they think it is necessary, that they have been tested for HIV and that they do not have sex with high-risk partners. A similar study in Kenya found that young people judged their partner's HIV status through physical appearance (fat and good-looking), social status of the family (high social status), or job seniority (responsible position in employment) (Futures Group, 1999). The 1998 KDHS shows that a third of both women and men felt at no risk of HIV. A belief that a partner is infection-free might make an individual with an otherwise high accurate knowledge of HIV/AIDS to take sexual risks.

A fifth category is of people who might not know anything about AIDS. These individuals appear to be young and old people and those in remote areas with no public awareness campaigns. However, in Kenya, a very small proportion falls into this category. The 1998

Kenya Demographic and Health Survey indicates that only one per cent of women and less than one per cent of men reported to have not heard about AIDS, and these proportions could by now be non-existent due to the intensive public AIDS awareness campaigns. All FGD and IDI participants were aware about AIDS and knew correct ways of how to prevent it.

The above summary shows that the majority of Kenyans have distorted perceptions of risk as a result of a perceived sense of invulnerability, particularly men. The strong influence of the social context on sexual behaviour is evident from the qualitative findings. As Prohaska *et al.,* (1990) conclude, health behaviour models that attempt to explain the relationship between risk perceptions and behaviour change might be better off in considering the effect of social-cultural interpretations of risk rather than starting from a general perceived risk standpoint. Estimation of risk is based on "trust" without consideration of other aspects of a partner's previous risky behaviour. Each category or state of perceived risk poses challenges in terms of behavioural change interventions, though the group that feel not at risk are the most challenging since they are mostly young, unmarried people. Some perceptions may be supportive of behavioural change interventions and others could be very difficult to address.

The next chapter examines the association between self-perceived HIV risk and sexual behaviour in the 12 months before the survey, adjusted for socio-demographic, knowledge and other behavioural factors.

CHAPTER SIX

THE ASSOCIATON BETWEEN SELF-PERCEIVED RISK OF HIV AND SEXUAL BEHAVIOUR

6.1 Introduction

This chapter examines the association between self-perceived risk of HIV and reported risky sexual behaviour among women and men who were aware of AIDS and had an experience of sexual intercourse. The aim is to investigate the factors associated with engaging in sexual behaviours that are likely to increase people's chances of HIV infection, while taking into account the effects of perception of risk, socio-demographic, psychosocial/knowledge, and behavioural correlates of sexual behaviour. The analysis is not aimed at a causal investigation but simply to examine the strength and direction of the association between perceived risk and sexual behaviour. The difficulty of disentangling the reverse causation of these two variables has been acknowledged in Chapter 5 (Section 5.2). The chapter is divided into seven sections. Section 6.2 gives an overview of the association between perception of risk and sexual behaviour. Section 6.3 describes the data and methods used in the analysis. Section 6.4 presents the distribution of women and men by self-reported risky sexual behaviour in the last 12 months and according to socio-demographic factors and self-perceived risk of HIV. The logistic regression results are presented in Section 6.5. Section 6.6 provides a discussion and summary of the findings.

6.2 Overview

Bongaarts (1995:9) states, "...sexual behaviour is probably responsible for much of the differences in heterosexual epidemics among countries, as well as for the equally large differences among regions and demographic groups within countries." Indeed, the review of literature in Chapter 2 and the qualitative and multivariate findings in Chapters 4 and 5 respectively, indicate that sexual behaviour is strongly associated with the spread of HIV/AIDS in Kenya and in the rest of sub-Saharan Africa (SSA). A range of socio-cultural beliefs, practices and socialisation processes, individual characteristics, and knowledge, as well as structural factors may influence sexual behaviour. Differentials by these factors may act to enhance or limit people's enactment of safer sexual practices.

The meaning and context of sexuality varies across populations and cultures, between countries and even between sub-cultures within countries, and this has been demonstrated to have a major impact on sexual behaviour. The strong influence of the social context means

that sexual activity is socially constructed as well as being biologically driven. In sub-Saharan Africa, sexual activity appears to be largely driven by socio-cultural beliefs and practices (Caldwell *et al.,* 1999; Cohen and Trussell, 1996; Njogu and Gage, 1994; Anarfi, 1993). Thus, sexual risk-taking in some contexts may be tolerated while in others it may be strongly disapproved of and regarded irresponsible or immoral. There is evidence that multiple partnerships for men are easily tolerated even though not acceptable, while women's infidelity is highly penalised (Caldwell *et al.,* 1999; Fapohunda and Rutenberg, 1999). Ingham and van Zessen (1992a:19) conclude, "sexual conduct is embedded in culture and in social relations", dimensions that most women find beyond their control.

Gender inequalities that place women in subordinate positions, the assumed "male sex drive", and the notion that "men cannot do without sex" are associated with the prevalence of sexual-risk taking practices (Reid, 1999; Kenya *et al.,* 1998; Cohen and Trussell, 1996; Cleland, 1995; Dixon-Mueller, 1993; Ocholla-Ayayo and Schwarz, 1991). These practices act to exacerbate the spread of STIs, including HIV/AIDS. Thus, the central obstacle to AIDS prevention in women appears to be lack of power to negotiate safer sex. Sexual behaviour is not under an individual's volition but dependent upon the social and cultural environment in which one lives. The ability of individuals to be aware of, to initiate, and to sustain safer sexual behaviours may largely depend upon societal sexual norms and practices, aside from self-perceived susceptibility to HIV/AIDS infection.

Literature suggests that women have fewer sexual partners than do men, and women with little control over the sexual activities of their partners are vulnerable to infection by these partners (FHI, 1999; Reid, 1999; Orubuloye *et al.,* 1997; Caraël, 1995; Ingham and Holmes, 1991). Whereas non-married women may have some ability to negotiate safer sex (e.g. through condom use), married women face extra challenges because of the fear of being suspected of promiscuity by their spouses that may lead to unwanted consequences such as separation or even divorce. Often, married women acquiesce to unsafe sex even if they suspect or know of their partner's extramarital relations (Blanc *et al.,* 1996). Current HIV/AIDS statistics in sub-Saharan Africa indicate that women and men are being infected in almost equal numbers. However, women are two to four times more likely than men to become infected with sexually transmitted diseases (STDs) after intercourse with an infected partner due to physio-biological differences and their low socio-economic position ((UNAIDS, 2000a; FHI, 1999; Cohen and Trussell, 1996).

Although HIV cannot be spread in stable monogamous relationships between uninfected partners, the presence and the nature of casual or extramarital sex with high-risk partners, largely determines the risk of HIV transmission in this sub-group (Ahlburg *et al.,* 1997). As a result, an examination of the association between perceptions of risk and sexual behaviour is important in that it may facilitate the design of AIDS-preventive measures necessary to check the spread of the disease among population subgroups.

The limitations of examining the association between perception of risk and sexual behaviour were outlined in Chapter 5, section 5.2.

6.3 Data and Methods

6.3.1 Data

The data used are from the 1998 Kenya Demographic and Health Survey (KDHS), already described in Chapter 3. The analysis in this chapter is based on 6,554 women and 2,973 men who reported having heard of HIV/AIDS and ever having had sexual intercourse, and who responded to the question on perceptions of risk. Like the analysis in Chapter 5, women and men are examined separately.

6.3.2 Logistic Regression Modelling

Standard binary logistic regression was used to examine the factors associated with risky sexual behaviour relative to the effect of perception of risk. Logistic regression was used since the dependent variable (a measure of high-risk sexual behaviour) was constructed to be a binary outcome (see Section 3.4.1). The logistic regression model is of the form:

$$\log\left[\frac{p_i}{1-p_i}\right] = x_i'\beta_i$$

where: p_i = the probability for individual *i,* of reporting risky sexual behaviour

x_i' = the set of explanatory variables; and

β_i = a vector of unknown parameters associated with the independent variables.

Most statistical software can be used to fit logistic regression models. In this study, logistic regression models were fitted using STATA statistical software version 7.0, because of the component of survey design estimation procedures (StataCorp, 2001). The need to account for the survey design was highlighted in Chapter 3, section 3.5.2 and in Appendix 3.8. As all the explanatory variables are categorical, exponents of the parameter estimates (odds ratios or ORs) are used in interpreting the results in this chapter.

In order to examine the nature and strength of the association between perceptions of risk and sexual behaviour it was necessary to allow for the confounding effects of other correlates of sexual behaviour using multivariate analyses. As with Chapter 5, the choice of predictor variables was informed by the literature review.

Stata statistical software does not allow step-wise multivariate models to be estimated when accounting for the survey design effects. Consequently, the final models were obtained through a series of model fitting procedures, starting with a model including only the gross effects of perception of risk, systematically adding of blocks of variables and removing insignificant variables (using adjusted Wald's test and 5% as the critical level) at each stage until a parsimonious model was obtained. These models also allowed for a comparison of the influence of each set of variables on the association between perception of risk and sexual behaviour. As with the models in Chapter 5 all possible first-order interactions were examined at each model fitting stage using the same procedure as described in Section 5.5.1. Table 6.1 gives a summary of the models fitted and the variables used in each case.

Table 6.1: Models fitted and variables used in the logistic regression modelling

Models	Variables in each model
Model A	Unadjusted (gross) "effect" of perception of risk (none, small and moderate/great risk) on risky sexual behaviour
Model B	Perception of risk + background and socio-demographic factors (region, residence, current age, age at first sex, marital status, education, work status, religion, and ethnicity)
Model C	Perception of risk + background and socio-demographic + knowledge factors (exposure to the mass media, source of AIDS information, knowledge of AIDS transmission, knowledge of AIDS prevention, knowledge that a healthy person can transmit AIDS, knowledge of mother to child transmission, knowledge of someone ill or died of AIDS)
Model D	Perception of risk + background and socio-demographic + knowledge + behavioural factors (ever use of condoms to avoid AIDS, change of sexual behaviour as a result of hearing about AIDS, having had an HIV test)

The dependent variable is a measure derived according to whether or not the respondent reported *any* risky sexual behaviour/experiences in the last 12 months before the survey, as restricted by what is available in the KDHS. The development of the risky sexual behaviour variable was described in detail in Chapter 3, section 3.4.1. The risk behaviours or experiences are of a nature associated with increased chances of contracting HIV. These include: reporting of more than one sexual partner (while taking into account men in

polygamous unions); the last sexual partner being casual or non-regular; receiving or giving money or gifts for sex; and having had an STD. Experience of an STD in the past 12 months was used though not a risk behaviour in itself, but because it is an important co-factor of HIV transmission (see Section 3.4.1 for a fuller discussion of reasons for including paid sex and STD experience in computing the risky behaviour variable). The limitations of including each these variables were discussed in Chapter 3. The possibility of excluding the STD variable from the response variable was considered but this did not alter the results because its contribution to the proportion of women and men at risk was very small. The respondents were coded '1' if they reported *any* of the sexual risk factors and '0' otherwise.

Condom use was not used as a contributor to the risky sex measure due to the additional problems of application and interpretation, but it is used as an explanatory variable in this chapter as well as in Chapter 5. As stated by Dare and Cleland (1994:97) the measure of condom use "is of limited value as it does not actually validate the circumstances of use. For instance, it does not provide quantification of the number of sexual contacts, the regularity of use and the type of partnership in which it was used, that is commercial, marital or other regular partnership..." Condom use is included in the models as a potential confounder between perception of risk and sexual behaviour. In this way, it was possible to examine how condom use mediates the association between the two variables.

Age at first sex was also not used to derive the risk behaviour variable because respondents had first sexual experiences at different times of the AIDS epidemic, but is used as an explanatory variable. The 12-month reference period is, therefore, more useful in capturing the most recent behaviour and in minimising recall errors, and so only events reported to have occurred within this period were considered in deriving the measure for risky sexual behaviour.

Single persons are classified not at risk if they report one regular partner but at risk otherwise. The assumption is that unmarried individuals who stick to one partner would relatively be at reduced risk than those with multiple partners. In addition, since sexual behaviour surveys largely rely on what individuals report it is assumed that the reports of the unmarried people represent current sexual practices, even though the UNAIDS classifies sexually active unmarried people to be at high risk of HIV. On the contrary, it should be acknowledged that AIDS prevention strategies emphasise monogamy and, when considered from that standpoint, it is justifiable to consider sexually active unmarried people to be at reduced risk if they report monogamous relationships.

It should be acknowledged that the measure of risky sexual behaviour in the last 12 months used in this study has some limitations. The actual risk of exposure to HIV for an individual depends on a combination of factors. These include an individual's number and type of lifetime sexual partners, a partner's past or current risky behaviour, consistency of condom use with each partner, the HIV status of the sexual partner, and indirectly, the level of HIV/AIDS prevalence in the population. For example, individuals reporting more than one sexual partner in the last 12 months may not necessarily have had an elevated risk if they consistently had protected sex. Alternatively, an individual not reporting risky behaviour may be at high risk because of a partner whose behaviour is risky, as might be the case with most Kenyan women. In addition, people who do not report risky sexual behaviour in the last 12 months may have had risky sexual encounters prior to the 12-month period. Although these limitations are acknowledged, this analysis is important because it examines the current prevalence of risky sexual behaviour among different sub-groups of the Kenyan population that has significant implications for HIV prevention strategies.

Survey data pertaining to sexual behaviour has also been criticised as potentially inaccurate (Caldwell *et al.,* 1989). Dare and Cleland (1994) suggest that similar sentiments expressed regarding fertility and family planning survey data proved to be overstated. Despite the perception that people are reticent to talk about sex and have a tendency to misreport behaviour, findings of the WHO/GPA studies suggest that the problem of mis-reporting may not be as large as feared (Carballo, 1995). The issues of mis-reporting and reliability of sexual behaviour data are discussed in detail in Chapter 3, sections 3.3 and 3.6.

This study addresses the problem of the reliability of responses in two ways that are assumed not to bias the results. First, it is assumed that if the misreporting of sexual behaviour is largely as a result of gender, then conducting separate analyses for women and men, while controlling for individual characteristics such as age and marital status, residence, and education (likely to affect the reliability of responses) will relatively correct for the bias in the results. Secondly, high-risk sexual behaviour is simply defined as reporting of *any* of the selected risky sexual experiences in the last 12 months. In this way, overlap in responses of risk behaviour is accounted for. A respondent who reports different forms of risk behaviour may not necessarily have had different partners for the different forms of behaviour reported. For example, a married woman or man who reports having had a casual partner or someone paying or being paid for sex must also count as having had more than one sexual partner in the last 12 months. The measure derived here would count such a respondent only once. Similarly, it is assumed that since individuals were asked about various aspects of risk

behaviour in different parts of the questionnaire, they are less likely systematically to misreport their sexual activity. For example, an individual who may have had multiple sexual partners might not report this in one part of the questionnaire, but may report having had a casual or commercial sex partner in a later section.

6.4 Preliminary Analysis of Risky Sexual Behaviour

6.4.1 Bivariate Analysis

Preliminary analysis was carried out to examine the distribution of women and men by types of reported risky behaviour and the association between risky sexual behaviour and socio-demographic factors and self-perceived risk of HIV. The percentages of sexually experienced women and men who were aware of AIDS, who reported *any* risky sexual behaviour are shown in Table 6.2. The results reveal that a higher proportion of Kenyan men than women engages in risky behaviour. Overall, about 13% of women and 41% of men who were aware of AIDS and had sexual experience reported at least one of the risk behaviours. The results suggest that men are about three times more likely than women to report having engaged in any of the behaviours associated with heightened risk of HIV transmission. Curiously, slightly more women reported having received money or gifts for sex (7%) than engaging in casual sex (6%), possibly because women underreported non-regular sexual partnerships, as such behaviour is socially disapproved or, women misinterpreted the question on paid sex. It could be possible that monogamous women reported receiving money or gifts from their husbands or regular partners. However, it is difficult to distinguish between these two possibilities with the data available (Table 6.3 examines further the numbers of women and men reporting various combinations of the components of the risky behaviour variable). The proportions of men reporting multiple partners, casual sexual relationships and exchanging money or gifts for sex are relatively high. The least commonly reported risky sexual experience by both women and men was having had a sexually transmitted disease (2% of women and 5% of men).

Table 6.2: Percentages of sexually experienced women and men aware of AIDS reporting different types of risky sexual behaviour in the last 12 months before the survey, KDHS 1998

Risk behaviour	Women (n=6,554)	Men (n=2,973)
	%	%
More than one sexual partner	4.7	28.5
Had a non-regular sexual partner	6.3	20.7
Received/gave money or gifts for sex	6.7	15.5
Had STD	1.8	5.2
Total women/men reporting *any* risk behaviour	**12.8**	**40.6**

Table 6.3 presents a matrix showing the numbers of women and men reporting combinations of the components of the risky sexual behaviour variable. Out of 305 women who reported having had multiple sexual partners in the last 12 months, 109 also reported to have received money/gifts for sex and 91 out of 414 women who reported non-regular partners said they had been paid for sex. It is possible that women misinterpreted the question on paid sex and reported money and gifts from their regular partners. But the fact that only 74 women out of 414 women who reported non-regular partners also said they had multiple partners suggests more a case of misreporting of sexual behaviour than misinterpretation of questions.

The male figures show similar inconsistencies. Out of 847 men who reported more than one sexual partner, 291 reported to have had paid sex and 134 men out of 615 men who reported non-regular partners said they had paid for sex. However, 333 men out of 615 men who reported non-regular partners also said they had had multiple partners. It is possible that both women and men misreport their sexual behaviour.

Table 6.3: Matrix showing the numbers of women and men classified at risk reporting combinations of the components of the risky sexual behaviour variable.

Components of risky behaviour	Components of risky behaviour				N
	More than one sexual partner	Had a non-regular sexual partner	Received or given money/gifts for sex	Had STD	
		WOMEN			
More than one sexual partner	--	74	109	15	**305**
Had a non-regular sexual partner	74	--	91	11	**414**
Received/gave money or gifts for sex	109	91	--	21	**438**
Had STD	15	11	21	--	**119**
		MEN			
More than one sexual partner	--	333	291	88	**847**
Had a non-regular sexual partner	333	--	134	36	**615**
Received/gave money or gifts for sex	291	134	--	71	**460**
Had STD	88	36	71	--	**155**

Table 6.4 shows that region of residence, work status, education, ethnicity, age, and marital status were significantly associated with reporting of high-risk sexual behaviour for both

women and men at the 5% level. Urban-rural residence was significant only for females whereas religion was not significant for either females or males.

Table 6.4: Percentages of AIDS-aware and sexually experienced women and men reporting any risky sexual behaviour in the last 12 months according to socio-demographic characteristics, KDHS 1998

Characteristics	Women		Men	
	%	No. of cases	%	No. of cases
Region	***		***	
Rift Valley	9.8	1665	36.7	828
Central	7.5	665	41.4	263
Coast	16.6	995	50.1	475
Eastern	15.8	964	38.8	474
Nyanza	12.8	1179	43.2	479
Western	12.8	735	35.5	296
Nairobi	19.4	351	37.3	158
Residence	***			
Urban	18.6	1239	41.2	605
Rural	11.5	5315	40.4	2368
Education	***		***	
No education	10.0	941	32.0	122
Primary	14.1	3872	44.9	1640
Secondary and above	11.5	1741	35.5	1211
Work status	*		***	
No	13.8	2915	54.8	775
Yes	12.1	3639	35.5	2198
Religion				
Protestant	12.3	4179	40.0	1739
Catholic	13.5	1767	41.2	882
Muslim/others	14.5	608	41.8	352
Ethnicity	***		***	
Kalenjin	9.0	1089	35.3	490
Kamba	14.0	684	37.3	327
Kikuyu	9.9	1072	43.3	460
Kisii	13.9	498	33.6	226
Luhya	13.3	934	36.0	422
Luo	13.6	873	46.2	364
Meru/Embu	20.0	426	47.0	230
Mijikenda/ Swahili/Taita	16.6	741	52.3	321
Others	8.9	237	30.1	133
Age	***		***	
15-19	28.3	787	66.2	465
20-24	15.1	1355	60.3	547
25-39	10.1	3261	35.2	1230
40-49 (54)	7.3	1151	18.5	731
Marital status	***		***	
Never married	35.2	1104	64.3	1093
Married (monogamous)	5.2	4040	23.6	1593
Married (polygynous)	8.8	759	25.9	162
Formerly married	26.7	651	68.0	125
Total women	**12.8**	**6554**	**40.6**	**2973**

*=p<0.05 **=p<0.01 ***=p<0.001

In relation to regions, the highest proportions of women and men who reported risky behaviour were in Nairobi (20%) and Coast provinces (50%) respectively. About one and half times as many women in urban areas as in rural areas reported engaging in risky sexual encounters. The urban-rural difference was statistically insignificant for the males. The proportion of women and men with primary education who reported engaging in high-risk behaviour is higher than for people with secondary and no education. The proportion of those with secondary education reporting risky sexual behaviour is only just higher than the no education group. Over 50% of men and 14% of women who said they were in paid work reported to have engaged in risky sex. In regard to ethnicity, high proportions of Meru/Embu and Mijikenda/Swahili/Taita-Taveta women and men, as well as Luo and Kikuyu men, reported risky sexual behaviour.

The results by age and marital status show similar patterns for women and men. Age is negatively associated with engaging in risky sexual behaviour. Higher proportions of young women and men (15-24 years) than older ones reported to have engaged in high-risk sexual behaviour (Figure 6.1).

Figure 6.1: Percentages of AIDS-aware and sexually experienced women and men by their reports of risky sexual behaviour in the last 12 months according to age, KDHS 1998

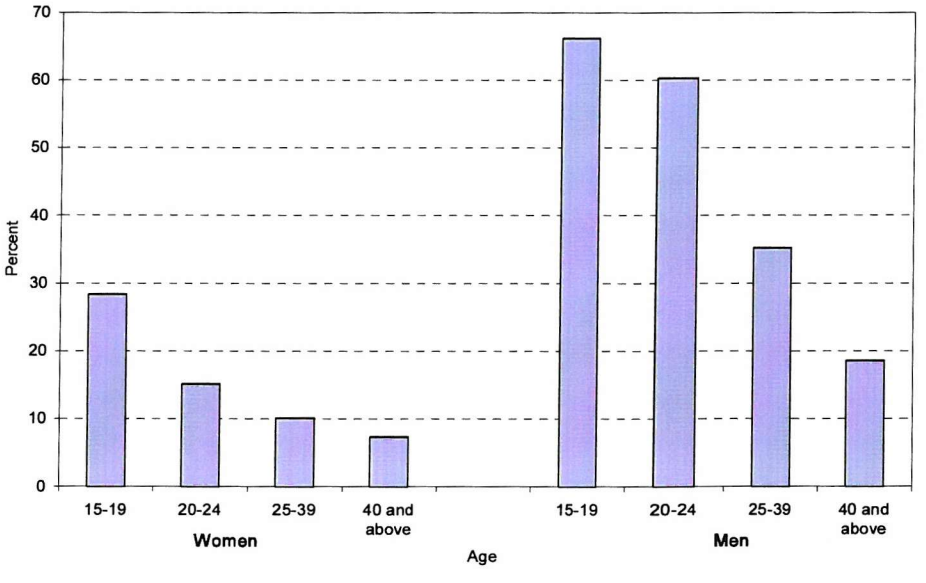
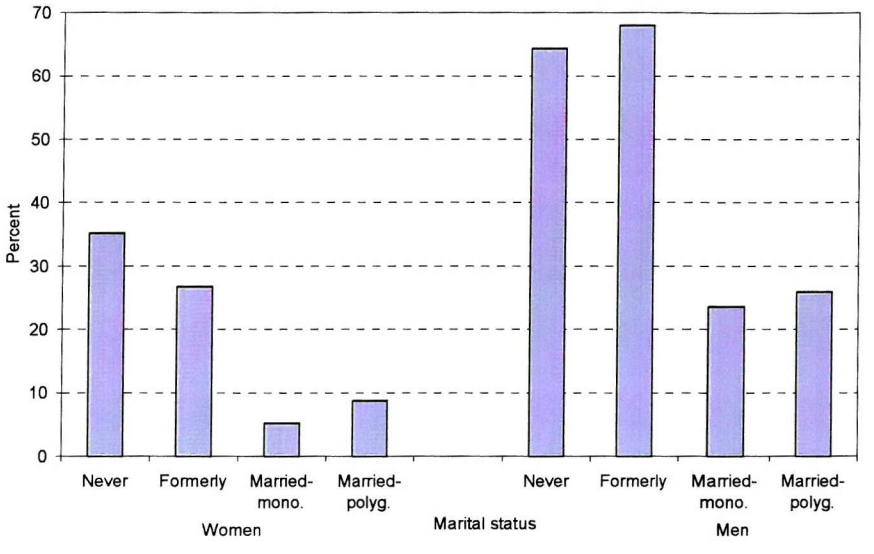


Figure 6.2 illustrates that a high proportion of women and men not in marital union (never married and formerly married) reported having engaged in risky sexual activity in the last 12 months. This pattern reflects the association between age and marital status on one hand, and marital instability on the other. The majority of young people would be unmarried at young

ages, and are most likely to form unstable serial monogamous relationships. Formerly married women and men are most likely to enter into risky sexual partnerships either as survival strategies or simply because of the new freedom of being away from marital obligations.

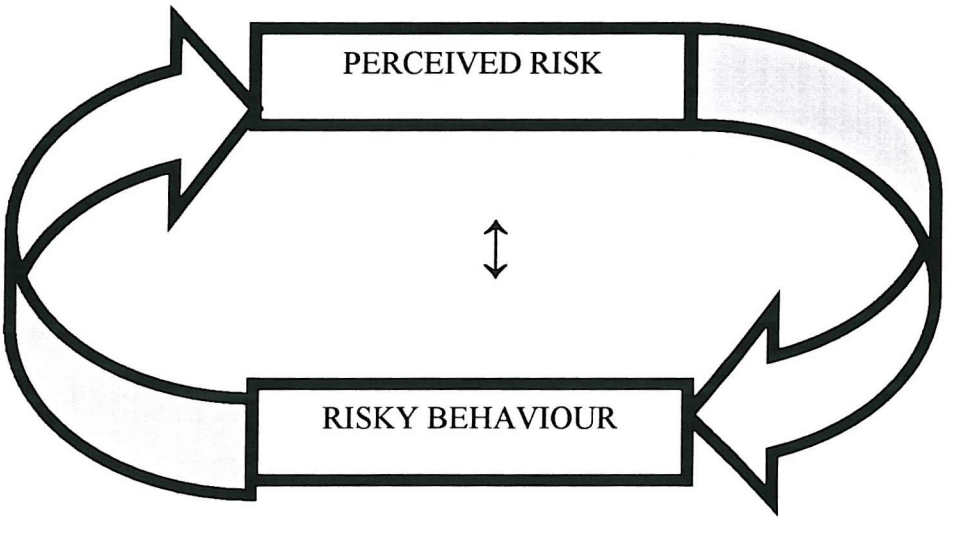
Figure 6.2: Percentages of AIDS-aware and sexually experienced women and men by their reports of risky sexual behaviour in the last 12 months according to marital status, KDHS 1998



6.4.2 Does Self-Perceived Risk Reflect Objective Risk?

It is more common to assume that behaviour is a predictor of perceived risk than vice versa, but perceived risk can also be influenced by behaviour as observed in Chapter 5 (see Section 5.7). In this chapter perceived risk is used as a predictor variable because of its two-way association with risky sexual behaviour as Figure 6.3 illustrates.

Figure 6.3: Reverse causal relationship between perceived risk and sexual behaviour

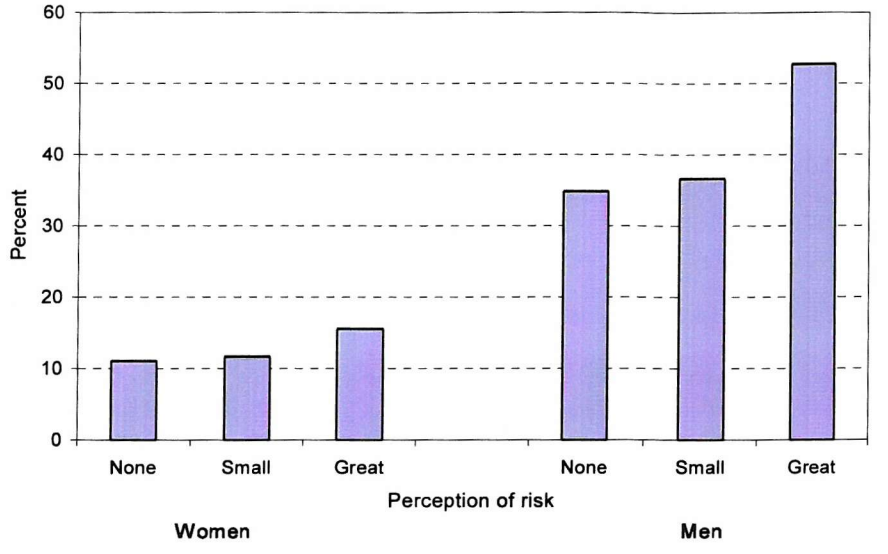


The analysis in this chapter acknowledges that the link between perception of risk and sexual behaviour could work both ways: perception of risk could influence or be influenced by sexual behaviour. Individuals may be put at risk of AIDS either actively (through own risky behaviour), or passively (through a partner whose behaviour is risky) or both passively and actively (if both partners in a relationship engage in risky behaviour which puts both of them at risk). Qualitative results in Chapter 4 show that individuals, particularly married ones, may feel at risk because of a partner's behaviour rather than because of their own behaviour. Other individuals perceived risk because of their own past risky sexual behaviour. It would, therefore, be expected that such individuals would be motivated to adopt effective AIDS prevention strategies. However, perception of risk resulting from either passive or active risky behaviour could also influence behaviour to be more risky depending on how individuals subjectively assess their chances of HIV infection. For example, subordinate women dependent upon men for economic and social support may feel at risk of HIV but still continue to have sex with their risky partners because of no alternatives. Similarly, individuals who assess their risk as high from past risky behaviour may not be motivated to adopt less risky behaviour even though they could do so because of suspecting that they might be already infected. Misperceptions about modes of transmission could also influence people to be complacent about AIDS particularly if individuals feel that it is difficult to avoid contracting AIDS. The association is further complicated by the fact that perceptions are not static as they are largely influenced by the social context and the nature of sexual interactions (see Section 5.2).

Figure 6.4 illustrates that association between self-perceived risk and objective risk behaviour is positive for both women and men: the higher the self-perceived risk the more likely the respondents are to report risky behaviour, although the results are more pronounced for men than women. Nevertheless, the majority of women who perceived themselves to be at great risk of HIV did not report any risky sexual behaviour. It maybe that this reflects women's fears of their partners' infidelity.

The results for men appear to depict the expected pattern. Over two-thirds of men who perceived themselves to be at small or no risk did not report any risky sexual behaviour. As expected, over 50% of men who perceived themselves to be at great risk also reported engaging in sexual behaviours objectively associated with a high risk of HIV infection. Three times as many men as women who considered themselves at small or no risk reported to have engaged in one or more of the risk behaviours.

Figure 6.4: Percentages of AIDS-aware and sexually experienced women and men by their reports of risky sexual behaviour in the last 12 months according to perception of risk, KDHS 1998



Further examination of the characteristics of women and men who did not report high-risk sexual activity but perceived themselves at high risk of HIV, and those reporting high-risk sex but perceiving themselves at low risk of HIV infection are given in Table 6.5. The results for women and men portray slightly dissimilar patterns. The results reveal that self-perceived risk appears to be underestimated by a majority of Kenyan men as it is not matched with objective risk associated with elevated chances of HIV transmission. However, women appear to over-estimate their risk when asked to rate it, as they were more likely to perceive moderate/great risk regardless of reported sexual behaviour in the last 12 months.

The percentage of women and men who reported high-risk sexual encounters but perceived themselves at small or no risk is remarkably high across most socio-demographic sub-groups. The exceptions are women and men in Nairobi, Nyanza, Western, and Rift Valley regions; of Kisii, Luhya and Luo ethnic groups; in older age groups and marital union. The percentages of women reporting high-risk sexual activity but perceiving themselves to be at low risk of HIV range from 40% (women in Western province) to 86% (women of 'other' ethnic group). Among men, the range is between 51% (Kalenjin men) to 80% (men in the Eastern province), with slight variations across and within subgroups. Over 50% of women reporting high-risk sex perceive low risk of HIV, but because most women do not engage in, or at least do not report high-risk sex, the number of women whose self-perceived risk is greater than their "real" risk is still much bigger than the number of women who under-estimate their real risk.

Table 6.5: Percentages of AIDS-aware and sexually experienced women and men reporting high-risk sex but perceiving small or no risk, and those reporting low-risk sex but perceiving moderate/great risk of HIV/AIDS by socio-demographic characteristics, KDHS 1998

Characteristics		Women				Men			
		Reported high-risk sex but perceive small/no risk		Reported low-risk sex but perceive moderate/great risk		Reported high-risk sex but perceive small/no risk		Reported low-risk sex but perceive moderate/great risk	
Region		**%**	**No. of cases**	**%**	**No. of cases**	**%**	**No. of cases**	**%**	**No. of cases**
	Rift Valley	54.9	162	33.2	1503	51.3	304	33.4	524
	Central	73.5	49	22.6	616	56.9	109	15.6	154
	Coast	69.1	165	21.6	830	71.0	238	10.1	237
	Eastern	64.5	152	30.5	812	80.4	184	7.9	290
	Nyanza	43.1	151	48.1	1028	59.9	207	22.4	272
	Western	40.4	94	44.3	641	67.6	105	31.4	191
	Nairobi	57.4	68	44.2	283	72.9	59	21.2	99
Residence									
	Urban	63.0	230	33.5	1009	69.1	249	18.0	356
	Rural	54.7	611	34.7	4704	62.8	957	23.0	1411
Education									
	No education	52.1	94	32.6	847	66.7	39	16.9	83
	Primary	56.7	547	34.3	3325	63.5	737	21.9	903
	Secondary+	60.0	200	35.9	1541	64.9	430	22.5	781
Work status									
	No	63.4	402	30.0	2513	71.3	425	18.6	350
	Yes	51.0	439	37.9	3200	60.2	781	22.8	1417
Religion									
	Protestant	55.3	514	35.5	3665	65.5	696	21.0	1043
	Catholic	59.0	239	34.2	1528	60.1	363	26.8	519
	Muslim/others	61.4	88	27.5	520	67.4	147	14.6	205
Ethnicity									
	Kalenjin	59.2	98	33.1	991	50.9	173	33.4	317
	Kamba	66.7	96	27.9	588	79.5	122	10.7	205
	Kikuyu	62.3	106	27.2	966	60.8	199	17.6	261
	Kisii	52.2	69	50.1	429	57.9	76	31.3	150
	Luhya	42.7	124	42.2	810	59.2	152	33.3	270
	Luo	41.2	119	44.7	754	61.3	168	19.4	196
	Meru/Embu	58.8	85	37.0	341	75.9	108	4.1	122
	Mijikenda/ Swahili/Taita	69.1	123	23.1	618	70.2	168	10.5	153
	Others	85.7	21	23.2	216	75.0	40	19.4	93
Age									
	15-19	67.7	223	28.0	564	69.2	308	15.3	157
	20-24	57.8	204	32.6	1151	63.9	330	22.6	217
	25-39	47.6	330	37.4	2931	60.5	433	24.8	797
	40-49 (54)	63.1	84	31.7	1067	64.4	135	19.6	596
Marital status									
	Never married	63.0	389	29.7	715	66.0	703	18.5	390
	Married monogamous	51.2	211	32.6	3829	59.6	376	21.9	1217
	Married polygynous	43.3	67	56.5	692	59.5	42	31.7	120
	Formerly married	55.8	174	24.3	477	70.6	85	27.5	40
Total women/men		**57.0**	**841**	**34.5**	**5713**	**64.1**	**1206**	**22.0**	**1767**

Note: The base categories for this table are all AIDS-aware sexually experienced women and men split by self reported high- or low-risk sexual behaviour and level of self-perceived risk, excluding women and men who reported high-risk sexual behaviour and perceiving themselves to be at moderate/great risk and those who reported low-risk behaviour and perceiving themselves to be at small/no risk. The assumption is that the categories of women and men excluded, to an extent, would appear to be realistic in their self-assessment of HIV risk.

As noted in Chapter 5 (see Table 5.8), results by region and ethnic groups seem to follow the spatial spread of HIV/AIDS in Kenya (GOK/ACU, MOH and NACC, 2001). For example, about half of the women who reported low-risk sexual activity in Nyanza (48%) and Western (44%) provinces perceived themselves to be at moderate/great risk of getting AIDS. Similarly, large proportions of women belonging to ethnic groups predominantly found in the Nyanza, Western and Rift Valley provinces (Kisii, Luo, and Luhya) who reported low risk sexual activity perceived themselves to be at great risk of AIDS. It is possible that the personal experience of AIDS-related illnesses and deaths for people in high prevalence regions shifts the perception of AIDS from being a distant to an immediate concern in the community.

A sizeable proportion of women who reported low-risk sexual behaviour in Nairobi province (44%) nevertheless perceived themselves at high risk of HIV. This result may be either indicative of high HIV/AIDS awareness levels or patterns of risky sexual behaviour associated with urban areas. People in urban areas are a select group, comprising a disproportionate number of young people, mainly males, with high education, in paid work, and so more likely to have access to relevant HIV/AIDS information. Besides, previous research has shown that urban areas are associated with high-risk sexual behaviour and higher HIV rates than rural areas, hence people's propensity to perceive themselves to be at high risk of HIV (Brockerhoff and Biddlecom, 1999; Nunn *et al.,* 1995, Anarfi, 1993). Urban residents are more likely to be free from the traditional control over sexual behaviour than their rural counterparts are. Freedom from the norms of socially acceptable behaviour may create opportunities for sexual activity as well as sexual risk-taking behaviour.

There are modest differences within and between women and men in reported risky behaviour and perception of risk by education levels. Nevertheless, over one and a half times as many women as men who reported low risk sexual activity perceived themselves at high risk of HIV regardless of education level.

The results by age depict that women and men in age group 15-19 years who reported high-risk sexual activity are more likely than older people to perceive themselves at small or no risk of HIV (women, 68% and men, 69%). This result may reflect inadequate knowledge or youthful denial of risk by young people as shown by findings in Chapter 4. Not surprisingly, 57% of women and 32% of men in polygynous unions who reported low-risk sexual behaviour perceived themselves at great risk. As noted in Chapters 4 and 5, being in a

polygamous union is potentially risky if the affected spouses are not faithful to their partners, and this is likely to make people perceive themselves at great risk of HIV.

6.5 Results of Logistic Regression Modelling

Tables 6.6 and 6.7 give results of the female and male logistic regression models fitted to examine the association between perception of risk and risky sexual behaviour while controlling for other correlates of sexual behaviour. All interactions fitted were not statistically significant for both females and males. The details of the parameter estimates for the logistic regression models are given in Appendices 6.1 and 6.2 respectively.

6.5.1 Logistic Regression Results for Females

The results of the gross effects model for females (See Model A, Table 6.6) are in the expected direction: a positive and a statistically significant relationship between perception of risk and risky sexual behaviour. Women who perceived themselves to be at small risk of HIV were not statistically significantly different from those who did not perceive any risk in the likelihood of reporting risky sexual behaviour.

The introduction of socio-demographic factors in the female model B (Table 6.6) did not change the direction of the association between perception of moderate/great risk and reported risky sexual behaviour but increased the odds ratios by 25% (1.49 to 1.86), whereas perception of small risk remained statistically insignificant. The positive association remained: the higher the perceived risk the more likely the women were to report risky sexual behaviour. For women who perceived themselves at moderate/great risk of HIV the odds of reporting risky sexual behaviour are 86% greater than for women who did not perceive risk.

Socio-demographic factors – education, residence, age, marital status, ethnicity and age at first sexual intercourse - were statistically significantly associated with reporting of risky sexual behaviour in Model B (Table 6.5). The results suggest that differences among women by individual characteristics may explain the likelihood of individuals engaging in risky sexual behaviour. Reporting of risky behaviour is most likely for women with primary education, in urban areas, of young age, who are not married and who had first sexual intercourse at or before 15 years of age. Women from the rest of the ethnic groups apart from the "other" were more likely than Kalenjin women were to report engaging in high-risk behaviour.

Table 6.6: Odds ratios for reporting of risky sexual behaviour in the last 12 months among AIDS-aware and sexually experienced women, KDHS 1998

Parameter	Model A Gross effects only	Model B Socio-demographic factors	Model C Knowledge factors	Model D Behavioural factors
Perception of risk of HIV (None)[R]				
Small	1.09	1.21	1.20	1.18
Moderate/great	1.49***	1.86***	1.85***	1.82***
Socio-demographic factors				
Education (primary)[R]				
None	-	0.91	0.89	0.90
Secondary and above		0.71***	0.73**	0.70***
Residence (rural)[R]				
Urban	-	1.50***	1.53***	1.45***
Age (15-19)[R]				
20-24	-	0.92	0.93	0.94
25-39		0.72*	0.74*	0.72*
40-49		0.43***	0.43***	0.43***
Marital status (married monogamous)[R]				
Never married	-	9.04***	8.88***	8.08***
Formerly married		8.15***	8.20***	7.92***
Married (polygynous)		1.66**	1.64**	1.67**
Ethnicity (Kalenjin)[R]				
Kamba	-	2.01**	1.92***	1.86***
Kikuyu		1.30	1.22	1.21
Kisii		1.74**	1.63*	1.66*
Luhya		1.88***	1.81***	1.78***
Luo		1.47*	1.39	1.38
Meru/Embu		3.18***	2.92***	2.75***
Mijikenda/Swahili/Taita-Taveta		2.35**	2.21***	2.12***
Other		1.20	1.18	1.08
Age at first sex (>15 years)[R]				
<15 years	-	1.27*	1.26*	1.26*
Don't know/missing		1.06	1.08	1.03
Knowledge factors				
Source of AIDS information (Mix of formal and non-formal)[R]				
Only formal	-	-	0.75*	0.73**
Only non-formal			1.02	1.01
Knowledge of mother to child transmission (Yes)[R]				
No	-	-	ns	1.30*
Behavioural factors				
Ever use of a condom to avoid AIDS (No)[R]				
Yes	-	-	-	1.94***

*=p<0.05 **=p<0.01 ***=p<0.001 [R]=Reference category - =Not entered in model ns=Not significant

The addition of knowledge and behavioural factors in Models C and D (Table 6.6) did not alter the direction and statistically significant associations evidenced in Model B. The effects of socio-demographic factors were dominant and remained consistently significant throughout the four models. The knowledge and behavioural factors significantly associated

with risky behaviour were source of AIDS information, knowledge of mother to child transmission and, ever use of condoms to avoid AIDS. Perception of small risk was statistically insignificant throughout the four female models. The results of the last model are therefore interpreted in this section.

When all other correlates of sexual behaviour were controlled for in Model D (Table 6.6), women with secondary education were statistically less likely to engage in risky sexual behaviour relative to women with primary education. Urban residence raises the chances of reporting risk behaviour by 45% compared to rural women. Age is negatively associated with the likelihood of engaging in high-risk behaviour. Women aged 25 or more years were less likely to report risky behaviour compared to women aged 15-19 years. Women aged 20-24 years were not statistically significantly different from those aged 15-19 years. Similarly, women who had first sexual experience before the age of 15 years were 1.3 times as likely to engage in high-risk sexual behaviour as women who had sexual debut at over 15 years. Never and formerly married women were 8 times and polygynously married women 1.7 times more likely than monogamously married women to report engaging in risky sexual behaviour. Women from other ethnic groups were 1.1 to 2.8 times as likely as Kalenjin women to report having engaged in risky sexual behaviour.

Accuracy of AIDS information is likely to inhibit women's risk behaviour. Women who heard about AIDS from only formal sources were 25% less likely than women whose sources were mixed (formal and non-formal) to have experienced high-risk sex. No significant difference exists between hearing about AIDS from a non-formal source only and mixed sources. Similarly, women who lacked knowledge of mother to child transmission were 30% more likely than women with such knowledge to have engaged in behaviour associated with increased risk of HIV transmission. Women who said they had used condoms to avoid getting AIDS had a 94% greater chance of reporting high-risk sexual behaviour relative to non-users. This result suggests the possibility of reverse causality discussed in section 5.2.

6.5.2 Logistic Regression Results for Males

The results for males depict similar patterns as for females throughout Models A to D (Table 6.7). The exception is that perception of small risk for men was statistically significantly associated with high-risk sex when other correlates of risky behaviour were controlled for (Table 6.7, models A to D). Like the female gross effects model, perception of risk is positively associated with high-risk sexual behaviour. Men who perceived themselves to be

at great risk were 2.2 times more likely than men who did not perceive risk to report high-risk sexual activity in the last 12 months.

Controlling for the effects of socio-demographic factors in Model B for the males (Table 6.7) almost gave similar results as were observed in the female Model. There is a positive and significant association between perception of risk and high-risk sexual behaviour and, the strength of the association improved (the odds ratios increased by 13% and 25% for perception of small and great risk respectively). Like the female models, there was a positive association; the higher the perceived risk the more likely the men were to report high-risk sexual behaviour. Men who perceived small or great risk of HIV were 38% and 176% respectively, more likely than men who did not perceive risk to report risky sexual behaviour. Almost similar socio-demographic factors – no education, young age, being unmarried, not being a Kalenjin and, earlier age at first sex were significantly associated with risky sexual behaviour.

Like the female Model, the direction and strength of the association between perceived risk and risky sexual behaviour almost remained the same and the odds ratios slightly increased with the introduction of knowledge factors in Model C (Table 6.7). Socio-demographic factors remained consistently significant. Lack of exposure to the mass media and hearing about AIDS from non-formal sources decreased men's chances of engaging in risky sex. Lack of knowledge and knowing both sexual and non-sexual modes of AIDS transmission were associated with risky behaviour for males.

The introduction of behavioural factors alongside all other correlates of risky sexual behaviour in Model D (Table 6.7) slightly attenuated the effects of perception of risk, suggesting a strong effect of use of condoms to avoid AIDS for men. The odds ratios decreased from 1.40 to 1.26 for perception of small risk and from 2.85 to 2.43 for perception of great risk, though the direction and strength of the association remained the same. Once more, the effects of socio-demographic factors remained consistently strong in influencing men's experiences of high-risk sexual behaviour. Similar to the female results the last model is used to interpret the male results.

Table 6.7: Odds ratios for reporting of risky sexual behaviour in the last 12 months among AIDS-aware and sexually experienced men, KDHS 1998

Parameter	Model A Gross effects only	Model B Socio-demographic factors	Model C Knowledge factors	Model D Behavioural factors
Perception of risk of HIV (None)[R]				
Small	1.22	1.38*	1.40*	1.26**
Moderate/great	2.21***	2.76***	2.85***	2.43***
Socio-demographic factors				
Education (primary)[R]				
None	-	1.08	1.16	1.26
Secondary and above		0.65***	0.66***	0.59***
Age (15-19)[R]				
20-24		1.10	1.07	0.91
25-39		0.85	0.83	0.75
40-54		0.36***	0.35***	0.39***
Marital status (married monogamous)[R]				
Never married	-	4.07***	4.10***	3.66***
Formerly married		7.03***	7.33***	5.99***
Married (polygynous)		1.23	1.20	1.04
Ethnicity (Kalenjin)[R]				
Kamba	-	1.22	1.23	1.28
Kikuyu		1.77***	1.74***	1.51*
Kisii		0.86	0.85	0.80
Luhya		1.52*	1.49*	1.65*
Luo		1.77***	1.73***	1.59*
Meru/Embu		1.86**	1.95***	1.88**
Mijikenda/Swahili/Taita-Taveta		2.74***	2.76***	2.39***
Other		1.11	1.09	1.17
Age at first sex (>15 years)[R]				
<15 years	-	1.58***	1.56***	1.56***
Don't know/missing		1.61	1.63	1.80*
Knowledge factors				
Exposure to the media (Some)[R]				
None	-	-	0.73*	ns
Knowledge of AIDS transmission (Mix of sexual and non-sexual)[R]				
Only sexual	-	-	1.26*	1.34*
Don't know			2.10*	2.73*
Source of AIDS information (Mix of formal and non-formal)[R]				
Only formal	-	-	1.07	1.08
Only non-formal			0.50**	0.57*
Behavioural factors				
Ever use of a condom to avoid AIDS (No)[R]				
Yes	-	-	-	4.05***

*=p<0.05 **=p<0.01 ***=p<0.001 [R]=Reference category - =Not entered in model ns=Not significant

Controlling for all correlates of risky sexual behaviour in Model D (Table 6.7) shows that men with secondary and above education were significantly less likely than men with primary level of education to have engaged in high-risk sexual behaviour. Age is negatively

associated with risky sexual behaviour: younger men are more likely than older men to report high-risk behaviour, though only the oldest men (40 to 54 years) have significantly reduced chance. Formerly and never married men were 6 and 4 times respectively more likely to have engaged in risky behaviour than monogamously married men. Polygynous men were not statistically different from monogamous men. With the exception of the Kisii, men from rest of the ethnic groups were between 1.2 to 2.4 times more likely to have had risky sexual encounters relative to Kalenjin men. Men who had first sexual intercourse before age 15 years had a 44% higher odds of reporting risky behaviour.

The effect of knowledge factors on men's risk behaviour is somewhat different from the women. There is no clear association between accuracy of knowledge about AIDS and reduction of risky behaviour among men. The significant effect of exposure to the mass media evidenced in Model C disappeared when the effect of use of condoms was controlled for. Surprisingly, men who reported hearing of AIDS from only non-formal sources were significantly less likely to report risky sexual behaviour than their counterparts who heard from formal sources. Likewise, men who did not know or with knowledge of sexual ways of contracting HIV were more likely to report risky sexual encounters as compared to men who reported both sexual and non-sexual knowledge. Ever use of condoms to avoid AIDS increased men's chances of engaging in risk-taking behaviour by over 4 times the men who had not used condoms.

6.6 Discussion

This chapter set out to examine the association between self-perceived risk and risky sexual behaviour among Kenyan women net of the effects of confounding covariates. Descriptive results indicated large differences between women and men in the experiences of high-risk sex, in addition to differences across subgroups of people. Among the sexually experienced and AIDS-aware, about four out of ten men as compared to one out of ten women reported high-risk sexual behaviour in the last 12 months (defined as having had multiple partners, a casual sexual partner, paid sex, and an STD). Notably high proportions of women and men who reported high-risk sex perceived themselves to be at no or small risk, suggesting that the majority of women and men do not objectively assess their risk.

The multivariate findings were in the expected direction: a positive significant association between perception of risk and risky sexual behaviour in the last 12 months for both women and men. Cleland (1995), and Ingham and Holmes (1991) also found similar positive associations between perceptions of risk and risky sexual behaviour using the WHO/GPA

data though both results could not be used to infer causality given the cross-sectional nature of the data. The results in this analysis also indicate the difficulty of using cross-sectional data in examining the association between perceived risk and sexual behaviour because of the possibility of reverse causation (see Chapter 5, section 5.2). The findings suggest that it is not easy to tell the stage at which perceived risk becomes effective in reducing risky behaviour or how perceptions motivate people's sexual behaviour. Findings in Chapter 4 indicated that personal feelings of vulnerability are very subjective and vary by context and time. Thus, sexual behaviour is more likely to be based upon subjective perceptions of risk rather than actual risk. Previous research in Kenya and elsewhere (Bauni and Jarabi, 2000; Nzioka, 1996; Ingham *et al.,* 1992b) and findings of IDIs in Chapter 4 suggest that individuals, particularly young people, often feel invulnerable to HIV infection. AIDS is seen as a distant rather than an immediate threat.

Another possible explanation to why the majority of women and men who reported high-risk sexual behaviour deny personal risk of HIV/AIDS might lie in the original emphasis of intervention efforts on high-risk groups (commercial workers and long distance truck drivers) (Kenya *et al.,* 1998). Individuals may perceive themselves at low risk even though they engage in risky sexual behaviour if they associate AIDS with certain groups of people. The fact that multivariate analysis showed a positive significant association between perceived risk and risky behaviour may suggest that Kenyan women and men make rational assessments of their own risk. Either people are aware of their past or current risky behaviour or they may be practising safer sex though they report high-risk sex, or they have developed a fatalistic attitude.

Reporting of behaviour change was not a significant predictor of risky sexual behaviour in the last 12 months. Perhaps this reflects the fact that people are likely to report normative behaviour rather than what they actually practice.

The results showed differences between population subgroups in risky sexual behaviour by socio-demographic, knowledge and behavioural factors. Young women and men in age group 15 to 19 years, the unmarried, those who had first sex before age 15 years, those with primary level of education, and those belonging to non-Kalenjin ethnic groups had significantly high chances of engaging in risky sexual behaviour. Previous studies in Kenya have recorded similar results (Kiragu and Zabin, 1995; Ajayi *et al.,* 1991; Ocholla-Ayayo and Schwarz, 1991). Age and marital status are closely linked in Kenya. The median age at first sexual intercourse in Kenya is currently estimated at 17 years for both males and females and the

median age at first marriage is estimated at 20 years for females and 25 years for males (NCPD, CBS, MI, 1999). A difference in the median age at first sexual intercourse and first marriage implies that there is some span of time spent in non-marital sexual relations.

It may be plausible to suggest that at age group 15-19 years, individuals are initiating sexual intercourse and are more likely to be in unstable relationships and to easily change sexual partners. Marriage is almost universal in Kenya, and so a higher proportion of women and men would be married than unmarried at the age of 25 or more years, hence are less likely to report risky sex. Marriage provides checks and balances on individual sexual behaviour. Societal norms in Africa expect faithfulness in marriage, particularly for women, with severe consequences in case of infidelity, even though multiple partners for men are easily tolerated (Fapohunda and Rutenberg, 1999; Caldwell *et al.,* 1993). Conversely, marriage dissolution creates new freedom away from marital obligations, hence the increased chances of formerly married women and men engaging in risk-taking behaviour.

Young women and men are also more likely than older ones to have experienced high-risk sexual activity perhaps because of being at the peak of their sexual lives. Other possible explanations for the association between age and risky sexual behaviour are as discussed in Chapter 4 section 4.8.1 and Chapter 5, section 5.6.

The finding that early age at sexual debut increases the likelihood of engaging in risky sexual encounters confirms results from previous research (Kiragu and Zabin, 1995) and echoes findings of IDIs in Chapter 4. At young ages (<15 years) adolescents are both physically and psychologically too immature to think about sexual risks. Like all young people all over the world, a period of adolescence may entail episodes of sexual experimentation: sexual partnerships may be easily formed and ended, considerably increasing chances of getting an HIV infection, particularly in relatively high HIV prevalence contexts like in Kenya. The possible explanation for the association between ethnicity and risky sexual behaviour is as discussed in Chapter 5 section 5.6.2 (see also Table 5.8).

Differentials in socio-economic status might be a possible explanation for the observed significant effects of education for both females and males and, urban or rural residence for females. Women and men with secondary education were less likely to report risky sexual behaviour. Perhaps, a high level of AIDS knowledge associated with high education levels discourages men and women from engaging in risk-taking behaviour. However, women who lived in urban environments had higher chances of engaging in high-risk sex than rural

women. Literature argues that freedom from traditional controls associated with urban environments may create opportunities for sexual risk-taking behaviour (Brockerhoff and Biddlecom, 1999; Anarfi, 1993).

Of the knowledge factors, the effect of the source of AIDS information was significant for both females and males. Mother to child transmission was significant for females as was knowledge of AIDS transmission for males. The differences evident in the knowledge variables may be suggestive of gender differentials in access to AIDS information (See Chapter 5, section 5.5.2). Accuracy of information was associated with low-risk sex for women, but it did not appear to deter risky behaviour for men. Cleland (1995) found a similar result using the WHO/GPA data and, concluded that knowledge alone is an inadequate condition to influence people's adoption of AIDS preventive measures. Possibly, accurate information leads people to make rational decisions. If men are aware of how to avoid risk behaviour and are able to institute such measures, they may practice safer sex. As expected, lack of knowledge or having inaccurate information appears to make both women and men engage in risk-taking behaviour. For a majority of people, peers and friends may be their main source of information. Messages obtained from community-level networks might be laced with inaccuracies and misperceptions that could influence risky sexual behaviour.

The positive association between "ever use" of condoms with partners to avoid AIDS and risky behaviour is in the expected direction, though it is difficult to infer causality due to the cross-sectional nature of the data. Condoms are most likely to be used with casual partners, and so there may be some endogeneity, that is, those who reported ever using condoms with their partners being those who have had risky sex, a reasonable option if people acknowledge potentially risky partners. If this is the case, then it reflects well on the success of AIDS prevention activities. However, use of condoms is still low in Kenya. In the 1998 KDHS, of all respondents, only 6% of women and 21% of men reported to have used condoms with any last partner compared to the proportion of women (13%) and men (40%) that reported risky sexual behaviour in the last 12 months.

6.7 Conclusions

The results in this chapter show a positive association between perceived risk and risky sexual behaviour, a reasonable finding if people acknowledge their behaviour puts them at risk of HIV infection. However, as mentioned in Chapters 4 and 5, people exposed to public AIDS awareness campaigns may report what they feel is the expected behaviour rather than what they actually practice.

The observed strong effects of education, age, marital status, ethnicity, age at first sex, accuracy of AIDS information, and "ever use" of condoms to avoid AIDS indicate that sexual patterns differ by population sub-groups. The significant effects of these factors suggest the influence of contextual and social factors on women and men's risk-taking behaviour. The findings suggest that rational perception of risk and sexual behaviour is likely to occur only when attention is directed towards inherent motivators of high-risk sex among different subgroups. For instance, if young and unmarried people believe in gaining sexual experience through multiple sexual relations due to social and cultural expectations of future manly or womanly roles, they may not associate multiple partners with the risk of HIV.

Though the results showed that having specific knowledge about AIDS deterred women from engaging in risky sexual behaviour, no clear association was seen with men's behaviour. The cross-sectional nature of the data and differences in sample size may partly account for this difference. But it may be plausible to say that knowledge alone is not an important motivator of low-risk behaviour for men; social norms governing sexual behaviour could encourage men to be risk takers. However, men were also more likely to use condoms than were women, which could have made men feel a sense of safety even though they reported risky behaviour. On the contrary, the results on condom use maybe reflecting reporting differences between men and women, or the different understandings of the question about condoms. The descriptive results showed that a majority of women, particularly in marital unions, who did not report risky behaviour perceived themselves to be at high risk of HIV citing their partner's infidelity as the reason. As noted in sections 4.9 and 5.7 of this thesis and other literature, the success of AIDS prevention may lie in addressing gender differences that inhibit women's roles in sexual decision-making and negotiation (UNAIDS, 2000a; Seidel, 1993).

This thesis has addressed the social context of perception of risk and sexual behaviour, correlates of self-assessed risk and high-risk sexual behaviour in Kenya. The next chapter summarises the policy, programme and research implications of the findings in light of the HIV/AIDS situation in Kenya.

CHAPTER SEVEN
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

This chapter provides a summary of the results of the analyses in this thesis in sections 7.2 to 7.4. The adequacy of the health behaviour models and the importance of complementary research methods are briefly discussed in sections 7.5 and 7.6. Sections 7.7 and 7.8 describe the implications for policy, programmes, and research. Fuller discussions of the results is done in prior chapters and so in order to avoid repetition, this chapter presents summaries only.

The general aim of this research was to provide a further understanding of the nature and type of sexual attitudes and behaviour enhancing the spread of HIV/AIDS in Kenya. Perception of HIV risk is considered the first stage towards adoption of less risky attitudes and practices. Without a cure or a vaccine, behavioural change remains significant in HIV/AIDS prevention in Kenya. This study was informed by an investigation of the association between people's self-perceived risk of HIV/AIDS and self-reported sexual behaviour. The study does not test any of the conventional health behaviour models.

The study objectives were addressed in different chapters employing different techniques of analysis. The first objective of this study, addressed in Chapter 4, sought to understand the social context of perceptions of AIDS risk, sexual behaviour, and behavioural change at the community and the individual levels (see framework in Chapter 2, section 2.3). Objective two was addressed in Chapter 5 by examining the socio-demographic, psychosocial and sexual behavioural factors associated with different levels of self-perceived risk of HIV infection as outlined in the conceptual framework. The component of the framework outlining the association between self-assessed risk and sexual behaviour, stated in objective three was investigated in Chapter 6.

The conceptual framework (see section 2.3) postulates that a range of factors at different levels of the social environment may influence sexual attitudes, norms, beliefs, and practices, which are likely to enhance or limit individual chances of contracting HIV. The characteristics of people associated with specific attitudes (self-perceived risk) and behaviour (risky sexual behaviour) and the nature and magnitude of these associations were investigated using the 1998 KDHS data. These quantitative analyses were used to characterise population sub-groups by perception of

HIV risk and sexual behaviour in order to identify those groups most at risk of HIV. The assessment of the nature and magnitude of the associations between perceptions of HIV risk and sexual behaviour helped in identifying the type of interventions that may need to be instituted for the different population sub-groups. Quantitative analyses were done using ordered and binary logistic regression modelling techniques accounting for survey design effects. Quantitative results can be generalised to the Kenyan population because the data are nationally representative and the parameter estimates are adjusted for survey design effects (unequal selection probability, clustering and stratification).

Qualitative data from focus group discussions (FGDs) and in-depth interviews (IDIs) were used to understand the community interpretations and meanings attached to sexual behaviour and the dominant discourses surrounding the risk of HIV infection. Qualitative findings, therefore, help to illustrate and explain some of the reasons for people's risk-taking behaviour in the face of HIV/AIDS. Unlike quantitative findings that can be generalised to the Kenyan population, qualitative data can only be interpreted in the light of the study communities.

The analyses in this study acknowledge the general limitations of studying perception of risk and sexual behaviour. More specifically, the limitations of using cross-sectional data collected with a broader aim of examining fertility, mortality and child health and not specifically sexual behaviour and HIV/AIDS are recognised. Nonetheless, this study provides important findings likely to aid in the design of AIDS policy and programmes and further research in Kenya.

7.2 The Social Context of Perception of AIDS Risk and Sexual Behaviour

The first objective of this study was to explore the socio-cultural environment in which people conceive and assess their risk of HIV, the common norms and discourses surrounding sexual behaviour and the risk of AIDS in the community, and the options for and barriers to behavioural change to avoid AIDS at the community and individual levels. This objective was achieved from qualitative data collected using focus group discussions (FGDs) and in-depth interviews (IDIs) and the results are described in Chapter 4. Men and women were compared at different contexts and stages of their sexual lives – at sexual initiation and in recent/current relationships; the young and the old; married and unmarried; and by ethnic/cultural affiliations. As hypothesised in the framework of this study, qualitative findings in this study support the hypothesis that the socio-cultural environment, in which people live and interact, has a strong influence on people's

sexual beliefs and practices, hence the spread of AIDS. The FGDs and IDIs, which complemented each other and the quantitative findings, showed broad agreement in findings, consistent with expectations and with prior research, though some differences were noted. The key findings from the FGDs and IDIs are summarised below:

- Regardless of gender, age and ethnic group, awareness of both biomedical and socio-cultural mechanisms of HIV transmission was high in the study communities. Knowledge of ways of preventing HIV infection was also widespread.

- Nonetheless, accurate knowledge co-exists with some level of misinformation regarding transmission mechanisms, particularly among older respondents. Consequently, misinformation has led to stigmatisation, ostracism of HIV infected individuals and affected children and families in both study communities.

- Premarital and extramarital sex was reported to be common in the communities and was stated to heighten the spread of AIDS.

- Young people, particularly the unmarried, were considered to be at greater risk of AIDS than the older and married ones.

- The need to prove manhood, peer pressure, women's subordinate position, young people partnering older ones, and negative attitudes towards condoms were reported to influence risk-taking behaviour among unmarried women and men in the study communities.

- All the FGD participants were unanimous that AIDS was a great risk to the communities, and they acknowledged its socio-economic impact. On the contrary, denial of risk was rife among all IDI respondents; illusion of personal invulnerability was common, as AIDS was not necessarily perceived to be great.

- At the community level, high perception of risk was informed by the prevalence of risky sexual behaviour, mainly attributed to the escalating poverty and to people considered as "high risk" (e.g. truck drivers, business men/women, policemen and people in the armed forces, sugar daddies and sugar mummies, young girls and boys, AIDS orphans and widows).

- Some risky cultural practices, such as widow inheritance, polygyny, a belief in witchcraft and *"chira"* (a curse from breaking a taboo) and marriage and fertility goals were prevalent, particularly in Kisumu, and were reported to heighten the risk of HIV infection in the communities.

- Individuals who perceived themselves at HIV risk mainly attributed it to the possibility of infection from a partner's infidelity, self-engaging in unprotected casual sex, risky cultural practices (e.g. widow inheritance), and to a lesser extent, non-sexual modes of HIV transmission.

- Individuals who perceived themselves to be at risk readily denied it. The partners' characteristics or one's own sexual behaviour informed denial of personal risk of HIV. Partners' young age, familiarity of a partner, and trustworthiness were used to judge partners as being safe from HIV. Others argued they were safe from contracting HIV because they were abstaining, using condoms, had had an HIV test, and were trusting and faithful to their partners.

- Serial monogamous relationships are not necessarily considered as risky. Individuals feel invulnerable because they maintain sexual loyalty at a given point in time.

- Regarding behavioural change options, all participants generally mentioned use of condoms, abstinence, fidelity and monogamy, uptake of HIV testing, communication with partners, and avoidance of risky cultural practices. Nonetheless, various contradictions and barriers to behaviour change were cited that reflected a mismatch between knowledge, intentions and behaviour.

- Participants advocated condom use in risky sexual contacts yet strongly rejected the idea of using them in their own relationships. Among all women and men, condoms connote mistrust, promiscuity and the presence of an infection, as well as decreased sexual pleasure. People hold fears and misperceptions about condoms that include: they can slip into the woman's womb and could cause death; they have holes that allow sperm to pass; they are laced with the HIV virus, and that they can burst.

- Women stated abstinence, faithfulness and monogamy are beyond their power to effect. Similarly, all participants stated that use of condoms and abstinence were unrealistic behavioural change options for married people or those in stable relationships.

- From IDIs, most women reported having been coerced or forced into first sexual intercourse.

- Both women and men found it difficult to initiate talks concerning sexual matters, although there was some evidence to suggest that this is changing among young people.

- The cost and the social stigma of undergoing an HIV test appear to hamper the uptake of these services.

7.3 Factors Associated with Levels of Self-Perceived Risk of HIV

The second objective of this study sought to characterise women and men by different levels of self-perceived risk and to examine factors associated with these perceptions. This objective was investigated in Chapter 5 using ordered logit multivariate analyses, and accounting for survey design effects with data drawn from the 1998 KDHS. Analyses were done separately for women and men (who were aware of AIDS) in order to examine gender differences in self-assessed HIV risk. Appendix 7.1 displays a summary of the results obtained from the multivariate analyses. As hypothesised, various factors influence self-assessment of HIV risk. The findings support the hypothesis that the possibility of reverse causation makes it difficult to disentangle causal relationships between perceived risk and sexual behaviour. Thus, the study focused on examining associations and not causality that is not possible with cross-sectional data. The key findings are summarised below:

- There are large differences between women and men in self-perceived risk. Twice as many women than men perceived themselves to be at moderate/high risk of HIV. Women were more likely than men to perceive themselves at high risk because of the possibility of infection from their partners' risky behaviour, while men who perceived their risk to be high said so because they had multiple sexual partners.

- Men were more likely than women to perceive themselves to be at small or no risk because they used condoms.

- Women and men belonging to ethnic groups (Kisii, Luo, and Luhya) living in high HIV prevalence regions (e.g. Nyanza, Western, Nairobi), married women, and polygynously married and Catholic men were more likely to perceive themselves to be at moderate/great risk of HIV infection.

- Young and unmarried women and men were more likely to perceive themselves to be at small or no risk of HIV.

- Among both women and men, accuracy of knowledge about modes of AIDS transmission and ways of preventing AIDS were associated with high perception of HIV risk, although these effects were modest.

- Self-perceived risk of contracting HIV was significantly higher among women and men reporting high-risk sexual behaviour, those who reported ever using condoms with their partners to avoid AIDS, and among those who reported sexual behavioural change in response to AIDS. However, self-perceived risk did not rise strikingly with reported risky sexual behaviour. Over two-thirds of both women and men perceived themselves to be at small or no risk of HIV regardless of whether or not they reported high-risk sex.

- Men who reported having had an HIV test perceived themselves to be at small or no risk of AIDS, but HIV testing was insignificant among women.

- The typologies or states of perceived risk that emerged from the findings imply a need for targeted AIDS messages and varying behavioural change options for various population subgroups.

7.4 The Association between Perception of HIV/AIDS Risk and Sexual Behaviour

The third objective of this study was to characterise risky behaviour by gender according to background, socio-demographic, psychosocial/knowledge and preventive behavioural factors, and to examine the association between self-perceived risk and self-reported risky sexual behaviour, net of other confounding correlates of risky sexual behaviour. This objective was achieved in Chapter 6 and was limited to people who were aware of AIDS and who had ever had sexual intercourse. Multivariate logistic regressing modelling accounting for survey design

effects was again applied to the 1998 KDHS data. The hypothesis that knowledge about AIDS and perception of risk deters risky behaviour was not strongly supported by the findings, particularly among men. Those who perceived high risk also reported risky sexual behaviour. A summary of the results is shown in Appendix 7.1. The key findings are summarised below:

- Similar to results in Chapter 5, large gender differences existed in the experiences of high-risk sex, in addition to differences across population groups. Among the AIDS-aware and sexually experienced sample, about four out of ten men compared with one in ten women reported high-risk sexual behaviour in the last 12 months (defined as having had multiple partners, a casual sexual partner, paid sex, and an STD).

- For both women and men, perception of risk is positively associated with reporting of risky sex: higher levels of self-perceived risk increased the chances of reporting risky sex.

- Knowledge factors were less important in influencing men's chances of having risky sex, suggesting that knowledge alone does not influence behaviour. However, accuracy of knowledge reduced the chances of high-risk sex among women. Women who heard of AIDS from sources classified as formal (radio, television, newspapers and health personnel) were less likely to report high-risk sex than their counterparts who heard about AIDS from non-formal sources (community-level networks). On the contrary, men were more likely to report having had risky sex if their source of AIDS information was formal rather than non-formal. Knowledge of mother to child transmission deterred risky sex among women, while a lack of or having knowledge of sexual modes of AIDS transmission did not do so among men.

- Women and men who reported ever using condoms with their partners to avoid AIDS were between two and four times more likely to report high-risk sex than those who had not used condoms.

- Women and men who were non-Kalenjin, in the age group 15-19 years, never married, formerly married, and had first sex before age 15 years are at higher risk of HIV infection due to risky sexual behaviour.

- Women in urban areas were more likely to have had risky sex compared to their rural counterparts.

- For both women and men, the odds of having risky sex decrease with increasing education levels.

7.5 A Note on Health Behaviour Models

It was not an aim of this thesis to explore any particular existing health behaviour theories. For this reason, no fuller discussion of these theories is considered in this study. Nevertheless, it is worth mentioning some insights that have emerged from this thesis regarding the appropriateness of the conventional theoretical models of human behaviour in the context of AIDS in Kenya.

The results of this study have shown that the self-empowerment model for skill development and not the knowledge provision model, as most paramount in Kenya. Knowledge alone is inadequate in influencing people's adoption of safer sexual practices. Qualitative findings indicate that individuals justify their behaviour using socially derived scripts that may be unrealistic but all the same meaningful to them.

The western models of behaviour change, which emphasize individual behaviour and responsibility, are not useful in explaining human behaviour. As noted by Ingham et al. (1992b), western models are too individualistic, rationalistic and static, whereas human behaviour is dynamic and embedded in socio-cultural norms and practices. AIDS education has to take account of prevailing explanations of health or illness and death, which may be the driving force behind people's health-related decisions. Preventive personal behaviour may not be so easy in communities that have specific expectations about sexual behaviour appropriate for men and women. As it appears, the knowledge base regarding bio-medical causes of AIDS is high but many Kenyan women and men are not translating this into action, suggesting that neither knowledge nor perceptions of risk can be the starting point for behaviour change. The social context must be considered in its entirety before interventions are implemented.

Overall, the results show remarkable gender differences in sexual attitudes and behaviour that make the traditional models of health behaviour inapplicable in Kenya. The gender power imbalance in sexual decision-making and negotiation makes women passive actors in their own sexual health. Men perceived themselves at small or no risk, yet were three times more likely

than women to report high-risk sex. Although fewer women reported high-risk sex, twice as many women as men perceived themselves at high risk of HIV. The reasons for women's high perceptions lie in the fear of the possibility of infection through their partners' risky sexual behaviour. These results imply that gender-oriented strategies remain the key to AIDS prevention in Kenya.

7.6 Using Quantitative and Qualitative Data

The importance of complementary methodologies in studying sexual behaviour was highlighted in Chapter 3. Findings in this study have been derived from quantitative and qualitative data collected using focus group discussions and in-depth interviews. Integration of methodologies proved useful in gaining insights into the research question from different perspectives as supported by findings in this study.

The findings from both methodologies showed broad agreement albeit with some differences, mainly attributed to the nature of information that could be derived from each. Quantitative findings were able to answer the questions on levels, patterns, and the magnitude of specific behaviour, but could not provide explanations for these observations. For example, qualitative findings provided possible explanations for young people's risk-taking behaviour observed in quantitative findings that showed that young people (15-24) were less likely than older people to perceive themselves to be at no risk of HIV, yet had higher levels of risk-taking behaviour than older ones.

The qualitative findings were also able to show that FGDs are good for eliciting opinions and norms common to the community that do not necessarily require participants to reveal their own personal behaviour. On the other hand, IDIs are good for collecting more personal and sensitive information related to intimate sexual experiences that would require a respondent to admit to socially unacceptable behaviour, not possible in group discussions. For example, uptake of HIV testing did not appear to be popular in FGDs due to the stigma attached to it. In the end, rich information was obtained from IDIs when some people from the FGDs were interviewed individually, and about half stated that they had had an HIV test, suggesting that some individuals may have chosen to conceal their personal preference for an HIV test so as to be seen to conform to prevailing beliefs and normative behaviour. Thus, IDIs were able to provide respondents with an atmosphere to express their personal sexual lives without inhibitions.

Similarly, the differences in perceptions of risk at the community and individual levels also demonstrate the need for using different methodologies to explain social behaviour. At the community level (FGDs), perception of great risk was universal. But when HIV risk was contextualised at the individual level, it was not necessarily great. Individuals interviewed in-depth used different criteria for denying being at HIV risk, while ignoring aspects of their personal or partner's risky behaviour, suggesting that the sense of personal invulnerability may be what interventions should target rather than generalised exhortations about AIDS.

Furthermore, reasons for gender differences in sexual attitudes and behaviour observed in quantitative findings were amplified in FGDs and IDIs. Qualitative results were able to reveal why twice as many women and men perceived themselves at risk of HIV, particularly married women. FGDs and IDIs showed evidence of gender power imbalance in sexual decision-making and negotiation, especially in risk preventive measures. Discussions with women showed that for most of them, instituting HIV preventive measures is not within their ability since men made most decisions regarding condom use, abstinence, and fidelity.

In summary, the support for combining quantitative and qualitative methodologies is evident throughout the findings in this thesis, and has proved valuable. The methodologies complemented each other and were able to show agreement or divergence in attitudes and behaviour, thus providing richer interpretation to the data. One approach would have been inadequate in addressing the research question.

7.7 Policy and Programme Implications

The 1998 KDHS was not designed primarily to inform the national HIV/AIDS policy and programmes. Nonetheless, the KDHS provides nationally representative data useful in examining patterns, levels and characteristics of people's AIDS knowledge, sexual attitudes and behaviour in the context of AIDS in Kenya. From the analyses in this study, a number of policy and programme implications have emerged that might be useful in guiding AIDS control initiatives. The implications can be broadly summarised as those relating to: gender power imbalances, socio-demographic differentials, AIDS messages, HIV risk-preventive strategies, socio-cultural factors, and poverty.

Gender power imbalances

- A finding that cuts across all chapters is the apparent gender differences in sexual attitudes and behaviour that appear to act as major barriers in AIDS prevention efforts in Kenya. Although women are more likely than men to perceive themselves to be at high risk of HIV, they were less likely to report high-risk sex. In addition, women are less likely than men are to report using condoms with their partners. These results suggest gender power imbalance in sexual decisions and negotiation. To this end, there is a need for the government and programmes to design legislation and interventions that will empower women with skills of protecting themselves against infection from non-supportive partners, and should instil a notion of equal responsibility among partners in protecting each other against HIV infection. At the same time, programmes must design interventions that address women and men as complementary actors and not as separate individuals. Programmes need to focus on the development of effective communication strategies between the genders. For AIDS control activities to succeed, men must be seen as partners and not problems in behaviour change.

Socio-demographic differentials

- The significance of age and marital status as determinants of perception of risk and sexual behaviour was consistently evident throughout the findings. Being young and unmarried is associated with low perceptions of risk and high-risk behaviour. From the qualitative findings, sexual risk-taking appears to start from sexual initiation, implying that young people are at risk of HIV right from the start of their sexual lives. The need to target young and unmarried people with accurate AIDS messages is important since risky sexual behaviour and HIV prevalence is highest in this group. The future course of the AIDS epidemic in Kenya lies within the sexual behavioural change of young people. The young and unmarried sexually active people might need to be targeted with messages of abstinence, or fidelity and monogamous relationships for those who cannot abstain. Individuals in marital unions could be targeted with fidelity and monogamy messages since advocating abstinence or the use of condoms in relationships that are expected to be faithful would seem unrealistic or even counter-productive. This will ensure that messages are realistic and relevant to the individual life experiences.

- The results also show socio-economic (education, urban-rural residence, work status and religion) differentials in sexual attitudes and behaviour of women and men. Policy and

programmes should consider designing specific AIDS prevention interventions that address the needs of different segments of the population at different levels of HIV risk rather than being general exhortations relayed to the whole population. Programmes should target subgroups most at risk of HIV.

AIDS messages

Findings suggest that AIDS messages may not be addressing the needs of all people in Kenya. Behaviour change campaigns have been promoted at the expense of social contexts.

- Both quantitative and qualitative findings showed that the majority of people appear to embrace distorted perceptions of risk, while ignoring more risky aspects of their partners' or one's own sexual behaviour. IDI results showed that people relied on social networks for information about their partners' sexual histories. AIDS prevention messages need to highlight that the idea of 'knowing' a partner is deceptive. Messages need to emphasize to people the importance of using reliable measures of risk such as taking an HIV test. Thus, programmes need to reinforce the idea of equal vulnerability (*"it can happen to me"*) among both women and men in order to dispel illusions of invulnerability (*"it cannot happen to me"*). The emphasis in AIDS messages needs to be placed on explaining biomedical information in lay language.

- Accuracy of specific knowledge about AIDS heightened self-perceived risk and deterred risky sexual behaviour among women and not men. The results for men suggest that knowledge alone does not influence men's change in behaviour, and reflect the central role they play in sexual decision-making. Therefore, policy and programmes need to design legislation and interventions respectively, that will bridge the gender gaps by encouraging couple communication and joint sexual decision-making and negotiation.

- Qualitative findings also showed that stigma and discriminatory practices against PLWHA are rife in some communities in Kenya, suggesting that AIDS awareness campaigns have not managed to extricate from people distorted perceptions of risk. This calls for the government and other advocacy groups to create a supportive environment for the PLWHA through legislation and public education. The uptake of VCT services need to be popularised and de-stigmatised so that people can know their HIV status in order to dispel fears related to the possibility of deliberate transmission.

- Manipulative, coerced or forced sex was an issue raised by the majority of women, although this should be interpreted with caution because of the contradictions in some opinions. People ignore past risky behaviour of their partners and themselves. Messages should emphasise the long latency period of the AIDS virus in order to encourage people to adopt safer behaviour with all partners and to discourage forced sex. AIDS messages should put emphasis on the fact that all acts of sexual intercourse are potentially risky unless between uninfected monogamous partners. Thus, the importance of medically establishing the HIV status of partners should be popularised and supported.

- As friends or peers and the media are the major sources of AIDS information for most people, the use of peer educators to purvey information should be developed. Messages could be made more appealing by delivering them through channels that different subgroups of people identify with, such as specially tailored radio and television programmes and magazines targeting specific audiences.

HIV Prevention Strategies

- Qualitative findings revealed the challenges men and women face in AIDS prevention strategies. Behavioural change is hindered by gender differences and negative attitudes and misperceptions. For example, behavioural change options of fidelity, monogamy, and abstinence seem to be unrealistic among women living with promiscuous men. For married women, these are not within their power to bring about. And for many girls, the possibility of sexual assault or rape is a reality. These are all aspects that policy and interventions should strive to address through legislation and life skills improvement programmes.

- Condoms were also considered unnecessary in marriage and stable relationships, and suggestion of their use is taken to connote mistrust, unfaithfulness and having an STI. Programmes have to strive to improve the image of condoms as an effective and safe prophylactic against infections and pregnancy. Clearer AIDS messages need to be devised in order to reverse the negative perceptions about condoms and promote use in a more positive way; the emphasis on "use with a distrusted partner" should be stopped and replaced with use for dual protection. The need to promote condoms as a responsibility for both women and men is paramount if the negative perceptions about them are to be reversed.

Socio-cultural factors

The importance of culture in shaping people's sexual lives is evident in this study. Thus, cultural approaches to AIDS prevention and care have to take into account communities references and resources in building a framework for strategies and policies.

- An important finding that cuts across all the analyses is the existence of regional and ethnic differentials in sexual attitudes and behaviour, suggesting a linkage between social groups, culture and the risk of HIV infection in Kenya. Ethnicity and regions are closely linked in Kenya. Generally, ethnic groups such as the Luo, Luhya, and Kisii predominant in regions that have consistently had high HIV prevalence (Nyanza, Western, Nairobi and parts of Rift Valley and Coast regions) appear to perceive higher risk of HIV and to report high-risk sex. Similarly, ethnic groups such as the Kikuyu and Kamba predominantly found in Central and Eastern Kenya consider themselves at low risk of HIV though they were likely to report high-risk sex. It appears that an experience of AIDS illnesses and morbidity increases people's sense of vulnerability though it does not necessarily reduce high-risk sexual activity. Educational programs aimed at increasing AIDS awareness and change in sexual behaviour, from high-risk to low risk, may have to identify salient factors that cause some communities to perceive and others not to perceive themselves at risk despite the threat of the AIDS pandemic in almost all parts of the country. Interventions need to account for context and culturally specific risk behaviours likely to enhance the spread of AIDS. AIDS prevention strategies might need to address the normative component of behaviour change, with an aim of changing entrenched risky cultural beliefs and practices influencing the spread of HIV/AIDS and other STDs. Programmes need to encourage people to discard risky practices, but at the same time, provide alternatives that will improve people's sexual health. Such programmes need to focus both at the societal and individual levels, and to address people's lived realities and experiences.

- The societal expectations to marry and have children to continue one's lineage were reflected in people's fears of AIDS risk. AIDS policies and programmes must reconcile socio-culturally driven fertility goals vis-à-vis their biomedical health concerns. Programmes can utilise the prevailing fertility scripts to encourage both men and women to be sexually responsible for their own health and that of their partners if they must have healthy children, and the continuity of their lineage.

- The social paradigm of proving manhood and showing male prowess among young men needs to be targeted before boys reach their sexual maturity in order to reduce risks at sexual initiation.

Poverty

- Finally, the frequency with which poverty was linked to paid sex in FGDs needs particular attention in AIDS prevention efforts. AIDS prevention strategies must acknowledge and address poverty, which is alleged to make the women, particularly young girls, and to some extent men, resort to sexual survival strategies, consequently heightening their risk of HIV infection. The majority of people in Kenya, as the rest of sub-Saharan Africa live in resource-poor contexts and for most of them their concerns are basic needs of food, shelter, etc. Essentially, unless interventions address these basic needs of target populations, the AIDS messages of HIV prevention may not translate into behaviour change. Most people have greater survival problems that supersede the looming danger of HIV infection. The social structure that favours men means that without support, women cannot avoid engaging in paid sex. Thus, behaviour change initiatives need to have a component of income generation and life support skills to address poverty, which could be a cause and effect of risk-taking behaviour in Kenya.

7.8 Recommendations for Further Research

This study has contributed to an enhanced understanding of the implications of specific AIDS knowledge, levels of self-perceived risk and risky sexual behaviour on the spread of HIV/AIDS in Kenya. The study has also identified some research priorities:

- An examination of the nature and possibility of reverse causation in the outcomes in this study has not been possible from the cross-sectional data used. An extensive longitudinal study would be most appropriate for understanding the relationships between knowledge, perceptions of risk and sexual behaviour, substantially important in AIDS control in Kenya, although the cost implications are high.

- Similarly, an examination of the interrelationships between knowledge, perceptions of risk and sexual behaviour in this study presented methodological problems because of the possibility of endogenous relationships inherent in the variables. Standard multivariate statistical techniques could not be used to examine the pathways through which variables

are interrelated. Thus, there is a need for an application of simultaneous modelling techniques to account for heterogeneity and endogeneity. Further research utilising simultaneous models would be useful in disentangling the complex relationships between knowledge, perception of risk and sexual behaviour.

- This study has only provided information on the levels, patterns and the nature of the association between knowledge, perception of HIV risk, and sexual behaviour but does not provide direct information on the appropriateness and cost-effectiveness of different public awareness campaigns. As a result, there is a need for more focused context-specific operational research. Research to evaluate the impact of existing AIDS messages is needed in order to gain an understanding of how people learn and interpret information, and translate it into action. Such research should compare young people's experiences before sexual initiation, at sexual initiation, and at later stages of their sexual lives under different socio-cultural environments, in and out of school, and unmarried and married status.

- This study has also shown the importance of complementary research methodologies for a broad understanding of the motivations and attitudes that underlie people's sexual behaviour. Studies using a mix of methods – quantitative, qualitative and hospital-based data should be encouraged to gain an understanding of the social meanings and explanations people attach to their sexual behaviour, as well as the magnitude, nature and incidence of different attitudes and behaviour among different population subgroups.

- Research is also needed to understand the extent and incidence of sexual coercion, forced sex, and rape in order to understand how people conceptualise their sexual risk under such contexts. This was an issue most women alleged to be common during sexual initiation.

- Similarly, studies are needed to investigate the association between poverty and risky sexual behaviour among different Kenya communities. The dominance of this theme in the qualitative research suggests that poverty is the underlying factor behind risky sexual practices in the communities.

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APPENDICES

Appendix 3.1: Focus Group Discussion Sift Questionnaire

Introduction
My name is _____. I am from the University of Nairobi. We are conducting a study on sexual health matters and relationships between men and women in this community. We are particularly interested in how people get sexual health information, how women and men behave sexually, and what people feel about sexual health services. We feel that by talking to people like you we can best find out the practices, opinions and feelings about these issues in order to help us improve sexual relationships between men and women and health services in general in the country.

I will greatly appreciate your help in responding to this interview. Would you take some minutes to answer a few questions?

FGD Sift Questionnaire

I will start by asking questions about yourself			
		Categories	Codes
Q1	District		
Q2	Division		
Q3	Location		
Q4	Sub-location		
Q5	Sex	Male Female	1 2
Q6	How old are you now?	15-19 20-24 25-29 30+	1 2 3 4
I would like to ask you about your marital status			
Q7	Have you ever been married or lived with a man/woman as if you were married?	Currently married Ever married Never married	1 2 3 > **END**
Q8	How long have you been married?	Less than a year 1-3 years 4-5 years 6+ years	1 2 3 4

Thank you for answering these questions. We are holding a discussion group at (*give venue and time*). This will be a confidential informal discussion among 8-10 young/married/unmarried/older women and men like yourself. We are interested in understanding your opinions on what people feel about sexual relationships and what can be done to improve relations between men and women in this community. This will assist the government and other institutions to make sexual health services better. I assure you that the discussions will be confidential and no knowledge is necessary. Participants will be served with refreshments during the discussion. We shall appreciate if you would participate as we are interested in your opinions. Are you willing to take part in this discussion? Yes No

For interviewer's use only: Please circle the appropriate group for participant.

Group 1: 15-24 a. Young unmarried females
b. Young unmarried males
Group 2: 15-29 a. Recently married females
b. Recently married males
Group 3: 30+ a. Older married females
b. Older married males

Appendix 3.2: Focus Group Discussion Guide For Unmarried Women And Men

Introduction to FGD Sessions

We would like to thank you all for coming today. My name is ____. My colleague(s) is/are called _____and ____. We are from the University of Nairobi. We are conducting a study on sexual health matters in this community. Some of the topics we are going to discuss concern sexual relationships between men and women and HIV/AIDS. We are particularly interested in how people get sexual health information, how women and men behave sexually, and what people think about the relationships between women and men. We feel by talking to people like you we can best find out about practices, opinions and feelings about these issues in order to help us improve sexual relationships between men and women and health services in our country.

There are no wrong or right answers. We are interested in your views, so please feel comfortable to say what you honestly feel. I have a list of topics I would like us to talk about but please feel free to bring up any other issues you feel are relevant.

During the discussion _____ will be taking notes to keep track of what has been covered, and to remind me if I forget to ask certain things. However, so that s/he does not to have to worry about getting every word down on paper, we will also record the discussions on tape. Please, do not let that worry you. The tapes and written material will be kept safe and not shared outside the research team. After writing our report, all the tapes and written notes will be erased, so no one will know who said what.

Regarding the language, we want you to feel comfortable throughout the talk, so please just use the language that you use when you chat with friends. Finally, please try to let everyone have a turn at saying something, since all your views are important, and please try to keep the talk within the group. The discussion is confidential. Are there any questions? Please may we begin.

Ice-breaker
Ask each participant to introduce themselves (first names only) and what they do.

Focus group discussion Guide – Unmarried women and men

A. Knowledge and sources of sexual and HIV/AIDS information

Q1. How do girls/boys like yourselves know about matters concerning sex, contraception, STDs, and HIV/AIDS? (Explore **what** issues are talked about with different people; Formal and non-formal sources - friends, siblings, parents, other relatives, teachers/school, church, medical, media – magazines/newspapers, films, radio).
Probes:
a) Do you find it easy or difficult to talk about these issues with the people you have mentioned? Please explain.
c) In your opinion, which is the most important source of sexual information? Please explain.

Q2. What do girls/boys like yourselves want to know about sexual matters? How would you like to get this information?

B. Sexual relationships
Q3 At what age do you think boys and girls in this community start to have girl/boy friends?

Q4. At what age would you say boys and girls in this community start having sexual intercourse? (Probe for motivations for sex, proportions pre-maritally sexually active; opinions about premarital sex, sexual pressure, coercion)

Q5. A) **(FOR GIRLS ONLY).** If a boy feels like making love with his girl and the girl does not want to, what can the girl do? How does the boy react? What reasons might be there for a girl to refuse to have sex with her partner?

B) **(FOR BOYS ONLY).** If a boy feels like making love with his girl the girl does not want to, what can he do?

C. Perception of risk of HIV/AIDS, risk-aversion strategies and sexual decision-making

Q6. In your opinion, what can happen to boys/girls like yourselves as a result of sex? (Awareness of sexual risks).**Probes:** a) What risks are girls/boys likely to worry about? b) Who should be responsible for protecting against these risks? (**Explore** gender differences for preventing different types of risks)

Q7. As far as you know, how do people (in general) get AIDS?

Q8. To what extent do you think HIV/AIDS is a risk to this community? Please explain? (**Explore** risky sexual practices and/or cultural beliefs and practices). What are the consequences of this disease for the family? In your opinion are boys and girls of your age in danger of contracting AIDS? Why/why not?

Q9. In your opinion, what are boys/girls in this community doing to reduce their chances of getting STDs/HIV/AIDS? **Probe:**Do you think there are some people (in general) who know that they can get HIV/AIDS and are doing nothing to prevent it? What kind of people are they? What are the reasons for their risk-taking behaviour?

Q10. In your opinion, what does practising 'safer sex' mean? (Sexual modes of STI/AIDS prevention).

Story for discussion
Facilitator/moderator: Kazuri is a girl who has a boy friend called Fagia who works and lives in town. Kazuri stays in the village and Fagia regularly goes to see her. But Kazuri is worried because she has heard that Fagia has other girl friends in town. She does not know what she should do about their relationship. She does not want to leave Fagia, but she is also afraid he will give her AIDS.

Q11. What do you think Kazuri should do? (Probes: If Kazuri does what you are saying, how do you think Fagia will react? What are your opinions on condoms? What are the advantages of condoms? What are the disadvantages of condoms? (**Explore** uses and beliefs about condoms; When is condom use acceptable? With whom should condoms be used?)

Probes:
FOR GIRLS ONLY: Can a girl suggest to her boy friend using condoms? How can she ask him? How will he respond? We have heard that not all girls can suggest to their boy friends using condoms? What can you tell us about that? c) If the boy does not want to use condoms, can the girl convince him? How? In general are girls willing to use condoms? What about boys? Please explain. Where can a person get condoms? Is it easy or difficult for you girls to get condoms?? Please explain.

FOR BOYS ONLY: Do you need your girl friend's permission to use condoms? Why not? b) In general are boys willing to use condoms? What about girls? Please explain. c) Where can a person get condoms? Is it easy or difficult for you boys to get condoms? Please explain.

Q12. Do you think that a girl/boy should talk to a boy/girl about the fears she/he has of contracting AIDS? How can she/he bring up the subject? How will he/she react?

Q13. You girls/boys know what AIDS is about. Do you believe you have a responsibility to protect yourselves? To protect your partners? Probe: Would you inform your partner if you had STD? Why/why not? How about AIDS? Why/why not?

E. Conclusion
We are reaching the end of the discussion. Does anyone have anything to add or say before we switch off the tape recorder? Do any of you have any comments on how you feel it went? Before you came, did you expect anything like this?

Just before you go, could you fill this short questionnaire (we have few questions to ask each one on their own). This gives us some basic information on who takes part in these discussions. We do not need to know your name as it is anonymous, confidential.

END: Thank you very much for participating in this discussions.

Appendix 3.3: Focus Group Discussion Guide For Married Women And Men

Focus group discussion Guide – Married women and men

A. Knowledge and sources of sexual and HIV/AIDS information

Q1. How do married women/men people like yourselves know about matters concerning sex, contraception, STDs, and HIV/AIDS? (Explore **what** matters are talked about with different people; formal and non-formal sources - friends, siblings, parents, other relatives, teachers/school, church, medical, media – magazines/newspapers, films, radio).
Probes: a) Do you find it easy or difficult to talk about these issues with the people you have mentioned? Please explain. c) In your opinion, which is the most important source of sexual information? Please explain.

Q2. What do married women/men like yourselves want to know about sexual matters? How would you like to get this information?

B. Sexual relationships

Q3. Do you think married couples make plans to have sex? **Probe:** Who decides when to have sex?

Probes: In your opinion, would married couples discuss anything sexual before having sex?
What sort? Why not? (Probes: contraceptive use, STD/sAIDS). Who starts the discussions before having sex? Can a woman suggest to her husband to have sex? Please explain?

Q4. **(FOR WOMEN ONLY)** If a man feels like making love with his wife and the wife does not want to, what can wife do? How does the man react? What reasons might be there for a married woman to refuse to have sex with her husband?

(FOR MEN ONLY) If a husband feels like making love with his wife and the wife does not want to, what can the husband do?

Q5. What is your opinion on extramarital sex? Probes: Is having an extra-marital sexual partner among married women/men acceptable or not acceptable in this community? Is there punishment for extra-marital sex? Are there differences between men and women? In your opinion what makes married women/men have outside partners? What type of married men/women are likely to have extra-marital sex? What type of people would they have extra-marital sexual relations with?

Q6. Do you have any views on sex between unmarried couples? **Probes:** a) At what age would you say young people in this community start having sex? In your opinion, do you think this is too early, too late or about right? Please explain? b) What proportion of young men/women in this community do you think are sexually active? Is having a sexual partner among unmarried boys/girls acceptable or not acceptable in this community? Is there punishment/reward for pre-marital sex? Are there differences between boys and girls?

C. Perception of risk of HIV/AIDS, risk-aversion strategies and sexual decision-making

Q7. In your opinion, what can happen to married women/men like yourselves as a result of sex? (Awareness of sexual risks). **Probes:** a) What risks are married women/men more likely to worry about? b) Who should be responsible for protecting against these risks? (**Explore** gender differences for preventing different types of risks)

Q8. As far as you know, how do people (in general) get AIDS?

Q9. To what extent do you think HIV/AIDS is a risk to this community? Please explain? (**Explore** risky sexual practices and/or cultural beliefs and practices). What are the consequences of this disease for the family? In your opinion are married people of your age in danger of contracting AIDS? Why? As far as you know, are unmarried girls and boys in this community in danger of contracting AIDS? Why? How do you think you might help young people avoid getting AIDS? If you knew they were sexually active, would you advise young people to use condoms? Why not?

Q10. In your opinion, what are married men/women in this community doing to reduce their chances of getting STDs/HIV/AIDS? Probe: Do you think there some people (in general) who know that they can get HIV/AIDS and are doing nothing to prevent it? What kind of people are they? What are the reasons for their risk-taking behaviour?

Q11. In your opinion, what does practising 'safer sex' mean? (Sexual modes of STI/AIDS prevention). **Probe:** Would you say it is easy or difficult for married men/women in this community to adopt 'safer sex' practices? Are there differences between men and women in what you are saying?

Story for discussion
Facilitator/moderator: Kazuri is married to Fagia who works and stays in town. Kazuri stays in the village and Fagia regularly goes to see her. But Kazuri is worried because she has heard that Fagia has other sexual partners in town. She does not know what she should do about their relationship. She does not want to leave Fagia, but she is also afraid he will give her AIDS.

Q12. What do you think Kazuri should do? Probes: If Kazuri does what you are saying, how do you think Fagia will react? What are your opinions on condoms? What are the advantages of condoms? What are the disadvantages of condoms? (**Explore** uses and beliefs about condoms; When is condom use acceptable? With whom should condoms be used?)

Probes:
FOR GIRLS ONLY: Can a wife suggest to her husband using condoms? How can she ask him? How will he respond? We have heard that not all wives can suggest to their husbands using condoms? What can you tell us about that? c) If the husband does not want to use condoms, can the wife convince him? How? In general are wives willing to use condoms? What about husbands? Please explain. Where can a person get condoms? Is it easy or difficult for you women to get condoms?? Please explain.

FOR MEN ONLY: Do you need your wife's permission to use condoms? Why not? In general are married men willing to use condoms? What about married women? Please explain. Where can a person get condoms? Is it easy or difficult for you men to get condoms? Please explain.

Q13. Do you think that a woman/man should talk to her husband/wife about the fears she/he has of contracting AIDS? How can he/she bring up the subject? How will he/she react?

Q14. You married women/men know what AIDS is about. Do you believe you have a responsibility to protect yourselves? To protect your partners?) Please explain what you have said. Probe: Would you inform your partner if you had STD? Why? How about AIDS? Why?

D. Conclusion
We are reaching the end of the discussion. Does anyone have anything to add or say before we switch off the tape recorder? Do any of you have any comments on how you feel the discussions went? Before you came, did you expect anything like this?

Just before you go, could you fill this short questionnaire (we have few questions to ask each one on their own). This gives us some basic information on who takes part in these discussions. We do not need to know your name as it is anonymous.

END: Thank you very much for participating in this discussion.

Appendix 3.4: Questionnaire For FGD Participants

Identification number:_____ **(e.g. R1)**
Group description:_____ **(e.g. unmarried or recently married, 20 years)**
Introduction
The purpose of asking the following questions is to know some basic information on who takes part in these discussions. Please remember that we do not need to know your name as it is anonymous and confidential.

I will start by asking questions about yourself			
		Categories	Codes
Q1	District	Kisumu Kiambu	1 2
Q2	Division		
Q3	Location		
Q4	Sub-location		
Q5	Sex	Male Female	1 2
Q6	How old are you now?	15-19 20-24 25-29 30+	1 2 3 4
Q7	**Never married only:** Have you ever had sexual intercourse?	Yes NO	1 2
Q8	Have you ever attended school	Yes No	1 2
Q9	What is the highest level of school you attended?	Primary Secondary University	1 2 3
Q10	What is your religion?	Catholic Protestant SDA Muslim	1 2 3 4

Appendix 3.5: In-depth Interview Guide for Unmarried Women and Men

Introduction to in-depth interview session (for unmarried, with sexual experience)

My name is ____. I am from the University of Nairobi. We are conducting a study on sexual health matters and relationships between men and women in this community. Some of the topics we are going to discuss concern sexual relationships between men and women and HIV/AIDS. We are particularly interested in how people form sexual relationships, how women and men behave sexually, and what people feel about sexual health services. We feel that by talking to people like you we can best find out about practices, opinions and feelings about these issues in order to help us improve sexual relationships between men and women and health services in our country.

I have a list of topics I would like us to talk about but please feel free to bring up any other issues you feel are relevant. Some of the questions that I am going to ask on sexual behaviour and relations may be sensitive. I assure you that the interview is completely anonymous. Your name will not be written on this form and will never be used in connection with any of the information you tell me. You do not have to give me an answer to any questions that you do not wish to respond to and you may stop this interview at any time. However, your honest responses to these questions will help us to understand better what people think, say and do with regard to relationships between men and women and sexual health matters.

During the discussion I will be taking notes to keep track of what we have covered, and to remind me if I forget to ask certain things. However, so that I do not have to worry about getting every word down on paper, we will also record the discussion on tape. Please, do not let that worry you. The tape and written material will be kept safe and not shared outside the research team. After writing our report, all the tapes and written notes will be erased, so no one will know what you said.

Regarding the language, I would like you to feel comfortable throughout the talk, so please just use the language that you use when you chat with friends. Once again this discussion is confidential. Are there any questions you wish to ask? Please may we begin.

IN-DEPTH INTERVIEW ICE BREAKER: BACKGROUND INFORMATION–UNMARRIED WOMEN AND MEN (Please fill and attach the completed form to the individual's transcript)
Identification number_____ **(e.g. R1)**
Group description: _____ **(e.g. unmarried or recently married, 20 years)**

	I will start by asking questions about yourself		
		Categories	Codes
Q1	District	Kisumu Kiambu	1 2
Q2	Division		
Q3	Location		
Q4	Sub-location		
Q5	Sex	**Male** Female	1 2
Q6	How old are you now?	15-19 20-24 25-29 30+	1 2 3 4
	I would like to ask you about your marital status		
Q7	Have you ever been married or lived with a man/woman as if you were married?	Currently married Ever married Never married	1 2 3 **TO 10**
Q8	How long have you been married/were you married?	Less than a year 1-3 years 4-5 years 6+ years	1 2 3 4
Q9	**Never married**: Have you ever had sexual intercourse?	Yes NO	1 2
Q10	Have you ever attended school	Yes No	1 2

Q11	What is the highest level of school you attended?	Primary Secondary University	1 2 3
Q12	What is your religion?	Catholic Protestant Seventh Day Adventist Muslim Other None	1 2 3 4 5 6
Q13	What do you do for a living?	Salaried/wage employee Business person Farmer Domestic work Student Other (specify) _____	1 2 3 4 5 6

In-depth interview Guide – Unmarried women and Men

A. Sexual relationships: Nature and process

Please tell me about your general sexual experiences. How many sexual partners have you had in your life? Have you had sex in the last 12 months? With how many partners? Have you had sex in the last 4 weeks? With how many partners? (Probe: casual or serious; concurrent or serial monogamous; sex for exchange of money/gifts/favours).

First sexual Intercourse

Now I would like to ask you about your first sexual intercourse. At what age did you first have sexual intercourse? Was this someone of the same age?

Q1. Did you have sexual intercourse with your first boyfriend partner? **If not, what person did you first have sex with?** How long after starting your relationship did you have first sex? What sexual activities did you engage in before having first sexual intercourse?

Q2. At the time did you consider this relationship to be serious or casual? Why? Do you think he/she considered the relationship as serious/casual? Why?

Q2. Did you want to have sex when you had it the first time? Please explain. (**Probes**: what influenced you to have sex the first time?. At what place did you have sex the first time? Who decided that you have sex?

Q3. In general, how did you feel after your first sexual intercourse?

Q4. Did you talk to your first sexual partner about his/her previous sexual experiences? Did your first sexual partner ask you about your previous sexual experiences?

Q5. Did you seek information about your first sexual partner from anyone? Where from and what about?

Q6. Did you use any form of contraception the first time you had sex?
Probes: (If yes), which method(s) of contraception did you use? How did you get them? Who decided that you use that method?Why did you use that/those methods during your first sex and not another method?

Q7. Did you continue to have sexual intercourse with your first sexual partner? How long did the relationship last? **Probes:**a) **(If contraception used at first sex?)** Did you continue to use contraception all the time you had sex with your first sexual partner? b) What methods did you use? How did you get them? c) Why did you use that/those methods and not another method?

Q8. **(If contraception not used every time)** Why do you think you did not use contraception every time you had sex with your first sex partner?

Q9. **(If didn't use contraception at first sex)** After first sex in which you did not use contraception, did you consider using any form of contraception later in your relationship with your first sexual partner?
Probes: a) Can you remember why you started using contraception? Who decided that you use contraception? b) What methods did you use? How did you get them? c) Why did you choose to use that/those methods during sex and not another method?

Q10. **If never used contraception at all)** Why do you think you never used contraception at all with your first sexual partner?

Q11. Did you talk about contraception with your first sexual partner?
Probes: a) **(If yes)** Who started the talk? Can you remember when you talked about it, was it some time or just before sex, during sex, after sex or perhaps not on the first time but afterwards during or in a later occasion of sex? b) Can you remember how you or your first sexual partner started the subject of contraception? What were some of the things you both said? Did you talk about condoms? What did you talk about condoms? c) **(If not talked)** Can you remember if there was any reason(s) you did not talk about condoms with your first sexual partner?

Q12. Did you ever talk with anyone about your first sexual experience? What type of person did you talk to and what did you talk about?

If respondent has had more than one sexual partner in her/his life time and has had had a partner in the last 12 months, ask about the current or most recent sexual partner

Now I would like to ask you about your current/most recent sexual partner? Is this someone of the same age?

Q13. How long after starting your relationship did you have sex with your current/recent partner?

Q14. Do/did you consider this relationship to be serious or casual? Why? Do you think he/she considers/considered the relationship as serious/casual? Why?

Q15. Do/did you always want to have sex when you have/had it with your current/recent partner? Please explain. (Probes: What influences/influenced you to have sex with your current/recent partner?). Where do/did you usually have sex? Who decides that you have sex?

Q16. Do/did you talk to your current/recent sexual partner about his/her previous sexual experiences? Did your current/recent sexual partner ask you about your previous sexual experiences?

Q17. Did you seek information about your current/recent sexual partner from anyone? Where from and what about?

Q18. Do/did you use any form of contraception with your current/recent sexual partner?
Probes: **(If yes)**, which method(s) of contraception do/did you use? How do/did you get them? Who decided that you use that method? Why do/did you use that/those methods and not another method?

Q19. How long have you had/did you have the relationship with your current/most recent sexual partner?
a) Do/did you continue to use contraception all the time you have/had sex with your current/recent sexual partner?
b) What methods do/did you use? How do/did you get them? Why do/did you use that/those methods and not another method?

Q20. **(If contraception is/was not used every time)** Why do you think you do/did not use contraception every time you have/had sex with your current/recent partner?

Q21. **(If does not/didn't use contraception)** Do/did you consider using any form of contraception later in your relationship with your current/recent sexual partner? Why? What methods? How will you/did you get them? Why would you /did you choose to use that/those method(s) and not another method?

Q22. Have you (did you) talked about contraception with your current/recent first sexual partner?
Probes:
a) **(If yes)** Who started the talk? Can you remember when you talked about it, was it some time or just before sex, during sex, after sex or perhaps not on the first time but afterwards during or in a later occasion of sex?

b) Can you remember how you or your current/recent sexual partner started the subject of contraception? What were some of the things you both said? Did you talk about condoms? What about did you talk?
c) **(If not talked)** Can you remember if there was any reason(s) you have not/did not talk about condoms with your current/recent sex partner?

B. Perception of risk and risk-aversion strategies

Q23. Looking back since the time you became sexually active up to now, what risks are you likely to have faced as result of having sex?

Q24. What are you more worried about? Why? What makes you take these risks?

Q25. In your opinion, do you fear that your sex life might have put you in danger of contracting AIDS? Why? Would say currently you are in danger of contracting AIDS? Why? Have you ever talked to any of your sexual partners about the fears you have of contracting AIDS? Who started the subject? What did you talk about? How did your partner react?

Q26. What have you done to reduce your chances of getting STDs/HIV/AIDS? Have you ever had HIV/AIDS test? ? **If yes**, what made you have a test? **If not**, have you ever considered having one? Why? Do you personally feel that it has been easy or difficult for you to protect yourself against getting HIV/AIDS? Why? Is there a difference between you and your sexual partners in what you are saying, or feel?

Q27. Do you feel your partners have had other sexual partners? Why? How do you feel about this?

Q28. Would you say that you have ever been pressured into sex? What sort and how?

Q29. **(If has ever used condoms)** Has your use of condoms changed since hearing about HIV/AIDS? **Probe**: more or less regularly? When did the change occur? What made you change? **If has never used condoms**: Are you considering using condoms in future?

Q30. Can you suggest condom use to your partner? Please explain. a) If your partner does not want to use condoms, can you convince him/her? How? b) In general, are you willing to use condoms? Why? c) Is your partner willing to use condoms? Why?

Q31. Would you inform your partner if you had STD? Please explain. How about AIDS? Please explain.

Conclusion
We are reaching the end of our discussion. Do you have anything you would like to add or say regarding sexual behaviour and HIV/AIDS? Do you have any comments on how you feel it went? Before you came, did you expect anything like this? Thanks so much for your time and responses.

Appendix 3.6: In-depth Interview Guide for Married Women and Men

Introduction to in-depth interview session

IN-DEPTH INTERVIEW ICE BREAKER: BACKGROUND INFORMATION – MARRIED WOMEN AND MEN (Please fill and attach the completed form to the individual's transcript)

Identification number _____ **(e.g. R1)**

Group description: _____ **(e.g. unmarried or recently married, 20 years?)**

I will start by asking questions about yourself			
		Categories	Codes
Q1	District	Kisumu Kiambu	1 2
Q2	Division		
Q3	Location		
Q4	Sub-location		
Q5	Sex	**Male** Female	1 2
Q6	How old are you now?	15-19 20-24 25-29 30+	1 2 3 4
I would like to ask you about your marital status			
Q7	Have you ever been married or lived with a man/woman as if you were married?	Currently married Ever married Never married	1 2 3 **TO Q10**
Q8	How long have you been married/were you married?	Less than a year 1-3 years 4-5 years 6+ years	1 2 3 4
Q9	**Never married**: Have you ever had sexual intercourse?	Yes NO	1 2
Q10	Have you ever attended school	Yes No	1 2
Q11	What is the highest level of school you attended?	Primary Secondary University	1 2 3
Q12	What is your religion?	Catholic Protestant Seventh Day Adventust Muslim Other None	1 2 3 4 5 6
Q13	What do you do for a living?	Salaried/wage employee Business person Farmer Domestic work Student Other	1 2 3 4 5 6

In-depth interview Guide – Married women and men

A. Sexual relationships

Please tell me about your general sexual experiences. How many sexual partners have you had in your life? Have you had sex in the last 12 months? With how many partners? Have you had sex in the last 4 weeks? With how many partners? (Probe: casual or serious; concurrent or serial monogamous; sex for exchange of money/gifts/favours).

First sexual Intercourse

Now I would like to ask you about your first sexual intercourse. At what age did you first have sexual intercourse? Was this someone of the same age?

Q1. Did you have sexual intercourse with your first boyfriend partner? **If not, what person did you first have sex with?** How long after starting your relationship did you have first sex? What sexual activities did you engage in before having first sexual intercourse?

Q2. At the time did you consider this relationship to be serious or casual? Why? Do you think he/she considered the relationship as serious/casual? Why?

Q2. Did you want to have sex when you had it the first time? Please explain. (**Probes**: what influenced you to have sex the first time?. At what place did you have sex the first time? Who decided that you have sex?

Q3. In general, how did you feel after your first sexual intercourse?

Q4. Did you talk to your first sexual partner about his/her previous sexual experiences? Did your first sexual partner ask you about your previous sexual experiences?

Q5. Did you seek information about your first sexual partner from anyone? Where from and what about?

Q6. Did you use any form of contraception the first time you had sex?
Probes: (If yes), which method(s) of contraception did you use? How did you get them? Who decided that you use that method?Why did you use that/those methods during your first sex and not another method?

Q7. Did you continue to have sexual intercourse with your first sexual partner? How long did the relationship last? **Probes:**a) **(If contraception used at first sex?)** Did you continue to use contraception all the time you had sex with your first sexual partner? b) What methods did you use? How did you get them? c) Why did you use that/those methods and not another method?

Q8. **(If contraception not used every time)** Why do you think you did not use contraception every time you had sex with your first sex partner?

Q9. **(If didn't use contraception at first sex)** After first sex in which you did not use contraception, did you consider using any form of contraception later in your relationship with your first sexual partner?
Probes: a) Can you remember why you started using contraception? Who decided that you use contraception? b) What methods did you use? How did you get them? c) Why did you choose to use that/those methods during sex and not another method?

Q10. **If never used contraception at all)** Why do you think you never used contraception at all with your first sexual partner?

Q11. Did you talk about contraception with your first sexual partner?
Probes: a) **(If yes)** Who started the talk? Can you remember when you talked about it, was it some time or just before sex, during sex, after sex or perhaps not on the first time but afterwards during or in a later occasion of sex?
b) Can you remember how you or your first sexual partner started the subject of contraception? What were some of the things you both said? Did you talk about condoms? What did you talk about condoms? c) **(If not talked)** Can you remember if there was any reason(s) you did not talk about condoms with your first sexual partner?

Q12. Did you ever talk with anyone about your first sexual experience? What type of person did you talk to and what did you talk about?

Ask the respondent about the current spouse.

Now I would like to ask you about your spouse. Is your spouse of the same age? How long after meeting your spouse did you get married?

Q13. Do you always want to have sex when you have it with your spouse? Please explain. Do you plan when to have sex with your spouse? Who decides when to have sex, you or your spouse?

Q14. Before or after marriage, did you talk to your spouse about his/her previous sexual experiences? Did your spouse ask you about your previous sexual experiences?

Q15. Did you seek information about your spouse from anyone? Where from and what about?

Q16. Do you use any form of contraception with your spouse? Probes: **(If yes)**, which method(s) of contraception do you use? How do you get them? Who decided that you use that method? Why do you use that/those methods and not another method?

Q17. Do you use contraception all the time you have sex with your spouse? What methods do you use? How do you get them? Why do you use that/those methods and not another method?

Q18.. **(If contraception not used every time)** Why do you think you do not use contraception every time you have sex with your spouse?

Q19. **(If does not/didn't use contraception)** Do you consider using any form of contraception later with your spouse? Why? What methods? How will you get them? Why would you choose to use that/those methods and not another method?

Q20. Have you talked about contraception with your spouse? **Probes:** a) **(If yes)** Who started the talk? Can you remember when you talked about it, was it some time or just before sex, during sex, after sex or perhaps not on the first time but afterwards during or in a later occasion of sex? b) Can you remember how you / or your spouse started the subject of contraception? What were some of the things you both said? Have you talked about condoms? What have you talked about condoms? c) **(If not talked)** Can you remember if there is any reason(s) you have not talked about condoms with your spouse?

Perception of risk and risk-aversion strategies

Q21. Looking back since the time you first became sexually active up to now, what risks are you likely to have faced as result of having sex? What are you more worried about? Why? What makes you take these risks?

Q22. In your opinion, do you fear that your sex life might have put you in danger of contracting AIDS? Why? Would you say currently you are in danger of contracting AIDS? Why? Have you ever talked to your spouse about the fears you have of contracting AIDS? Who started the subject? What did you talk about? How did your spouse react?

Q23. What have you done to reduce your chances of getting STDs/HIV/AIDS? Have you ever had HIV/AIDS test? **If yes**, what made you have a test? **If not**, have you ever considered having one? Why/why not? Do you personally feel that it has been easy or difficulty for you to protect yourself or your spouse against getting HIV/AIDS? Why? Is there a difference between you and your spouse in what you are saying, or feel?

Q24. Do you feel your spouse has outside sexual partners? Why? How do you feel about this?

Q25. Would you say that you have ever been pressured into sex by your spouse? How? By anyone else? What sort and how?

Q26. **(If has ever used condoms)** Has your use of condoms changed since hearing about AIDS? **Probe**: more or less regularly? When did the change occur? What made you change? **If has never used condoms**: Have you considered using condoms in future?

Q27. Can you suggest condom use to your spouse? Please explain. a) If your spouse does not want to use condoms, can you convince him/her? How? b) In general, are you willing to use condoms? Why? c) Is your spouse willing to use condoms? Why?

Q28. Would you inform your partner if you had STD? Why? How about AIDS? Please explain.

Conclusion

We are reaching the end of our discussion. Do you have anything you would like to add or say regarding sexual behaviour and HIV/AIDS, particularly among married couples? Do you have any comments on how you feel it went? Before you came, did you expect anything like this? Thanks so much for your time and responses.

Appendix 3.7: Codebook for Qualitative Data

(F 1)	Kiambu
(F 2)	Male
(F 3)	Unmarried
(F 4)	Information
(F 4 1)	Information/Friends/peers
(F 4 2)	Information/Church
(F 4 6)	Information/Home/parents
(F 4 7)	Information/Television
(F 4 8)	Information/Role plays
(F 4 9)	Information/Radio
(F 4 10)	Information/Siblings
(F 4 12)	Information/Magazines/books
(F 4 13)	Information/Medical/clinics/hospital
(F 4 14)	Information/School
(F 4 15)	Information/Films
(F 4 16)	Information/information difficult
(F 4 17)	Information/Information preferred
(F 4 18)	Information/Initiation ceremonies
(F 4 20)	Information/Community meetings
(F 4 21)	Information/Seminars
(F 4 22)	Information/Funerals
(F 4 23)	Information/Other
(F 4 24)	Information/workplace
(F 4 25)	Information/Women groups
(F 4 28)	Information/CBDs
(F 5)	Kisumu
(F 7)	Pre-marital sex
(F 8)	Sexual partners
(F 9)	Sexual places
(F 10)	Sexual relations
(F 11)	Commercial sex
(F 12)	Sexual motivation
(F 12 2)	Sexual motivation/media
(F 12 3)	Sexual motivation/economic
(F 12 4)	Sexual motivation/idleness
(F 12 5)	Sexual motivation/peers
(F 12 6)	Sexual motivation/strict parents
(F 12 7)	Sexual motivation/privacy
(F 12 8)	Sexual motivation/explore
(F 12 9)	Sexual motivation/physical attraction
(F 12 10)	Sexual motivation/sex education at school
(F 12 11)	Sexual motivation/contraception
(F 12 12)	Sexual motivation/alcohol
(F 12 13)	Sexual motivation/love
(F 12 14)	Sexual motivation/rape
(F 12 15)	Sexual motivation/to test maturity
(F 12 16)	Sexual motivation/no cultural values
(F 13)	Sexual expectation
(F 14)	Sexual pressure
(F 15)	Communication
(F 15 1)	Communication/condoms
(F 15 2)	Communication/STDs HIV AIDS
(F 15 3)	Communication/sexual matters
(F 16)	Sexual risks
(F 16 1)	Sexual risks/others
(F 16 2)	Sexual risks/pregnancy
(F 16 4)	Sexual risks/school drop out
(F 16 5)	Sexual risks/guilt
(F 16 6)	Sexual risks/STIs
(F 16 7)	Sexual risks/fines
(F 16 8)	Sexual risks/divorce
(F 17)	Partner notification
(F 18)	Risk taking
(F 18 1)	Risk taking/alcohol
(F 18 2)	Risk taking/resignation
(F 18 3)	Risk taking/parental control
(F 18 4)	Risk taking/ignorance
(F 18 5)	Risk taking/peer influence
(F 18 6)	Risk taking/economic
(F 18 7)	Risk taking/suspect infection
(F 18 8)	Risk taking/will die anyway
(F 18 9)	Risk taking/lust
(F 18 10)	Risk taking/don't believe it exists
(F 18 11)	Risk taking/condoms bad
(F 18 12)	Risk taking/religious
(F 18 13)	Risk taking/culture
(F 18 14)	Risk taking/feel not affected
(F 18 15)	Risk taking/revenge for unfaithful partner
(F 19)	Transmission
(F 19 1)	Transmission/sexual
(F 19 2)	Transmission/mother to child
(F 19 3)	Transmission/commercial sex
(F 19 4)	Transmission/cultural
(F 19 5)	Transmission/injections
(F 19 6)	Transmission/blood transfusion
(F 19 8)	Transmission/cutting instruments
(F 19 9)	Transmission/misperceived
(F 20)	Risk perception
(F 20 1)	Risk perception/Risk low
(F 20 2)	Risk perception/Risk high
(F 21)	AIDS impact
(F 21 1)	AIDS impact/economic
(F 21 2)	AIDS impact/orphans
(F 21 3)	AIDS impact/stigma
(F 21 4)	AIDS impact/commercial sex
(F 21 5)	AIDS impact/other
(F 21 6)	AIDS impact/deaths
(F 22)	Behaviour change
(F 22 1)	Behaviour change/partners
(F 22 2)	Behaviour change/condoms
(F 22 3)	Behaviour change/wise choice
(F 22 4)	Behaviour change/abstain
(F 22 5)	Behaviour change/religious
(F 22 6)	Behaviour change/counselling
(F 22 7)	Behaviour change/other
(F 22 8)	Behaviour change/HIV test
(F 23)	Safer sex
(F 23 1)	Safer sex/monogamy
(F 23 2)	Safer sex/condoms
(F 23 3)	Safer sex/HIV test
(F 23 4)	Safer sex/abstain
(F 23 5)	Safer sex/choose wisely
(F 23 6)	Safer sex/other
(F 23 7)	Safer sex/non-penetrative
(F 24)	Response to promiscuity
(F 25)	Older married male
(F 26)	Condom use
(F 27)	Condoms good
(F 28)	Condoms bad
(F 29)	Condom context
(F 30)	Condoms source
(F 31)	Partner responsibility
(F 33)	Recently married male
(F 34)	Recently married female
(F 35)	Sexual decision-making
(F 36)	Sexual expectations
(F 37)	Outside partners
(F 38)	Female
(F 39)	Older married female

Appendix 3.8: Accounting for Survey Design Effects

The final multivariate logistic regression models were obtained using Stata statistical software release 7 (StataCorp, 2001) that takes account of three important elements of survey data, that is, sample weights, clustering and stratification. These design features affect the analysis of the data and need to be accounted for in order to obtain unbiased point estimates and fairly realistic standard errors.

Although the importance of accounting for sample design, namely sample weights, the strata, and clusters in regression modelling is noted in statistical literature (Smith, 1988; Skinner et al., 1989; Korn and Graubard, 1995), the modelling approach has also been challenged from time to time. Some statisticians argue that accounting for unequal selection probabilities in regression modelling processes can be done in two ways. Some researchers prefer a model-based approach, where the complex design of the sample is accounted for by including, in the regression model, the independent variables that were used to determine the weights (Skinner et al., 1989; Korn and Graubard, 1995). In this approach, unweighted data are used and variables such as region and rural-urban residence, typically used for stratification in the DHS surveys are included in the regression. Other statisticians argue for the design-based approach, in which the complex survey design is controlled for explicitly through the use of weighted regression and appropriate software that can handle complex survey designs (Eltinge, Parsons and Jang, 1997). Both approaches, however, have their own merits and demerits. As cited by Matthews et al. (2000), DuMouchel and Duncan (1983) illustrate through regression modelling of the Panel Study of Income Dynamics data (1968) to predict educational attainment, that use of interactions between independent variables provided more explanatory power than the inclusion of sample weights.

Eltinge, Parsons and Jang (1997) suggest that the model-based approach performs better than the design-based approach when the sample design is inefficient, such as, when few primary sampling units are selected per strata. The model-based approach may also be preferred when the sampling weights vary considerably, or when non-response is a big problem. However, this approach requires verification of the model assumptions through diagnostics and hence, is less used by large survey analysts (Eltinge, Parsons and Jang, 1997).

Matthews et al. (2000) have also demonstrated through regression modelling of child nutritional status in four African countries that estimates can differ when analyses are based on ordinary least squares, weighted regressions, or when using analysis that accounts for complex survey design. In these analyses, estimates varied by use of either SPSS (standard statistical software, STATA (statistical software for complex survey design), or MLwiN (statistical software for multilevel models), and they, therefore, recommend software that accounts for sample weights, stratification, and clustering at all levels.

Weighting. The KDHS adopted a two-stage stratified cluster sampling strategy (stratified by rural and urban) as is the case with most DHS samples, consisting first of selected sample units or clusters, and secondly, selected households within sample points from a list compiled during a special KDHS household listing exercise (See Chapter 3 for a detailed description of the sampling strategy). The KDHS could not be used to produce data for each district in Kenya (75 in number at the time), without expanding the sample to an unmanageable size. Therefore, in order to obtain reliable estimates for certain variables, more samples were drawn from 15 selected districts considered rural areas, and Nairobi and Mombasa districts specifically targeted as urban areas. Thus, over-sampling of some districts renders the 1998 KDHS not self-weighting at the national level, and hence, sample weights are required to produce national estimates so as to compensate for the unequal probability of selection between geographically defined strata. Within each sampling stratum, implicit stratification was introduced by ordering the sample points geographically within the hierarchy of administrative units (i.e. starting from the lowest; sub-location, location, and to the district within the province - the highest administrative unit). In total 536 sample points were drawn: 444 rural and 92 urban clusters. A systematic sample of households was then drawn from these clusters.

Because observations are selected through a random process, different observations may have different probabilities of selection. Thus, sample weights are used to correct sample data for unequal selection probabilities and failure to include these in the modelling process can lead to estimates that may be biased for their corresponding population parameters. Sample weights are approximately equal to the number of individuals in the population that are represented by the sampled individual. The sample weight associated with an individual is therefore the inverse of that individual's probability of being included in the sample, adjusted, if necessary, for non-response (Korn and Graubard, 1995; StataCorp, 2001).

Clustering. Clustering is the second aspect of survey design likely to affect parameter estimates. Clustering means that observations are not sampled independently. Groups, for example, districts, locations, villages, or households, may be sampled as a group and these are termed a "cluster". There may also be further sub-sampling within clusters. For example, districts may be sampled, then locations within districts, villages within locations, households within villages, and finally persons within households. As already noted, the KDHS typically follows this type of multi-stage sampling structure and that means that observations in the same cluster are not independent. Use of estimates that assume independence may give too small standard errors - sometimes the difference may be as much as a factor of 2 or more. Accounting for clustering is necessary for better estimates of standard errors, *p*-values, and confidence intervals (StataCorp, 2001; Matthews et al. 2000).

Stratification. Finally, stratification is another element of sampling design that needs to be accounted for in regression modelling. Different groups of clusters are usually sampled separately and these groups are

called strata. For example, the districts in a country might be divided into two strata, urban and rural. Then some districts will be sampled from the urban and others from the rural strata. Sampling is then done independently across strata, with the stratum divisions fixed in advance. Thus, strata are statistically independent and can be analysed as such. This is said to produce smaller estimates of standard errors (StataCorp, 2001).

The variances and standard errors of the estimates from complex survey designs tend to be larger than those from simple random sampling are, and this might lead to loss of efficiency in parameter estimates if sample design effects are not accounted for. One of the measures of this loss of efficiency is the ratio of the standard error of an estimate under the complex survey design to the standard error of the estimate assuming that the sample was drawn by simple random sampling. This is known as the *design effect (deft)*, although sometimes the same terminology is used for the ratio of the variances. *Deft* is given by the formula (Kish, 1995):

$$Deft = \sqrt{\hat{V} / \hat{V}srs},$$

where $\hat{V}$ is the estimated variance of the estimate under the complex survey design, and $\hat{V}srs$, is the corresponding estimated hypothetical variance under simple random sampling design. A *deft* value of one or less indicates that the complex survey design was more efficient than the simple random sampling for estimating the parameter in question, and thus a value greater than two would suggest that the standard error under the complex survey design is twice that which would have been obtained if simple random sampling had been used.

Conventional measures to assess model fit such as changes in –2 log likelihood ratio test or pseudo R^2 are not supported by STATA when using a design-based statistical modelling procedures. It does not also allow for stepwise modelling procedures. These measures are not used in this study. The Adjusted Wald's statistics were used to identify variables that were significant.

Appendix 5.1: Parameter estimates and standard errors of factors associated with levels of self-perceived risk of HIV among AIDS-aware women by significant factors, KDHS 1998

Parameter	Coefficient	Standard Error	P-value	95% Confidence Interval	
Ethnicity (Kalenjin)[R]					
Kamba	-0.4459	0.1148	0.000	-0.6719	-0.2200
Kikuyu	-0.1738	0.0788	0.028	-0.3289	-0.0187
Kisii	0.7196	0.0994	0.000	0.5239	0.9153
Luhya	0.3379	0.0910	0.000	0.1588	0.5169
Luo	0.3948	0.0913	0.000	0.2150	0.5745
Meru/Embu	0.0025	0.1063	0.981	-0.2067	0.2117
Mijikenda/Swahili/TaitaTaveta	-0.2125	0.1103	0.055	-0.4296	0.0046
Other	-0.4832	0.1338	0.000	-0.7465	-0.2199
Age (15-19)[R]					
20-24	0.2306	0.0960	0.017	0.0416	0.4197
25-39	0.4068	0.0933	0.000	0.2231	0.5905
40-49	0.1522	0.1007	0.132	-0.0459	0.3503
Marital status (Married-monogamous)[R]					
Married-polygynous	0.8884	0.0953	0.000	0.7008	1.0759
Formerly married	-0.2137	0.0909	0.019	-0.3926	-0.0348
Never married	-0.1319	0.0748	0.079	-0.2792	0.0155
Modes of AIDS transmission (Mix of sexual and non-sexual)[R]					
Only sexual	-0.1802	0.0592	0.003	-0.2967	-0.0636
Don't know	-0.1506	0.1346	0.264	-0.4156	0.1144
Modes of AIDS prevention (Only sexual)[R]					
Mix of sexual and non-sexual	-0.0110	0.0680	0.871	-0.1449	0.1228
Don't know	0.2393	0.0728	0.001	0.0961	0.3825
Can a healthy person have AIDS? (Yes)[R]					
No	-0.3904	0.0659	0.000	-0.5201	-0.2607
Knowledge of someone sick of or died from AIDS (Yes)[R]					
No	-0.1882	0.0569	0.001	-0.3001	-0.0762
Sexual behaviour in last 12 months (Did not report risky sex)[R]					
Reported risky sex	0.4685	0.0894	0.000	0.2925	0.6446
Never had sex	-0.5723	0.0997	0.000	-0.7684	-0.3761
Ever used condoms to avoid AIDS? (No)[R]					
Yes	0.3063	0.0970	0.002	0.1153	0.4973
Behaviour change (Only sexual change)[R]					
Only non-sexual change	0.0194	0.0610	0.75	-0.1007	0.1396
Mix of sexual and non-sexual	0.3139	0.0758	0.000	0.1646	0 .4631
Education (Primary)[R]					
Secondary and above	-0.0223	0.0792	0.778	-0.1782	0.1335
None	-0.0541	0.1163	0.642	-0.2830	0.1747
Work status (Yes)[R]					
No	-0.2000	0.0616	0.001	-0.3213	-0.0787
Education * Work status					
Secondary, not working	0.2314	0.0975	0.018	0.0395	0.4233
None, not working	0.2338	0.1636	0.154	-0.0882	0.5558
Cut point for perception of small risk	-0.6964	0.1295	0.000	-0.9513	-0.4414
Cut point for perception of great risk	0.9051	0.1265	0.000	0.6561	1.1540

[R] = Reference Category

Appendix 5.2: Parameter estimates and standard errors of factors associated with levels of self-perceived risk of HIV among AIDS-aware men by significant factors, KDHS 1998

Parameter	Coefficient	Standard Error	P-value	95% Confidence Interval	
Ethnicity (Kalenjin) [R]					
Kamba	-0.5692	0.1497	0.000	-0.8638	-0.2746
Kikuyu	-0.3377	0.1658	0.043	-0.6640	-0.0114
Kisii	0.4130	0.2082	0.048	0.0031	0.8228
Luhya	0.1052	0.1586	0.508	-0.2071	0.4174
Luo	0.1065	0.1493	0.476	-0.1874	0.4003
Meru/Embu	-1.1363	0.1803	0.000	-1.4913	-0.7814
Mijikenda/Swahili/TaitaTaveta	-1.1612	0.1985	0.000	-1.5520	-0.7703
Other	-0.9563	0.2801	0.001	-1.5076	-0.4050
Age (15-19) [R]					
20-24	0.1614	0.1663	0.333	-0.1659	0.4887
25-39	0.3142	0.1624	0.054	-0.0055	0.6340
40-49	0.3015	0.1671	0.072	-0.0274	0.6304
Marital status (Married-monogamous) [R]					
Married-polygamous	0.3766	0.1805	0.038	0.0214	0.7318
Formerly married	0.1536	0.1909	0.422	-0.2222	0.5294
Never married	-0.1364	0.1469	0.354	-0.4256	0.1527
Religion (Protestant) [R]					
Catholic	0.2909	0.0798	0.000	0.1337	0.4481
Muslim/other	-0.0603	0.1522	0.692	-0.3598	0.2393
Modes of AIDS transmission (Mix of sexual and non-sexual) [R]					
Only sexual	-0.3320	0.0910	0.000	-0.5112	-0.1528
Don't know	-0.0693	0.2829	0.807	-0.6262	0.4875
Modes of AIDS prevention (*Only sexual*) [R]					
Mix of sexual and non-sexual	-0.1050	0.1126	0.352	-0.3266	0.1167
Don't know	0.2388	0.1156	0.040	0.0111	0.4664
Knowledge of mother to child transmission (Yes) [R]					
No	0.2550	0.1043	0.015	0.0497	0.4604
Can a healthy person have AIDS? (Yes) [R]					
No	-0.4007	0.1196	0.001	-0.6361	-0.1652
Sexual behaviour in last 12 months (Did not report risky sex) [R]					
Reported risky sex	0.6244	0.0939	0.000	0.4395	0.8094
Never had sex	-0.5492	0.1661	0.001	-0.8761	-0.2222
Ever used condoms to avoid AIDS? (No) [R]					
Yes	0.2636	0.0933	0.005	0.0801	0.4472
Behaviour change (Only sexual change) [R]					
Only non-sexual	-0.4779	0.1418	0.001	-0.7571	-0.1988
Mix of sexual and non-sexual	-0.1316	0.1087	0.227	-0.3455	0.0824
Had HIV test? (No) [R]					
Yes	-0.4219	0.1000	0.000	-0.6187	-0.2250
Cut point for perception of small risk	-1.0249	0.1978	0.000	-1.4142	-0.6355
Cut point for perception of great risk	1.3491	0.1915	0.000	0.9721	1.7261

[R] = Reference Category

Appendix 6.1: Parameter estimates and standard errors for fhe final parsimonious logistic regression model for reporting of risky sexual behaviour in the last 12 months among AIDS-aware and sexually experienced women, KDHS 1998

Parameter	Estimate (standard errors in brackets)	P-value	95% Confidence Interval
Constant	-3.4538 (0.208)	0.000	-3.8623 -3.0433
Perception of risk of HIV (None)[R]			
Small	0.1693 (0.115)	0.144	-0.0581 0.3966
Moderate/great	0.5990 (0.122)	0.000	0.3587 0.8393
Socio-demographic factors			
Education (primary)[R]			
Secondary and above	-0.3611 (0.102)	0.000	-0.5618 -0.1605
None	-0.1081 (0.190)	0.570	-0.4827 0.2665
Residence (rural)[R]			
Urban	0.3736 (0.109)	0.001	0.1587 0.5885
Age (15-19)[R]			
20-24	-0.0593 (0.136)	0.664	-0.3278 0.2092
25-39	-0.3230 (0.143)	0.025	-0.6047 -0.0413
40-49	-0.8427 (0.197)	0.000	-1.2313 -0.4540
Marital status (married monogamous)[R]			
Married (polygynous)	0.5121 (0169)	0.003	0.1790 0.8452
Formerly married	2.0688 (0.140)	0.000	1.1794 2.3439
Never married	2.0890 (0.119)	0.000	1.8553 2.3228
Ethnicity (Kalenjin)[R]			
Kamba	0.6217 (0.184)	0.001	0.2586 0.9848
Kikuyu	0.1914 (0.177)	0.280	-0.1567 0.5396
Kisii	0.5092 (0.2016)	0.012	0.1124 0.9061
Luhya	0.5793 (0.1786	0.001	0.2278 0.9309
Luo	0.3208 (0.189)	0.090	-0.0507 0.6923
Meru/Embu	1.0127 (0.209)	0.000	0.6004 1.4249
Mijikenda/Swahili/Taita-Taveta	0.7525 (0.181)	0.000	0.3960 1.1090
Other	0.0785 (0.325)	0.809	-0.5608 0.7178
Age at first sex (>15 years)[R]			
<15 years	0.2344 (0.102)	0.023	0.0332 0.4357
Don't know/missing	0.0260 (0.260)	0.920	-0.4868 0.5388
Knowledge factors			
Source of AIDS information (Mix of formal and non-formal sources)[R]			
Only formal sources	-0.3131 (0.117)	0.008	-0.5442 -0.0819
Only non-formal	0.0147 (0.136)	0.914	-0.2536 0.2831
Knowledge of mother to child transmission (Yes)[R]			
No	0.2588 (0.130)	0.048	0.0029 0.5148
Behavioural factors			
Ever use of a condom to avoid AIDS (No)[R]			
Yes	0.6614 (0.126)	0.000	0.4129 0.9100

[R]=Reference category

Appendix 6.2: Parameter estimates and standard errors for fhe final parsimonious logistic regression model for reporting of risky sexual behaviour in the last 12 months among AIDS-aware and sexually experienced men, KDHS 1998

Parameter	Estimate (standard errors in brackets)	P-value	95% Confidence Interval	
Constant	-2.1061 (0.276)	0.000	-2.6486	-1.5635
Perception of risk of HIV (None)[R]				
Small	0.2335 (0.140)	0.097	-0.0426	0.5096
Moderate/great	0.8898 (0.147)	0.000	0.5995	1.1801
Socio-demographic factors				
Education (primary)[R]				
Secondary and above	-0.5252 (0.114)	0.000	-0.7499	-0.3006
None	0.2273 (0.258)	0.379	-0.2804	0.7351
Age (15-19)[R]				
20-24	-0.0933 (0.175)	0.594	-0.4378	0.2512
25-39	-0.2909 (0.201)	0.150	-0.6873	0.1055
40-54	-0.9403 (0.231)	0.000	-1.3960	-0.4845
Marital status (married monogamous)[R]				
Married (polygynous)	0.0389 (0.247)	0.875	-0.4467	0.5245
Formerly married	1.7896 (0.233)	0.000	1.3303	2.2489
Never married	1.2982 (0.172)	0.000	0.9597	1.6366
Ethnicity (Kalenjin)[R]				
Kamba	0.2436 (0.209)	0.244	-0.1671	0.6543
Kikuyu	0.4123 (0.165)	0.013	0.0874	0.7372
Kisii	-0.2224 (0.190)	0.243	-0.5966	0.1517
Luhya	0.5019 (0.197)	0.011	0.1146	0.8892
Luo	0.4647 (0.190)	0.015	0.0906	0.8387
Meru/Embu	0.6313 (0.207)	0.003	0.2233	1.0394
Mijikenda/Swahili/Taita-Taveta	0.8713 (0.211)	0.000	0.4557	1.2869
Other	0.1592 (0.287)	0.579	-0.4056	0.7240
Age at first sex (>15 years)[R]				
<15 years	0.4436 (0.111)	0.000	0.2252	0.6620
Don't know/missing	0.5878 (0.273)	0.032	0.0500	1.1256
Knowledge factors				
Source of AIDS information (Mix of formal and non-formal sources)[R]				
Only formal sources	0.0724 (0.100)	0.469	-0.1242	0.2690
Only non-formal sources	-0.5564 (0.251)	0.027	-1.0506	-0.0623
Knowledge of AIDS transmission (Mix of sexual and non-sexual)[R]				
Only sexual	0.2959 (0.124)	0.018	0.0511	0.5407
Don't know	1.0026 (0.424)	0.019	0.1676	1.8376
Behavioural factors				
Ever use of a condom to avoid AIDS (No)[R]				
Yes	1.3984 (0.110)	0.000	1.1825	1.6143

[R]=Reference category

Appendix 7.1: Summary of factors associated with self-perceived risk of HIV/AIDS and risky sexual behaviour among women and men in Kenya, KDHS 1998

Characteristics	Women		Men	
	Perception of risk	Risky sexual behaviour	Perception of risk	Risky sexual behaviour
Socio-demographic Factors				
Urban-rural *residence*	X	√	X	X
Education	X	√	X	√
Ethnicity	√	√	√	√
Religion	X	X	√	X
Current age	√	√	√	√
Age at first sexual intercourse	X	√	X	√
Marital status	√	√	√	√
Education*Work status	√	X	X	X
Psychosocial Factors				
Source of AIDS information	X	√	X	√
Knowledge of AIDS transmission	√	X	√	√
Knowledge of ways to prevent AIDS	√	X	√	X
Knowledge of mother to child transmission	X	√	√	X
Knowledge that a healthy person can have AIDS	√	X	√	X
Knowledge of someone sick or died of AIDS	√	X	X	X
Perception of risk	NA	√	NA	√
Behavioural Factors				
Risky sexual behaviour in the last 12 months	√	NA	√	NA
Sexual behaviour change in response to AIDS	√	X	√	X
Use of condoms to avoid AIDS	√	√	√	√
Had an HIV test	X	X	√	X

√ = Significant at 5% level or less; **X** = Not significant; NA= Not entered in the model