

**Women and AIDS:  
Epidemiology and Gender Barriers to  
Prevention in KwaZulu-Natal, South Africa**

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## **Declaration**

This research represents original work by the author and has not been submitted in any form to any other university. The protocols for all the research in this thesis were written by the author. All fieldwork was conducted by field-workers under the supervision of the author. Data were collated, checked and preliminary analysis of the data were undertaken by the author.

Where use has been made of the work of others, it has been duly acknowledged.

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# **List of Publications and Scientific Presentations Emanating from this Doctoral Research**

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Africa. *AIDS* 1999; 13: 1511-1515.

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## **List of Abbreviations**

AIDS	Acquired Immune Deficiency Syndrome
CI	Confidence Interval
CLP	Community Liaison Person
EIA	Enzyme-linked Immuno-sorbent Assay
HIV	Human Immunodeficiency Virus
IDU	Injecting Drug Use
KAP	Knowledge, Attitude, Practice
KAPB	Knowledge, Attitude, Practice, Behaviour
RD	Risk Difference
RR	Relative Risk
SD	Standard Deviation
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
UNAIDS	Joint United Nations Programme on HIV/AIDS

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# SUMMARY

The HIV pandemic comprises a complex mosaic of dynamic epidemics within and between countries. Sub-Saharan Africa contributes a disproportionate 70% of the global burden of HIV infection in only 10% of the world's population. A unique feature of the HIV epidemic in sub-Saharan Africa is that this is the only region in the world where more women than men are infected with HIV. Hence the focus of this research on women and HIV.

This research set out to assess gender differences in the epidemiology of HIV infection and, to elucidate the social and behavioural factors affecting a woman's risk of acquiring HIV infection in KwaZulu-Natal, South Africa.

In order to study the gender differences in the epidemiology of HIV infection, three population-based surveys were undertaken in conjunction with the malaria active surveillance programme. Blood for HIV testing was obtained from rural communities of northern KwaZulu-Natal in November/December 1990 (N=5023), June/July 1991 (N=5605), and June/July 1992 (N=5560).

Four socio-behavioural assessments in different social contexts were undertaken to better understand the factors underlying the

epidemiological characteristics of HIV infection in women. Based on the assumption that sexual behaviour among women in heterosexual relationships is multifaceted, a theoretical framework based on attitudinal, psycho-social, relational and behavioural factors was developed.

Most new HIV infections are taking place in women in stable relationships. In order to better understand the context within which such safer sex practices need to be negotiated or communicated, issues such as relationship dynamics, gender role expectations, self-esteem, self-efficacy, sexual and condom norms and values, and a human rights based focus on sexuality were explored in surveys of women from Nhlungwane (N=111), a peri-urban settlement, and Kwa-Ximba (N=108), a rural community.

Whilst existing social, economic and political factors may impede a mother's ability of protecting herself from acquiring HIV infection is she playing a role in informing her children of the life-threatening threat facing them? The issue of inter-generational communication with respect to HIV/AIDS was explored through a survey of urban women (N=122).

Limited job opportunities, and in some instances, the exclusion of women from the formal economy has forced women to explore other mechanisms of survival, including sex work. Factors influencing the risk of acquiring HIV infection in the context of sex work was studied in a group of sex

workers based at a truck-stop in the KwaZulu-Natal Midlands. Using qualitative techniques in a participatory research approach, sex workers (N=12) from a truck-stop in the KwaZulu-Natal Midlands contributed information on the sexual practices, perceptions of HIV and obstacles to condom use with clients.

Health care workers are important gatekeepers to the success or failure of new and existing health interventions. Health service obstacles to women seeking condoms were assessed by simulated patients. Two young women and men each visited a random sample of 12 clinics in Durban to ask for condoms. Their experiences were documented in detailed field notes according to pre-defined categories and analyzed to identify common themes.

The prevalence of HIV infection was found to be 1.6% in women and 0.4% in men in the 1990 community-based survey conducted with the malaria surveillance programme in rural KwaZulu-Natal. Besides HIV infection being four times (CI:0.7-1.7) more common amongst women compared to men, young people between the ages of 15 and 29 were 4.2 times more likely to be infected. The subsequent surveys in 1991 and 1992 demonstrated the rapidity with which HIV was spreading in rural South Africa; the prevalence of HIV rose from 1.2% (CI:0.9-1.5) in 1990 to 3.3% (CI:2.9-3.7) in 1992. During this period, when the HIV epidemic was

progressing rapidly in rural KwaZulu-Natal, the excess risk of HIV infection in women of 1.2-1.4% persisted.

The gender differences in the epidemiology of HIV infection were striking. The peak prevalence of HIV infection occurred in the 20-24 year age group. Thereafter, the prevalence decreased until the low risk older cohorts above 50 years were reached. In men, however, the peak prevalence was in the 25-29 year age group. The peak HIV prevalence in men is also more defined within a narrower age band. The high prevalence rates in adolescent women most likely mirror high incidence rates in this group as these prevalent infections are not cumulative from younger ages. Young women, especially adolescent women, are experiencing the brunt of the HIV epidemic in KwaZulu-Natal.

All the socio-behavioural surveys conducted showed that knowledge of HIV and risk factors were high in women. Marriage as a patriarchal mechanism to ensure monogamy was rare in all the community-based surveys. The majority of women interviewed were sexually active. Serial monogamous relationships were common. Early sexual debuts and high rates of unprotected sex as evidenced by teenage pregnancies placed women in these urban and rural communities at high risk of acquiring HIV infection.

Both peri-urban and rural women under-estimated their risk of HIV. While most of these women did not themselves have risk factors for HIV, their partners were often at high risk as many were migrant workers. While 52.3% of the peri-urban and rural women interviewed thought that their partners were at risk of acquiring HIV infection, only 30.6% had translated this as personal risk. Further, there was a uniformly poor correlation between knowledge of HIV/AIDS, including adequate knowledge of the modes of transmission and methods of prevention, and the adoption of safer sex practices.

A key reason for women not acting on their knowledge and perception of HIV risk is that most do not believe that they have the right to refuse to have sex or to insist on condoms with their partners. This belief was present regardless of whether the partner was the husband or boyfriend. Additionally, most women thought their partners had a right to have multiple partner relationships. Financial dependence on male partners and fear of violence, associated with alcohol, were other reasons forwarded by women for not being able to insist on safer sex practices.

Notions of heterosexual romance precluded consideration that their partner could be placing them at risk of acquiring infection with HIV let alone entering any discussion on safer sex practices. Issues such as love and trust, the foundation of most relationships, would be undermined if

discussions on AIDS were introduced.

Practical issues such as frequency of seeing partner, skills to negotiate safer sex practices, pervasive negative mores about condoms, ability to use a condom or dispose of used condoms influenced decision-making about HIV risk reduction measures.

Condom use was low in all groups of women studied. In some instances, the women (eg 82.4% of the urban women) had never used a condom before and did not know how to use condoms.

Few years of education, high levels of unemployment, financial dependence on partners, existing gender norms with respect to the man-women relationship, threat of violence and their low status in society limits women's interpersonal power to negotiate safer sex practices in their relationships.

Whilst current social, political and economic factors impede the ability of the urban women studied to protect themselves from acquiring HIV infection, they were not using their high levels of HIV knowledge to communicate the risk of HIV infection to their teenage children. Their teenage children were having unprotected sex; 14.7% of their teenage children already had children of their own.

The HIV risk in sex workers is extremely high as they have an average of 22 (Range 4-40), mostly unprotected, coital acts a week. For sex workers, insistence on condom use needs to be balanced against loss of income (25% of the going rate for sex if they insisted on condom use, or non-payment for sex was also more common when condoms were used) or experience of violence. Their illegal status limits their option to legal recourse in the face of harassment, non-payment and violence from clients. Whilst with clients they are able to exercise some control in terms of sexual practices; in their personal relationships their ability to adopt safer sex practices are impeded by similar issues faced by women in the general population viz love, trust and need for intimacy.

The gender inequity is most starkly revealed by health service providers who try to dissuade women from using condoms under the mistaken assumption that the condoms are being sought for contraception and that condoms are unreliable for contraception. An assessment of the accessibility of condoms from public clinics revealed that women were often actively discouraged from taking condoms as health service providers assumed that the condoms were being requested to prevent pregnancy. Most of the health service providers viewed condoms as unreliable contraception and were not promoting condoms for prevention of infection.



In conclusion, the HIV epidemic in the KwaZulu-Natal province of South Africa is growing rapidly with the highest burden of infection in young women, especially adolescent women. While most women have high levels of HIV/AIDS knowledge, safer sex practices are not being adopted due to women's belief that they do not have the right to insist on safer safe.

Any response to the HIV epidemic that does not take these gender related issues into account is unlikely to succeed. While not neglecting men in any response to the HIV epidemic, women have special needs in responding to the HIV epidemic. Women need a clearer understanding of their rights in relation to reproduction and sex. Health service obstacles to women's access to condoms need to be remedied. Most importantly, all these efforts need to recognize young women as a key group that should be a high priority in curbing the HIV epidemic.

# Chapter 1: Background

## 1.1. Global Overview

Since the first described cases of AIDS (Acquired Immune Deficiency Syndrome) almost 18 years ago (1), the Human Immunodeficiency Virus (HIV) has spread all over the world (2). By the end of 1999, the Joint United Nations Programme on HIV/AIDS (UNAIDS) estimated that, thus far, about 33.4 million people worldwide have been infected with HIV and about 13.9 million people had died of AIDS (3).

Furthermore, in 1999 alone, about 5.6 million new infections occurred and 2.6 million people died of AIDS.

It is estimated that 80% of all HIV infections takes place through sexual transmission (4). An important consequence of the spread of HIV through heterosexual contact, is the transmission from infected mother to infant (5). Mother-to-child transmission accounts for about 5-10% of HIV infections and intravenous drug-use for about 5% of HIV infections (4). Transmission through blood and blood products has been virtually eliminated in most parts of the world through stringent screening programmes (6).

The global distribution of HIV is uneven (Table 1) (3). Developing countries account for about 95% of HIV infections. Sub-Saharan Africa bears a disproportionate burden of the HIV pandemic - 70% of the global HIV infections and 95% (13.7 million) of global AIDS deaths is taking place amongst a tenth of the world's population.

**Table 1: Global distribution of HIV infection - 1999**

Region	# of HIV Infections
North America	920 000
Western Europe	520 000
Eastern Europe & Central Asia	360 000
South & South East Asia	6 000 000
East Asia & the Pacific	530 000
Australia & New Zealand	12 000
Sub-Saharan Africa	23 300 000
North Africa & the Middle East	220 000
Caribbean	360 000
Latin America	1 300 000
<b>TOTAL</b>	<b>33 600 000</b>

Source: UNAIDS (3)

HIV-1 continues to be the dominant HIV strain (7), with Clade C being the most common subtype (8). Clade C HIV-1 infections account for close to 50% of all HIV infections globally (Table 2).

**Table 2: Global distribution of HIV-1 env subtypes - 1997**

HIV-1 env subtype	Distribution (%)
Clade A	25
Clade B	16
Clade C	48
Clade D	4
Clade E	4
Others	3

Source: Los Alamos AIDS database (8)

While the implications of the various subtypes for vaccine development is unresolved (9), Clade C is most common in regions currently experiencing rapidly progressing epidemics and in developing countries in particular (Table 3) (10).

**Table 3 : Distribution of Clade C by region - 1997**

<b>Region</b>	<b># of Infections</b>
Africa	10 810 000
South/South East Asia	3 596 000
East Asia/Pacific	240 000
Latin America	35 000
<b>Total Clade C Infections</b>	<b>14 680 000</b>

Source: Esparza J (10)

In several countries around the world, such as Australia, Thailand, Senegal, Tanzania and Uganda, true stabilisation of the epidemic has been observed (11). However, in most parts of the world the spread of HIV continues. The HIV pandemic comprises a diverse range of dynamic epidemics within and between countries (12,13). Whilst, the factors influencing this diversity remain to be elucidated, some striking characteristics about the new and emerging epidemics can be discerned.

## **1.2. New and Emerging Epidemics**

There are countries and regions of the world that have, until recently,

remained insulated from infection with HIV but are currently experiencing an unprecedented, “explosive” spread of HIV. In some countries and regions, HIV infection has stabilised or even decreased in some sub-groups but new sub-groups are becoming infected with HIV. The emergence of HIV infection in new sub-groups in these countries or regions may be “masked” by a decrease in some sub-groups or because the HIV infection in the new sub-groups is not being monitored. In some countries where a low prevalence of HIV infection currently prevails; it is of concern that : (i). the absolute number of HIV infections is disproportionate to the global burden of infection; and/or (ii). the social environment may be conducive to the rapid spread of HIV from defined sub-groups to the general population.

The terms “explosive”, “masked” and “emerging” have been coined merely as a useful typology to describe the new and emerging epidemics and is not a new classification of the diverse range of HIV epidemics within and between countries (14).

#### **1.2.1. “Explosive” epidemics**

Currently southern Africa and Cambodia are experiencing unprecedented, rapidly growing epidemics (3). The “explosive” spread of HIV in these countries is characterised by a relatively late introduction of HIV into the population, a rapid growth of the epidemic within a short period, and a high prevalence at plateau. HIV is spreading predominantly through heterosexual contact in both

countries.

The HIV seroprevalence among ante-natal clinic attenders in the majority of the countries in southern Africa is estimated to be more than 20% (15). As ante-natal clinic attenders are a marker for HIV infection in the general population (16) these HIV prevalence data are alarming. The nature of this rapidly unfolding HIV epidemic in southern Africa is elaborated further in Section 1.4. through a description of the HIV epidemic in South Africa. In summary, the prevalence of HIV infection in ante-natal clinic attenders in South Africa rose from 0.76% in 1990 to 22.8% in 1998.

The highest levels of HIV infection in Asia are recorded in Cambodia (12). The prevalence of HIV infection among antenatal clinic attenders rose from <1% prior to 1998 to > 2% in 12 of the country's 19 provinces (3) in 1998. Furthermore, the HIV prevalence amongst voluntary blood donors in 1998 was 4.5% amongst men compared to 2.5% amongst women.

### **1.2.2. "Masked" epidemics**

An observed stable HIV prevalence in countries with "masked" epidemics creates the impression that the HIV epidemic has stopped growing. However, in reality, one or more factors may be masking changes in the epidemic. These include:

- i. high incidence rates in sub-groups that are not being

- monitored,
- ii. an associated high mortality rate may be masking a high incidence rate,
- iii. prevalence may be increasing in one subgroup whilst simultaneously declining in another sub-group.

In some countries such as Rwanda and the United States of America, stabilisation of the HIV epidemic in some sub-groups is masking new sub-groups acquiring HIV infection.

The evolving epidemic in the USA epitomises “masking”. The HIV epidemic in the US has evolved from an initial outbreak among men who have sex with men and intravenous drug users in a few cities, to an important killer of young Americans (17). Currently, of all incident HIV infections in the US; about two thirds are in ethnic and racial minorities, about half are in heterosexuals and almost a third of those infected are women (18). While men having sex with men remains a risk factor for HIV infection it accounts for fewer infections, and in most instances is occurring amongst younger men (19).

The dramatic impact of anti-retroviral therapy on increasing survival amongst AIDS patients and declines in mortality rates due to AIDS has been demonstrated by several studies (20 - 22). However, a sub-group analysis of AIDS data from 1988 to 1993 by Rosenberg and Biggar (23) demonstrates that the observed overall decline in HIV

seroprevalence is due to a decline amongst men having sex with men in the 18-27 year age group, masking a substantial increase in HIV seroprevalence amongst women from ethnic and racial minority groups through heterosexual transmission (Tables 4 and 5).

**Table 4: Overall trends in HIV Infection in the United States in the 18-27 year age group by gender: 1983-1993**

Year	Men (%)	Women (%)	Total
1983	131 100 (86.2)	20 900 (13.8)	152 000
1993	110 600 (74.2)	38 500 (25.8)	149 100

Source: Rosenberg and Biggar (23)

**Table 5: Trends in HIV infection in the United States in the 18-27 year age group by race and mode of transmission: 1983- 1993**

	# of Men		# of Women	
	1983 (%)	1993 (%)	1983 (%)	1993 (%)
<b>Race/Ethnic Category</b>				
White	70 000 (53.4)	40 700 (36.7)	5 500 (26.3)	8 700 (22.6)
Black	35 400 (27.0)	42 800 (38.7)	10 400 (49.8)	22 400 (58.2)
Hispanic	23 800 (18.2)	25 000 (22.6)	5 200 (24.8)	7 100 (18.4)
<b>Mode of Transmission</b>				
Homosexual	88 100 (67.2)	70 200 (63.5)		
IDU	21 100 (16.1)	19 100 (17.3)	10 700 (51.2)	11 000 (28.6)
Homosexual+IDU	15 600 (11.9)	9 200 (8.3)		
<b>Heterosexual</b>	3 000 (2.3)	9 200 (8.3)	9 300 (44.5)	25 000 (64.9)
<b>Total</b>	<b>131 100</b>	<b>110 600</b>	<b>20 900</b>	<b>38 500</b>

Source: Rosenberg and Biggar (23)



**HIV infection in Rwanda**

Data from urban antenatal clinic attenders in Rwanda, demonstrate that from 1990 to 1996, HIV prevalence has declined from 20% to 15% (15). Although there is a substantial change in the overall prevalence from 9.4% in 1986 to 13.2% in 1997, the changes within rural and urban areas are being masked. HIV sero-prevalence has increased from 1.7% in 1986 to 10.3% in 1997 in rural areas (Table 6). In contrast, new infections in urban areas are in the younger age group whilst declining in the older age groups (Table 7). Amongst rural Rwandan women, HIV infection in the 26-40 year age group has increased from 2.8% in 1986 to 14.1 % in 1997. The HIV epidemic in Rwanda highlights the stabilisation of the HIV epidemic in some sub-groups masking new sub-groups acquiring HIV infection.

**Table 6: Progression of HIV infection in Rwanda**  
**by region: 1986-1997**

**Prevalence (%)**

<b>Region</b>	<b>1986</b>	<b>1997</b>
Urban	16.5	14.7
Rural	1.7	10.3
<b>Overall</b>	<b>9.4</b>	<b>13.2</b>

**Source: Government of Rwanda (24)**

**Table 7: Progression of HIV infection in Rwanda**  
**by age and region: 1986 - 1997**

Age Group (years)	Prevalence (%)			
	Rural		Urban	
	1986	1997	1986	1997
12-15	1.7	4.6	4.2	11.2
16-25	1.8	9.9	17.0	24.2
26-40	2.8	14.1	30.0	17.2
> 40	0.6	12.7	14.9	6.4

**Source: Government of Rwanda (24)**

### **1.2.3. Emerging epidemics**

There are countries in the world where the overall HIV prevalence is low but the incidence rates are increasing in sub-groups. Whilst the future course of the epidemic in these countries remains uncertain, the potential for rapid spread or bridging into other groups is of concern.

Existing HIV risk data suggest a milieu for a major epidemic.

Countries such as the Ukraine and Russia, that have recently undergone major social upheavals are potential sites for major epidemics. In yet other countries such as India and China, whilst the HIV seroprevalence is low the population density in these countries suggests that even small rises in HIV prevalence could result in a disproportionate contribution to the global burden of infection.

#### ***Russia and the Ukraine***

In countries from eastern Europe such as Russia and the Ukraine, the

predominant mode of transmission is through injecting drug use (IDU) (3). Prior to 1994 HIV infection in the Ukraine was rare (25). Since 1994, the spread of HIV has been observed almost exclusively among injecting drug users. In 1998 the number of injecting drug users infected with HIV in the Ukraine increased 6-fold from 1000 to 6000 (26). Whilst data on the spread of HIV in the general population in the Ukraine and Russia remain sparse, rapid bridging between the injecting drug-using population and non-drug-using general population of young adults is anticipated because of the recent major social, political and economic changes.

The prevalence of sexually transmitted diseases is a useful marker of risky sexual behaviour. In Russia, the decline in syphilis rates through the 1980's has been reversed. There has been a rapid increase since 1991. From 10 000 cases in 1990, to 500 000 in 1997 alone, syphilis has been increasing dramatically in this region (27). The increase in syphilis incidence rates together with sharp rises in rates of other sexually transmitted diseases suggest that the risk of HIV spread is high.

### ***India***

In South and South East Asia, India has the highest number of HIV infections in terms of absolute numbers of people infected (3).

Relative to its total population of 970 million people, the estimated 4 million with HIV infection, translates to a prevalence of less than 0.5%.

Sexual transmission through heterosexual contact is the main mode of transmission. Although almost all states in India report HIV infection, the HIV epidemic is fairly localised. The estimated 1 million sex workers in the city of Mumbai and their clients are key to the epidemic in this city (28). On the other hand in the state of Manipur, injecting drug use is an important risk factor (28). Other sexually transmitted diseases also constitute a major health problem (29) and could be an important risk factor for fuelling this epidemic in India. Whilst at an early stage of the epidemic, India is already contributing about 10% of the global burden of HIV infection. The large population density together with existing risk factors is cause for concern.

#### **1.2.4. Womens' increasing risk for acquiring HIV infection**

Women feature much more in this decade of the HIV pandemic compared to the first. UNAIDS estimated at the end of 1999, that there were 14.8 million women living with HIV; this represents 44.0% of the global adult burden of infection (3). To date about 6.2 million women have died of AIDS, 1.1 million in 1999 alone. Of the estimated 5.6 million new infections amongst adults contracted during 1999, 2.3 million (41.1%) were amongst women (3).

Sub-Saharan Africa is the only region of the world where more women are infected with HIV compared to men (3). At the end of 1999, it was estimated that there were 12.2 million women and 10.1 million men aged 15-49 living with HIV in Sub-Saharan Africa. Women infected

with HIV in Sub-Saharan Africa constitute 82% of the global burden of HIV infection in women. The majority of infected women have been infected through unprotected sex (30).

These data, together with those presented earlier, highlight the association between HIV infection and gender and brings to the fore the growing HIV epidemic in women, especially in Southern Africa.

### **1.3. South Africa: Host to a New and Emerging Epidemic**

#### **1.3.1. Introduction**

The first cases of AIDS in South Africa occurred among homosexual men in 1982 (31). Prior to the development of HIV antibody tests, about 100 blood transfusion related infections are known to have occurred between 1982 and 1985. HIV testing of stored sera from a community survey in rural KwaZulu-Natal (32) and blood donor data demonstrated a very low prevalence of HIV in the general population in 1985 (33).

HIV-1 is the dominant strain in South Africa, with HIV-2 remaining rare. The molecular epidemiology of HIV-1 demonstrates that the clade B virus is predominant among men having sex with men, and that clade C is associated with heterosexual transmission (34). These findings suggest two independent HIV epidemics unfolding in South Africa; the first and earlier epidemic started in the early 1980s in which HIV

spread mainly through men having sex with men and contaminated factor VIII, while the second and more recent epidemic started in about 1987 among heterosexuals with a concomitant epidemic among children infected through perinatal transmission. While recreational drug use is extensive and may be contributing to sexual spread of HIV (35), injecting drug use appears to be limited and sharing of needles does not appear, at this point, to be a very important mode of HIV transmission in South Africa (36).

**1.3.2. Temporal trends**

Although current HIV, AIDS and STD data are patchy, the annual national antenatal HIV seroprevalence surveys provide a reliable indication of the temporal trends of the HIV epidemic in South Africa. Within nine years the prevalence of HIV infection rose 30-fold (Table 8) from 0.76% in 1990 to 22.8% in 1998 (37).

**Table 8: HIV seroprevalence in antenatal clinic attenders in South Africa: 1990-1998**

YEAR	PREVALENCE (%)
1990	0.73
1991	1.74
1992	2.15
1993	4.01
1994	7.57
1995	10.44
1996	14.17
1997	17.04
1998	22.8

Source: Epidemiological Comments (37)

The results of the national antenatal surveys have been used to estimate the number of South Africans infected with HIV. Since these calculations are based on a set of assumptions, they are, at best, crude estimates. Based on the above figures, at the end of 1998 it was estimated that 4 million South Africans were infected with HIV (37).

### **1.3.3. Geographical distribution**

The annual national antenatal HIV seroprevalence surveys also demonstrate a gradient of HIV infection across the country, from high levels in the north eastern provinces, to lower levels in the south western parts of the country. The factors underpinning this gradient of infection have not been elucidated as, to date, no empiric studies to examine this issue have been undertaken. While the HIV epidemic is more advanced in some provinces (Table 9), it is well established in all provinces. The epidemic in KwaZulu-Natal is about two years ahead of the rest of the country.

**Table 9: Progression of HIV infection in antenatal clinic attenders  
by province: 1990-1998**

**Prevalence (%)**

<b>Province</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
Western Cape	0.06	0.08	0.25	0.56	1.16	1.66	3.1	6.3	5.2
Eastern Cape	0.44	0.58	0.96	1.94	4.52	6.00	8.1	12.6	15.9
Northern Cape	0.20	0.12	0.65	1.07	1.81	5.34	6.5	8.6	9.9
Free State	0.59	1.50	2.86	4.12	9.19	11.0	17.5	20.0	22.8
Gauteng	0.66	1.12	2.53	4.13	6.44	12.0	15.5	17.1	22.5
North-West	1.05	6.54	0.94	2.19	6.71	8.30	25.1	18.1	21.3
Mpumalanga	0.38	1.21	2.23	2.40	12.16	16.1	15.8	22.6	30.0
Northern	0.26	0.48	1.05	1.79	3.04	4.89	8.0	8.2	11.5
KwaZulu-Natal	1.61	2.86	4.50	9.53	14.35	18.2	19.9	26.9	32.5

**Source: Epidemiological Comments (37)**

#### **1.3.4. Urban-Rural differences**

From 1992 to 1997, anonymous HIV serosurveys have also been conducted among antenatal clinic attenders in rural Hlabisa (38).

Comparing rural HIV prevalence estimates to overall rural and urban combined estimates (Table 10) demonstrates that the epidemic is progressing as rapidly in rural areas as in urban areas.

**Table 10: HIV prevalence in antenatal clinic attenders in rural  
Hlabisa compared to the KwaZulu-Natal Province: 1992-1997**

**Prevalence (%)**

<b>Year</b>	<b>Hlabisa #</b>	<b>KwaZulu-Natal*</b>
1992	4.2	4.8
1993	7.9	9.6
1995	14.0	18.2
1997	23.9	26.9

**Source: Epidemiological Comments\*(37) and Wilkinson D\*(38)**



### **1.3.5. Distribution of HIV by race**

Internationally it is recognised that marginalisation, discrimination and alienation are factors that contribute to increased vulnerability to HIV infection (39). This is nowhere more starkly demonstrated than in South Africa - blacks being hardest hit by this epidemic. By virtue of the social dislocation and family disruption induced by the migrant labour system, sexually transmitted infections (including HIV) have the right conditions for rapid transmission (40). Under the apartheid system the black communities suffered these conditions to a much greater extent compared to the other race groups. Further, apartheid ensured separateness of the different race groups. The HIV epidemic amongst blacks is therefore different from the epidemics in the other race groups. The main difference is the “explosive” spread of HIV amongst blacks. In contrast, the epidemic in the other race groups continues to grow but at a substantially lower rate.

Data from voluntary blood donors (Table 11) (41), demonstrates that HIV is spreading in all race groups; however it is about 10 times more common among blacks compared to other race groups. The South African Blood Transfusion Services procures blood from a low-risk population following a risk assessment screening; these data are therefore likely to be under-estimates.

**Table 11: HIV seroprevalence in voluntary blood donors by race  
and gender: 1990-1996**

HIV Prevalence (per 100 000)								
	White		Indian		Coloured		Blacks	
Year	Men	Women	Men	Women	Men	Women	Men	Women
1990	32	6	84	58	31	0	758	758
1991	69	17	76	22	27	34	1515	1893
1992	98	10	53	0	100	104	2880	4416
1993	39	21	32	161	298	568	4362	6117
1994	107	12	206	139	240	401	7310	9524
1995	120	13	220	0	266	636	8772	13684
1996	127	82	313	196	329	719	7796	12719

**Source: National Blood Transfusion services (41)**

### **1.3.6. Age distribution**

The national antenatal seroprevalence surveys also demonstrate that the prevalence of HIV infection is highest in young women in the under 30 year age group (Table 12) (37). The largest increase in HIV prevalence is taking place among women between the ages of 15 and 24 years.

**Table 12: HIV prevalence in antenatal clinic attenders  
in South Africa by age: 1994-1998**

**Prevalence (%)**

<b>Age Group</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
<b>&lt;20</b>	6.5	9.5	12.8	12.7	21.0
<b>20-24</b>	8.9	13.1	17.5	19.7	26.1
<b>25-29</b>	8.6	11.0	15.2	18.2	26.9
<b>30-34</b>	6.4	8.0	12.1	14.5	19.1
<b>35-39</b>	3.7	7.4	9.7	9.5	13.4
<b>40-44</b>	5.3	4.4	9.9	7.5	10.5
<b>45-49</b>	0.4	7.5	5.8	8.8	10.2

Note: The estimate of HIV prevalence in the 45-49 year group is based on very small numbers

Source: **Epidemiological Comments (37)**

### **1.3.7. HIV infection in Sentinel Groups**

#### ***STD clinic attenders***

Passive surveillance data from STD clinic attenders from Carletonville, a mining community, demonstrated an increase in HIV prevalence from 8% in 1991 to 44% in 1996 (42). These migrant workers originate from areas throughout South Africa. Ongoing monitoring of HIV infection among STD clinic attenders in rural Hlabisa demonstrated in 1996 that about 40% were co-infected with HIV (43). A survey in a dedicated STD Clinic in Cape Town conducted in 1995 found that 6% of men presenting with a discharge were co-infected with HIV while 10% of the women with a discharge were co-infected with HIV (44). In 1996 in Johannesburg at a dedicated STD clinic, 25% of men with a urethral discharge were co-infected with HIV compared to 44% of

women; 48% of patients with genital ulcers were co-infected with HIV (45). In a Durban STD clinic in 1996, 32% of men with a discharge were co-infected with HIV compared to 61% of women (46).

### ***Sex workers and their clients***

A study conducted in 1992 at an escort agency in Durban found no HIV infection among sex workers (47). In a survey amongst 145 female sex workers at truck-stops in the Natal Midlands conducted in 1996, an HIV prevalence of 50.3% was reported (48). The clients of sex workers also need to be the focus of interventions; a study of 213 long distance truck-drivers passing through the Natal Midlands indicated that 27% had an STD at some time; 18% reported swollen glands; 25% have sex during an infection; 71% never use condoms and 35% have more than 1 partner (49).

### ***Tuberculosis clinic attenders***

The most common HIV/AIDS presenting opportunistic infection in South Africa is tuberculosis. The progression from asymptomatic to early disease is best reflected in the rise in new tuberculosis cases and the number of co-infections with HIV.

In a rural community in South Africa, co-infection with HIV in adult tuberculosis rose from 36% in 1993 to 59% in 1995 to 65% in 1997 (50). New tuberculosis cases have a similar age and gender profile to that seen in the HIV epidemic with women presenting at a much

younger age compared to men. The TB case fatality rate is much higher where there is co-infection with HIV (51).

## **1.4. Understanding Behaviour Change**

### **1.4.1. Introduction**

Most new HIV infections around the world result from unprotected sexual intercourse with an HIV infected person (3). In the absence of a vaccine or cure, interventions targeted at behaviour modification have been central to most efforts to prevent the further spread of HIV. A number of psycho-social, educational and liberation theories have guided the design of behavioral interventions targeted at reducing the transmission of HIV (52-56). In examining the evolution of behavioral interventions to reduce HIV transmission, three distinct types of interventions can be discerned. These types of interventions have been influenced by shifts in the emerging epidemic as well as evaluations of existing interventions.

### **1.4.2. Cognitive and decision-making theories:**

These theories are based on psycho-social theories that guided the design of other successful health interventions such as anti-smoking and healthier lifestyle initiatives (52,56). The common feature of this type of intervention was the emphasis of the theories and models on the individual. The Health Belief Model (Becker and Janz) (53), the theory of reasoned action (Ajzen Fishbein) (54), the AIDS

Risk Reduction Model (CATANIA) (58) and self-efficacy models (Bandura) (57), all sought to encourage, teach and maintain individual behavioral strategies to reduce risk of acquiring HIV infection. These models and theories were based on the assumption that behavior change rests with the individual and if the individual is provided with knowledge this would influence perceptions of risk and belief in the desired behavior(s) and adoption of the desired behavior(s). Interventions that included a combination of factual knowledge about modes of transmission and methods of prevention and some limited skills building eg. how to use a condom, started to be widely implemented. Evaluation of the success of these interventions in a variety of settings through the plethora of Knowledge, Attitude, Practice and Behavior (KAPB) (59-63) studies, consistently demonstrated that whilst knowledge was a pre-requisite for successful behavior change, in itself it was insufficient to adopt or maintain the desired behavior.

#### **1.4.3. Social Cognitive Theories**

Towards the latter half of the first decade of the pandemic the limitation of the cognitive models and theories started to be addressed through a stronger influence of social and educational theories (55,64,65). Interventions were more cognizant of the importance of peer norms, values and beliefs in the effectiveness of the intervention and that motivation to adopt the desired behavior depended on knowledge of, and belief in the perceived benefits of adoption of the intervention (62,65,66). Although these interventions still had a strong

focus on the individual and the assumption that the desired behavior change was under the control of the individual, physiological and social aspects of social policy, diffusion of innovation and participatory methodologies were starting to be incorporated (67,70).

#### **1.4.4. Communication theories**

In the second and current decade of the epidemic the major shift that started taking place in the design of behavioral interventions was that of moving from the exclusive focus on the autonomy of the individual to an increasing emphasis on understanding the social context within which an individual lives and how this influences the adoption of HIV risk reduction measures (67,70). Behavioral interventions based on these issues are starting to emerge. Liberatory educationists such as Freire and Werner, whose philosophies emphasize collectivism, dialogue, personal and social action as the most effective tools for transformation and social change, are starting to receive attention in the design of HIV prevention interventions (52,55,69). Ethnographic studies of sexual behavior, cognisance of power differentials along race, class and gender; understanding of sex and sexuality; and differences between the individual's ability to control and access resources; are guiding the design of these interventions. The interventions incorporate a wider variety of methodologies such as social interventions, advocacy and lobbying, mass media, community activism, diffusion theory through peers and opinion leaders or trendsetters strategies as well as in a multi-pronged approach at

multiple levels in society from the individual, family, community, institutions, legislative and structural (55,68-71).

#### **1.4.5. Implications of Epidemiological Changes for the design of Behavioral Interventions**

In contrast to the first cases of AIDS among men having sex with men and injecting drug users in North America and Europe, and through heterosexual contact in central and eastern Africa, by the latter half of the first decade of the pandemic newer epidemics were emerging throughout the world (3). The challenges for the design of behavioral interventions included:

- i. Trying to promote desired behavior change in countries and communities where there was no evidence, experience, or knowledge of the visible disease syndrome as is traditionally known with other infectious diseases eg measles, polio or tuberculosis
- ii. The addition of the early detection and treatment of other sexually transmitted infections in the armamentarium of desired behaviors
- iii. The newer epidemics were occurring in historically marginalized, discriminated or socially and economically underdeveloped populations and communities.

#### **1.4.6. Need for a paradigm shift**

Despite high levels of knowledge about HIV/AIDS transmission and



prevention, behavior change has not occurred in heterosexual populations (3,72). As behavior modification remains the mainstay of HIV prevention efforts there is a need to reassess the underlying assumptions and framework for prevention. It is evident that human behavior is very complex and in addition to individual factors it is influenced by the social context within which the individual lives. An additional challenge is the maintenance of the desired behavior over a prolonged time-span.

The major focus of current safer sex practices remains the promotion of behaviours that reduce the risk of acquiring HIV infection viz. reduction in partner numbers; mutually faithful, lifetime monogamy; abstinence; the use of male and female condoms and the treatment of other sexually transmitted infections. There is growing recognition that the successful implementation of these options is more complex for women than it is for men (73,74).

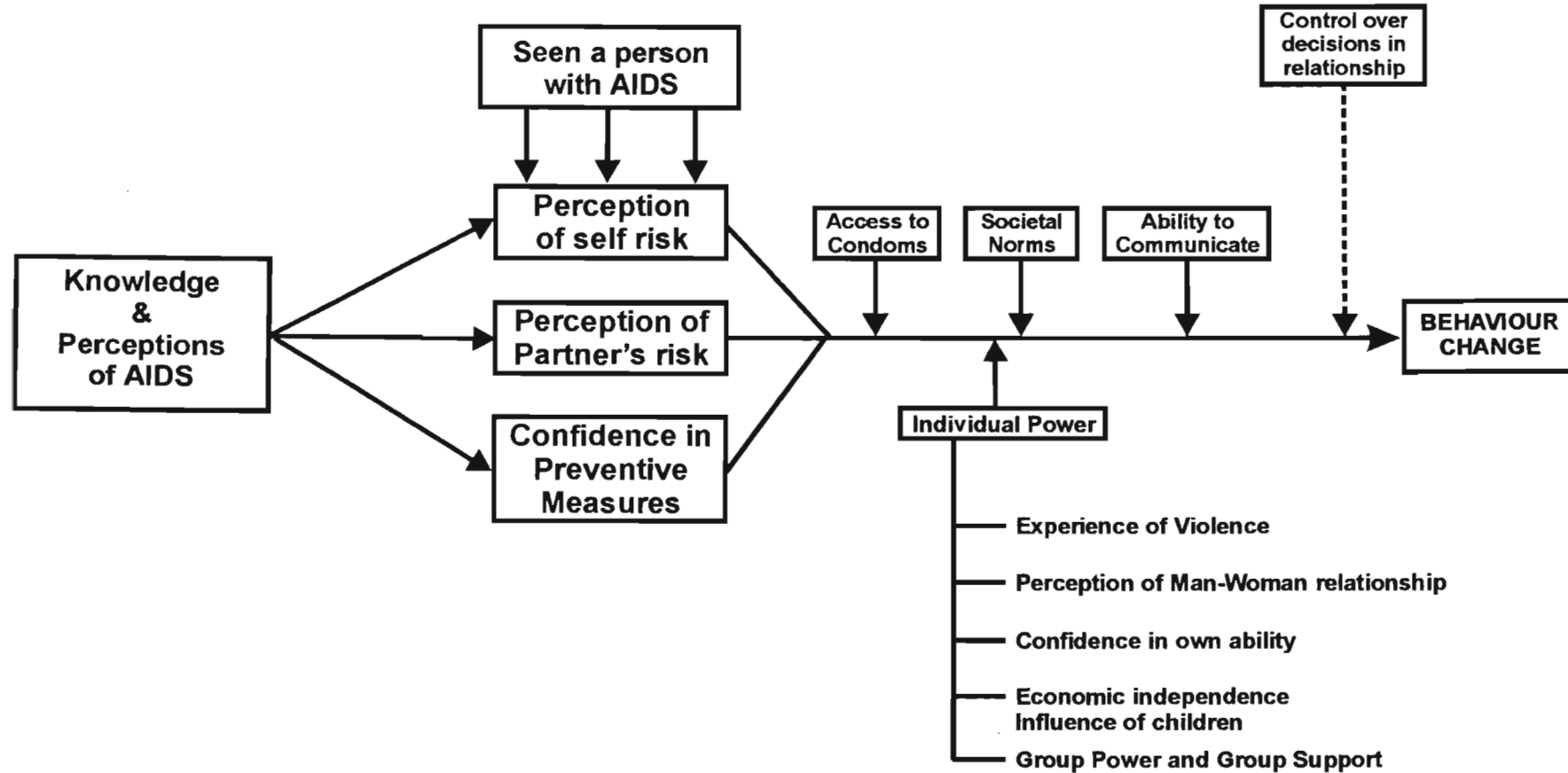
Gender, that is, how and what men and women are expected to know about sexual matters and their sexual behavior is central to vulnerability to acquiring HIV infection (75-77). Men are expected to know and be experienced about sexual matters. In contrast, "good" women are expected to be ignorant about sexual matters including their own bodies. These prevailing norms that exist in most societies interfere with men and women's knowledge about sexual risk and HIV and creates attitudes and behaviors that contribute to increasing

individual risk (68,73,74,77,78).

#### **1.4.7. Theoretical framework**

Based on the assumption that sexual behavior among women in heterosexual relationships is multifaceted, the framework that was established for the socio-behavioural studies undertaken as part of this dissertation was based on attitudinal, psycho-social, relational and behavioral factors (72,73,75,79-84) (Figure 1). More specifically, issues such as relationship dynamics, gender role expectations, self-esteem, self-efficacy, sexual and condom norms and values, and a human rights based focus on sexuality were explored. In addition, data on demographics, interpersonal hostility and sexual experiences were also collected.

Figure 1: Conceptual framework for understanding women's vulnerability to HIV infection



## **1.5. Scope of the research**

The data presented earlier demonstrates the increasing burden of HIV infection in women throughout the world. Sub-Saharan Africa is worst affected by the HIV epidemic (Table 1) and the only region in the world where more women than men are infected with HIV (3). The reasons for this discrepancy have not been elucidated. Further, the global burden of HIV infection in women is disproportionately high in sub-Saharan Africa (3).

In South Africa, as an explosive epidemic unfolds (Table 8), the temporal trends in HIV infection amongst antenatal clinic attenders indicate that the epidemic is most advanced in the province of KwaZulu-Natal (Table 9). The HIV epidemic in this province is about two years ahead of the rest of the country. Young women are bearing a disproportionate burden of HIV infection in South Africa. In the absence of other sources of data, including that for men, factors contributing to these epidemiological trends remain to be elucidated.

Thus far, our understanding of the epidemic in the region has been based on anonymous screening of pregnant women. Anonymous, unlinked HIV sero-prevalence surveys amongst antenatal clinic attenders provide a convenient sentinel group to monitor trends in the HIV epidemic and estimate the prevalence of HIV infection in the general population (85). However, the prevalence of HIV infection in pregnant women compared to non-pregnant women is influenced by,

amongst others, fertility rates and differing HIV risk-related behaviours (86). There is a need to quantify some of these biases in order to provide a better estimate of HIV infection in the general population and among non-pregnant women and thereby enable appropriate design and targeting of HIV risk-reduction interventions.

There is emerging evidence, that HIV infected women become progressively less fertile and that the longer their HIV infection progresses the less likely they are to become pregnant (86).

Therefore, as fewer HIV infected women utilise antenatal services fewer will be tested and hence the antenatal estimates will fail to reflect the true extent of HIV infection in the female population.

In the context of the global, regional and local HIV epidemics, there are many potential social, behavioural and biological risk factors that could explain the excess infection in women. There is, however, a particular need to understand more clearly and concisely the extent of the HIV epidemic in women, the way the epidemic is changing in women, the social context influencing these changes and the obstacles to current HIV prevention efforts in women. This research endeavour starts to address these issues in the context of the emerging HIV epidemic in KwaZulu-Natal, South Africa.

### ***Why focus on women?***

Women comprise half of the world's population and make a

substantial contribution to society through a variety of professions and sectors. Furthermore, women have multiple, largely unrecognised roles in society such as educators and care-givers in both formal and informal settings; acting as vanguards of societal norms and values; and ensuring continuity of society through procreation. These latter contributions are difficult to measure in economic terms and their impact will only be felt after its loss. It will take many generations to recover from this loss. In many countries, particularly where the health care systems are weak, the burden of caring falls on women. Yet, knowledge of a woman's HIV status often leads to ostracisation, violence and loss of security (87,88).

Given that HIV is predominantly transmitted by sex, a focus on women does not imply ignoring men in seeking solutions. Rather the primary focus is to understand the complexities of women protecting themselves from acquiring HIV infection in the context of existing power imbalances in society in order to inform short-, medium and long-term strategies that will enhance woman's abilities to protect themselves or reduce their risk of infection with HIV.

The Cairo (89) and Beijing (90) Conferences, both underlined the need for programmes to take notice of the vulnerability of women to HIV infection and for governments especially to respond by creating supportive legislative and policy frameworks to reduce women's risk of acquiring HIV infection. The Platform for Action has yet to be adopted

and implemented by most governments.

The vulnerability of women to HIV and other sexually transmitted infections (STIs) as well as their reproductive health status is centrally related to the context of their lives within a patriarchal society. This male dominance pervades every aspect of their lives such as family, religion, social, legal and institutional; and influences their ability to protect themselves. Acquiring or avoiding infection with HIV and other STIs is more complicated for women compared to men. Hence this research endeavour aims to understand the epidemiology and social factors influencing women's vulnerability to HIV and thereby to contribute to public health policy and planning on this important issue.

## **Chapter 2: Purpose, Objectives and Ethics**

### **2.1. Purpose**

To assess gender differences in HIV infection and to elucidate the demographic, social, behavioural and health service factors affecting a woman's risk of acquiring HIV infection in KwaZulu-Natal, South Africa.

### **2.2. Objectives**

- 2.2.1. To quantify the gender difference in HIV infection in rural KwaZulu-Natal.
- 2.2.2. To monitor the temporal changes in gender differences in HIV infection in rural KwaZulu-Natal.
- 2.2.3. To determine the extent of the gap between HIV knowledge and behaviour and its influence on reducing HIV risk in women from KwaZulu-Natal.
- 2.2.4. To identify obstacles to women's ability to reduce their risk of acquiring HIV infection in KwaZulu-Natal
- 2.2.5. To assess the extent to which mothers in KwaZulu-Natal are communicating with their teenage children with respect to HIV and sexuality.
- 2.2.6. To determine social and behavioural factors that influence women's risk for acquiring HIV infection in KwaZulu-Natal.
- 2.2.7. To assess whether there are health service obstacles to women



adopting safer sex practices in KwaZulu-Natal.

2.2.8. To develop recommendations for strategies to reduce women's risk of HIV infection based on the above findings.

## **2.3. Ethical Considerations**

Each of the studies that comprise the research undertaken for completion of this doctoral thesis was approved by the Ethics Committee of the Faculty of Medicine, University of Natal.

Confidentiality of all data was carefully maintained including during data analysis and dissemination of research findings. More information with respect to the specific ethical issues relating to each observational study is provided in the relevant sub-sections of this dissertation.

## **Chapter 3: Overview of dissertation, Summary of the study sites and study population involvement in the research**

### **3.1. Overview of dissertation**

In the midst of an emerging HIV epidemic in South Africa, a series of observational studies were undertaken to better understand the dynamics of HIV transmission at a population level as well as the socio-contextual issues at the individual, community, structural and health service level fueling this epidemic amongst women.

The community-based epidemiological survey described in Chapter 4 quantifies the differences in HIV sero-prevalence between men and women. Chapter 5 extends the epidemiological data from Chapter 4 through sequential, community-based, cross-sectional surveys which document temporal changes as an explosive epidemic starts to unfold and highlights the age and gender differences in HIV infection.

Through surveys amongst women in peri-urban and rural communities, the social context underpinning the findings of the sero-prevalence surveys in rural and urban settings start to emerge (Chapter 6). Whilst gender issues have influenced the way the epidemic is unfolding in men and women, the limitations of current prevention messages are

highlighted. The failure of prevention programmes to date, are related to constraints at the individual, societal and programmatic levels.

The risk of acquiring HIV infection for women is highlighted in the knowledge-behavior gap observed in women in an urban community. Despite their own high level of HIV/AIDS they have not been able to translate that into at least one concrete action viz that of communicating the dangers of a new threat to their teenage children (Chapter 7).

Women's exclusion from the formal economy has forced them to explore alternate survival mechanisms, including sex work. Chapter 8 highlights the structural barriers faced by sex workers in trying to protect themselves from acquiring HIV in a huge industry that remains illegal in South Africa. For fear of violence on the one hand and loss of income on the other, sex workers at this truck-stop are unable to insist on condom use.

Of greatest concern are the obstacles placed in the way of young women when they seek condoms at public sector health facilities (Chapter 9). Family planning service providers are important gatekeepers of reproductive health services, including access to current and new technologies. In KwaZulu-Natal, family planning service providers have not yet made the link between fertility control services and their role in preventing HIV infection. Their view of male

condoms as secondary fertility control devices has lead them to discourage male condom use, particularly amongst young women. Their role in limiting access to male condoms through public sector health facilities contributes to enhancing the spread of HIV infection.

In conclusion, a way forward is explored by providing options that go beyond the current messages of monogamy, condom use and treatment of sexually transmitted infections (Chapter 10).

### **3.2. Summary of study sites, study populations, sample size and study design**

In undertaking the seven components of this dissertation, a diverse range of study populations and methodologies were employed. Whilst more details on the methods are provided in each of the relevant chapters a summary of the study populations, sample size and study designs is presented in Table 13.

**Table 13: Overview of Methods, Study Sites and Study Design**

Chapter	Purpose of the Study	Study Site	Study Population	Sample Size	Study Design	Sampling	Measurements
4	Gender differences in HIV	East Coast of KwaZulu-Natal north of the Tugela River	Residents in the Malaria Control Programme areas	5023	Cross-sectional	Convenience sample	Questionnaire + HIV antibody EIA and Western Blot
5	Temporal trends in gender differences in HIV prevalence	East Coast of KwaZulu-Natal north of the Tugela River	Residents in the Malaria Control Programme areas	5605 and 5560	Cross-sectional	Convenience sample	Questionnaire + HIV antibody EIA and Western Blot
6	HIV knowledge and safe sex practices of women	Lamontville, Durban	Mothers of teenagers	122	Cross-sectional	Systematic Sample	Structured Questionnaire
7	Factors that influence the HIV knowledge-behaviour gap	KwaXimba (rural) and Nhlungwane (peri-urban)	Women 16 - 44 years	Nhlungwane = 111 KwaXimba = 108	Cross-sectional	Systematic Sample	Structured Questionnaire
8	Gender barriers to reducing HIV risk among sex workers	Truck-stop in Ladysmith	Sex workers residing at this truck-stop	12 sex workers 9 truck-drivers	Longitudinal	All sex workers at the truck-stop; Sequential truck-drivers	In-depth interviews and questionnaires
9	Health service obstacles to condom access	Family Planning Clinics, Durban	Simulated clients	12 clinics X 4 visits each = 48 visits	Cross-sectional	Random sample	Semi-structured interview schedule + observation

### **3.3. Selection of sites and participant involvement in the research**

#### **3.3.1. Seroprevalence Surveys**

The HIV seroprevalence surveys were conducted in conjunction with the Malaria Control Programme in KwaZulu-Natal. In order to get a large, representative sample of the rural communities in northern KwaZulu-Natal at low cost for anonymous HIV testing, this study had to utilise existing infrastructure. Hence, the HIV surveys were piggy-backed onto the malaria active surveillance programme.

#### **3.3.2. Surveys of urban and rural women**

Chief Mlaba of KwaXimba had invited researchers to undertake research within his rural community. KwaXimba and Nhlungwane had active community-based organisations that were keen to become involved in HIV research. These organisations identified closely with the research and even requested their members to support the research. In KwaXimba, the results of the survey were shared with the community at an *imbizo* (community gathering) attended by several thousand people. In both Nhlungwane and KwaXimba, the community identified clearly with the research and results were used for designing HIV awareness programmes for the community.

#### **3.3.3. Urban mothers and their teenage children**

Mothers of teenagers were sampled for this survey in Lamontville.

Lamontville, a dormitory Black suburb, south of the Durban city centre, was selected because of established links with the Women's Group in the area. The Women's Group facilitated community involvement and community entry for this house-to-house survey. Further, the Women's Group was actively involved in the research and used the results of the survey to design an educational intervention for women in this community.

#### **3.3.4. Sex workers at a truck-stop**

The sex workers from a truck-stop requested a local health official to have someone come and address them on AIDS. I was approached by the health official and undertook the 3 hour journey to deliver an educational talk on AIDS to the sex workers. At this meeting at the truck-stop the sex workers were invited to participate in research and agreed to do so on condition that the data be collected by a sex worker elected by themselves. This level of ownership over the research process is the hallmark of the truck-stop studies which have been expanded and continued over the past 8 years.

#### **3.3.5. Family planning clinics in Durban**

Due to their proximity the simulated client studies were conducted in clinics in the greater Durban area. The Durban City Medical Officer of Health and the Provincial Director of Health Services agreed to the study being undertaken in clinics under their respective jurisdiction. When the results were shared with management, they felt it was

important to balance the user perspective with the provider perspective. This provided results from both the user and provider perspective and changes in service provision with respect to condom promotion at these clinics.

Overall, the research was conducted recognising the importance of community participation in research. Each of the 7 components of this thesis had some level of volunteer participation; some even went as far as enabling the community to respond to the growing HIV epidemics in their community.



# **Chapter 4: Quantifying the gender difference in HIV prevalence: A community-based sero-survey in KwaZulu-Natal**

## **4.1. Introduction**

In early 1990, the only available South African data on HIV infection through heterosexual transmission were from blood donor screening (91) and ad hoc sero-surveys in high risk groups such as STD patients (92) and mine workers (93). In order to monitor trends in the unfolding HIV epidemic in the heterosexual population the government started to conduct national annual anonymous HIV seroprevalence surveys amongst antenatal clinic attenders in public health sector clinics, the first of which was conducted in October/November 1990 (94). Whilst the HIV seroprevalence data derived from surveys amongst antenatal clinic attenders was informative on trends in the progression of the HIV epidemic in South Africa and elsewhere, it has a number of limitations in terms of elucidating risk factors and for the design, targeting and evaluation of prevention interventions (95). Comparative data on women and men from the general population was non-existent in 1990, and still remains patchy. Data from countries in east and central Africa, where HIV was predominantly being spread through heterosexual contact, suggested that HIV infection was more common

among women compared to men (96,97). In 1990, no descriptions of the gender differences in the HIV epidemic in South Africa was available.

A unique opportunity to perform anonymous HIV seroprevalence surveys in the rural population of northern KwaZulu-Natal, South Africa arose through the Malaria Control Programme of the Department of Health (98,99). Three cross-sectional seroprevalence surveys were undertaken in conjunction with the Malaria Control Programme over an eighteen month period. To date, these remain the only substantive HIV seroprevalence studies describing and capturing the unfolding of the “explosive” HIV epidemic in South Africa at a population level.

The Malaria Control Programme includes active surveillance of the general population using blood-films for parasite microscopy. Surveillance agents visit almost all houses in endemic malaria areas approximately once every six weeks.

This chapter describes the methodology used for all three surveys and describes and discusses the findings of the first of the three surveys. The results of Surveys 2 and 3 are presented and discussed in Chapter 5 and underscores the temporal changes in HIV infection in this rural population with particular reference to the gender differences.

## **4.2. Purpose**

The purpose of this study was to determine the prevalence of HIV infection and to describe the gender differences in HIV infection in northern KwaZulu-Natal, South Africa.

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## **4.3. Methods**

### **4.3.1. Study Population**

The study population was the same as the target population residing in the area covered by the Malaria Control Programme (Fig 2). The study region is predominantly rural, with both subsistence and commercial farms. Urban areas are excluded from the malaria active surveillance programme. The entire endemic malaria area, has been divided geographically into malaria sectors. The average population in a malaria sector is 6777(range, 1021-30247). A surveillance agent is responsible for visiting each house or farm in a given malaria sector (many surveillance agents are allocated to one sector only) approximately once every six weeks.

### **4.3.2. Sample selection**

During their daily house-to-house visits, the surveillance agents took blood samples (after obtaining verbal consent) from individuals who had experienced a fever within the previous fortnight and from healthy individuals. Whilst all febrile individuals were asked to participate, the selection of healthy individuals followed no fixed pattern. Blood was

requested for malaria microscopy at the discretion of surveillance agents from any one of the healthy individuals in each household. This degree of discretion is reflected in the under-representation of infants and young children in the sample. Since the surveillance agents visited houses only during the week, certain groups, such as men who work in the urban areas, are under-represented.

As a result of migrant labour, rural communities have a skewed demographic profile: there are almost twice as many women as men. This gender skewness is present in the survey, suggesting that the surveillance agents, in using their discretion to select the subjects, did not display a significant systematic gender bias. However, because the subjects were not selected randomly, other sampling biases could be operative. It is important to note that because HIV infection is usually asymptomatic, it would not be possible to purposefully under- or oversample subjects based on their HIV status; biases would result if sampling was influenced by a factor associated with HIV infection. For example, if surveillance agents did not select subjects suffering from tuberculosis, or other HIV-related diseases, this would create bias towards HIV-negative subjects. Despite these selection biases, useful estimates can be obtained for adults resident in this rural area.

Since more than 90% of blood-films for malaria are taken from blacks, only blacks were included in this study. There were no other exclusion criteria; any black individual present during the fieldworker's visit qualified for inclusion in the study.

#### **4.3.3. Specimen collection and testing**

Survey 1 was conducted on the Mondays and Tuesdays of six consecutive weeks, from November to mid-December 1990; survey 2, from June to mid-July 1991; and survey 3 from June to mid-July 1992. On these days, each surveillance agent collected 3-5 drops of blood in a Microtainer serum separator tube (Becton Dickinson, Rutherford, New Jersey, USA) from the same fingerprick that was used for the malaria blood-film. The microtainer tube was then sealed in a ziplock bag, which had the questionnaire printed on it.

All specimens were collected from the surveillance agents on Wednesday mornings and transported to Durban in cold-boxes. No specimen took longer than five days, from date of collection to date of arrival, to reach the Virology Laboratory in Durban, where they were centrifuged and stored at 4 degrees Celsius until tested.

Within seven days of being collected in the field, the sera were tested for HIV antibodies using a commercial enzyme immunoassay (EIA) kit (Abbott recombinant HIV-1/HIV-2 EIA; Abbott Laboratories, North Chicago, Illinois, USA). All EIA-reactive specimens were tested by Western blot for confirmation (HIV-1 Western blot immunoglobulin assay version 1.2; Diagnostic Biotechnology, Singapore). The following criteria were used to interpret Western blot results (100): A Western blot was considered positive for HIV-1 if any two of the following viral protein bands were present: p24, gp41 and gp120/160.

A Western blot was considered positive for HIV-2 if *gag* (p26) and *env* (gp36, gp105, gp140) bands were present. Any specimen that showed HIV-1- or HIV-2- specific bands, but did not fulfill the requirements for a positive sample, were considered equivocal and classified as negative.

#### **4.3.4. Data Analysis**

The data were analysed using EPI Info (Centers for Disease Control and Prevention, Atlanta, Georgia, USA) and BMDP (University of California, Berkley, California, USA). Logistic regression was used to adjust for confounding variables. The geographic distribution of HIV infection was mapped using a geographic information system, ARCINFO (Environmental Systems Research Institute, Redlands, California, USA). ARCINFO was also used to determine which malaria sectors were traversed by the main road in the region.

An average inclusion rate of 76.6% was obtained by comparing the number of Microtainer tube specimens with the number of blood-films obtained on the study days. The “non-responders” indicate instances where insufficient blood (less than two drops) was collected for HIV serology.

The overall response rate cannot be calculated accurately because data on the number of subjects who refused to participate in the malaria surveillance programme are not available. Surveillance agents were asked to provide crude estimates of their refusal rate; the median

“estimate” for the malaria programme refusal rate was 5%, a low rate which is not surprising since the malaria surveillance programme is well established and well known in the community.

The questionnaire, which was printed on the ziplock bag, requested five items of information: age, sex, malaria sector code, duration of residence at current address, and whether the subject had a fever in the previous fortnight. The subject’s name and address were not recorded. Where the subject’s age was unknown, the surveillance agent estimated the age and recorded that age had been estimated.

The issue of migration was explored in this study. Migration refers to changes in residence (101). Migration was assessed utilising a crude measurement for migration viz length of stay at current residence. This served to identify both short-stay visitors and those who had recently uprooted themselves from one community to settle in another. For survey 1, only nine out of 4531 (0.2%) of subjects for whom migrancy data were available were day visitors to the area and 37 (0.8%) had been resident at their current address for less than one week. Stavrou (102) estimated that 2% of farmworkers in a rural area of Kwa-Zulu Natal were migrants from an urban area and a further 8% were from another rural area.

#### **4.3.5. Ethical considerations**

There is much debate with regard to the ethics of HIV testing. There

are two broad categories that HIV testing falls into, viz. linked and unlinked. With regard to unlinked/anonymous testing the internationally accepted guidelines have three pre-requisites for anonymous testing:

- i. Informed consent is obtained for blood to be taken; in this instance for malaria screening;
- ii. That the specimen of blood used for HIV testing has no identifiers that will link the specimen to an individual;
- iii. The HIV test result cannot be linked with an individual.

This study, which met the 3 criteria above, was approved by the Ethics Committee of the Faculty of Medicine, University of Natal, Durban. Informed consent was obtained for blood taken for malaria screening. Anonymity was assured in this survey, since there was no possibility of HIV test results being linked to an individual; names and addresses of the subjects were not recorded and it was not possible to identify individual subjects based on the data collected. The population and sample size of each malaria sector was sufficiently large to prevent deductive identification of subjects based on age, sex and area data.

#### **4.4. Results**

Sixty of the 5023 specimens were confirmed to be HIV-1 antibody positive by Western blot, giving an overall prevalence of HIV-1 infection of 1.2% [95% confidence interval (CI), 0.9-1.5]. None of the



sera was positive for antibodies to HIV-2.

Of the 65 EIA reactive specimens, 60 were confirmed to be HIV-1 positive by Western blot, four were negative and one was equivocal (and was considered negative). Using Western blot as the reference, the false positive rate for the EIA was 8.3%.

Only 19.5% of blood specimens were obtained from subjects who had experienced a fever in the previous fortnight. The presence of fever did not confound the relationship between HIV infection and other factors: the prevalence of HIV-1 infection among those with fever was 1.5% versus 1.1% in "healthy" subjects [age- and sex-adjusted relative risk (RR = 1.3; CI: 0.7-2.4)].

The prevalence of HIV-1 infection by age and sex is presented in Table 14. Data on sex was not available for 134 subjects and age was estimated for 28% of subjects. The female-to-male ratio in the sample was 1.9:1. The prevalence of HIV-1 infection was 1.6% (n=3206) in women and 0.4% (n=1683) in men (age-adjusted RR = 3.8; CI: 1.7-8.5). The higher risk of HIV-1 infection among women was present after controlling for presence of fever (age- and fever-adjusted RR = 3.75; CI: 1.7-8.3) and migrancy (age-, fever- and migrancy-adjusted RR = 3.2; CI: 1.4-7.1). The youngest HIV-1-positive subject was a 12-year-old girl, the oldest a 66 year-old woman. The prevalence of HIV-1 infection was 2.3% among women in the

reproductive age group of 15-44 years (n=2064; CI: 1.7-2.6).

**Table 14: Age- and sex-specific prevalence of HIV-1 infection  
in rural South Africa - 1990**

**N ( HIV prevalence %)\***

<b>Age Group (years)</b>	<b>Men</b>	<b>Women</b>	<b>Total</b>
0-9	240 (0.0)	246 (0.0)	486 (0.0)
10-14	315 (0.0)	429 (0.5)	744 (0.3)
15-19	351 (0.0)	565 (2.7)	916 (1.6)
20-24	188 (2.1)	531 (2.3)	719 (2.2)
25-29	136 (0.7)	367 (2.2)	503 (1.8)
30-39	175 (0.6)	454 (1.8)	629 (1.4)
40-49	110 (0.0)	253 (1.2)	363 (0.8)
>50	142 (0.7)	310 (1.0)	452 (0.9)
<b>Total</b>	<b>1657 (0.4)</b>	<b>3155(1.6)</b>	<b>4812 (1.2)</b>

\* Prevalence of HIV infection. Age and/or sex data were missing for 211 subjects, one of whom was HIV-1 positive; prevalence in this group was 0.5%.

Of the 4531 subjects for whom migrancy data were available, 9.8% had changed their place of residence within the previous 12 months. The unadjusted prevalence of HIV-1 infection amongst migrants compared to their more stable counterparts is presented in Table 15. Amongst migrants, HIV-1 infection was 2.9%, which was 3.1 times (CI: 1.7-6.0) higher than that among subjects who had been living at their current addresses for more than a year, after adjusting for age and sex. Among women, migrancy was associated with an age-adjusted 2.4 fold (CI: 1.1-5.0) higher risk of HIV-1 infection. Among men, migrancy was associated with a 7.3 fold (CI: 6.1-33.8) higher risk of

HIV-1 infection. Adjusting for the presence of fever made little difference to these RRs.

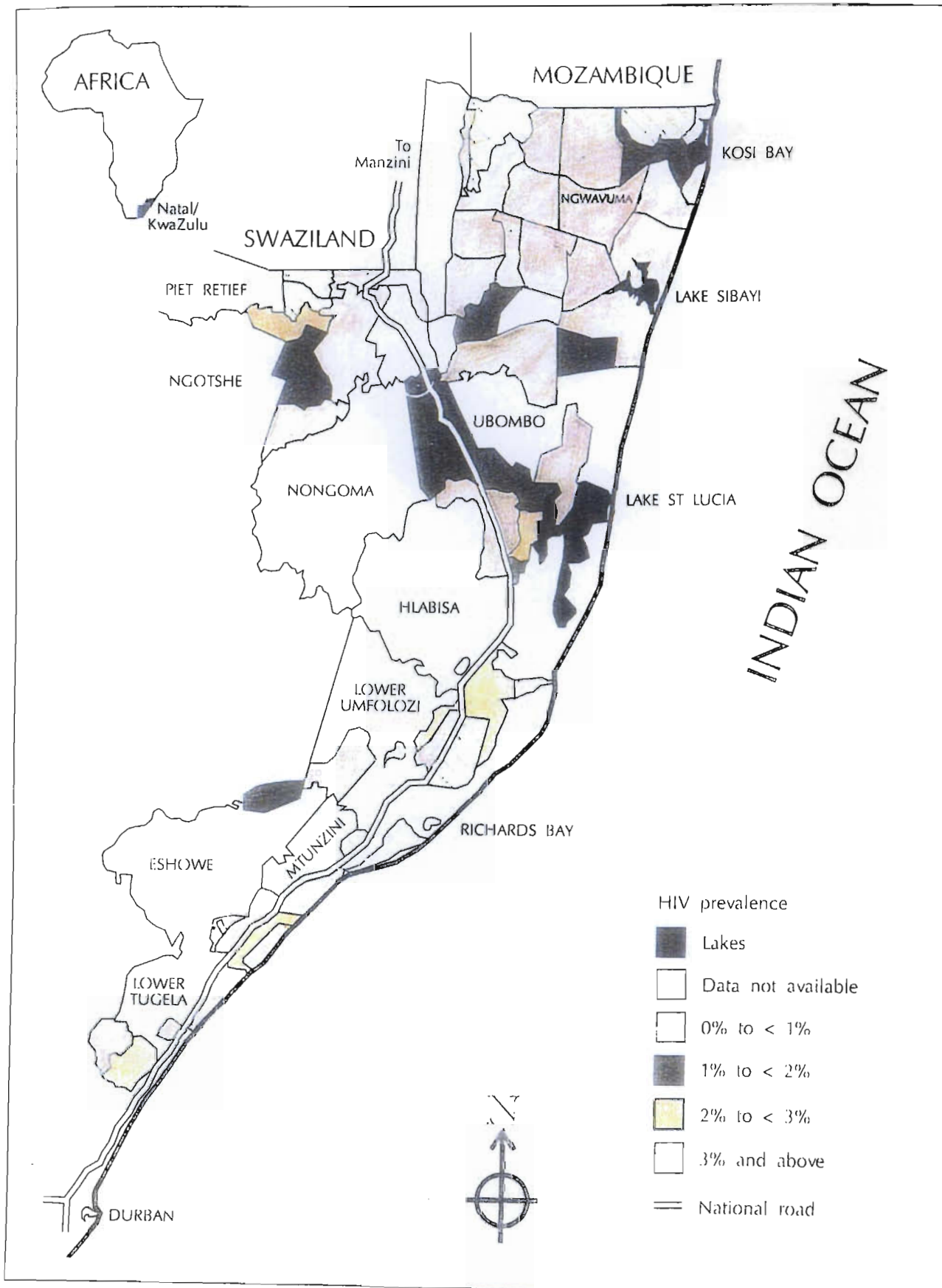
**Table 15: HIV prevalence among migrant and stable residents in rural South Africa - 1990**

<b>Mobility Status</b>	<b>N</b>	<b>HIV Prevalence (%)</b>
Migrant	313	3.8
Stable	2 365	1.5

RR = 2.5

The prevalence of HIV-1 infection in the malaria sectors that the main national road traversed (Fig 2) was 1.3%, compared with 0.9% in the other malaria sectors (p=not significant).

**Figure 2: Spatial distribution of HIV infection in rural  
KwaZulu-Natal - 1990**



## 4.5. Discussion

In rural South Africa, HIV-1 infection is 3.2 times more common among women compared to men, when adjusted for age, presence of fever and migrancy. Whilst studies conducted in Tanzania (96) and Uganda (97) demonstrate higher HIV seroprevalence rates amongst women compared to men, this magnitude of difference in HIV seroprevalence rates between men and women has not previously been reported. Differences in the maturity of the epidemics in Uganda and Tanzania compared to that in South Africa could possibly explain the larger gender difference observed in this survey.

Several hypotheses have been proposed for the higher prevalence among women; these include: (i) the possibility, that in heterosexual encounters, HIV may be transmitted more efficiently from men to women than from women to men (103), (ii) the possibility that more uninfected women encounter an infected man than do uninfected men encounter an infected woman (104), and (iii) the possibility that women have a higher prevalence of untreated sexually transmitted diseases compared with men (105).

The prevalence of HIV-1 infection was found to rise at an earlier age in women compared with men (Table 1), and a girl of only 12 years was found to be infected. This, together with the high rate of teenage pregnancies (106) and induced abortions among teenagers (107), reflects the young age at which women have sexual intercourse. The

low prevalence of HIV-1 infection among teenage (10-19 year old) boys compared with teenage girls suggests that teenage girls engage in sexual intercourse with older men. While some of these sexual encounters may be the early contacts of young girls beginning to experiment with sex, the possibility of juvenile prostitution and sexual abuse needs further investigation. The early rise of infection in women compared to men could perhaps also reflect the increased susceptibility of an immature reproductive tract (108).

Since migrancy is more strongly associated with HIV-1 infection among men, and migration is more common among men, the increased risk among women in the study population is due in part to the under-representation of migrant male workers in the study sample. While it is not possible to estimate the extent of this bias or to adjust for it, an indication of its effect can be obtained from the decline in the sex related RR from 3.8 to 3.2 when migrancy within the sample was controlled for. A more recent community based study conducted in rural Hlabisa (109) demonstrated that being the sexual partner of a migrant worker was the strongest risk factor for being HIV infected.

The high prevalence of HIV-1 infection among women in the 15-44 year age group indicates the potential for vertical transmission of HIV-1 to newborns. This is borne out by more recent surveys amongst antenatal clinic attenders in similar rural populations that demonstrate

the rise in HIV prevalence from 4.2% in 1992 to 14.0% in 1995 (110).

Furthermore, many rural families are completely dependent on women for food, security and daily care. As women constitute the majority of the service providers in public sector health and educational facilities, this high prevalence of HIV-1 infection has serious implications for the future of social and medical services in terms of caring for both the sick mother and her children (111) and for the service provision in these sectors (112).

Long-distance truck-drivers and the routes frequently utilised by them have been associated with higher prevalence of HIV, for example, the Nairobi-Mombasa Highway (113,114). The national road that traverses the Malaria Control Programme areas is an important link between Zimbabwe, Mozambique and Swaziland. However, whilst the prevalence of HIV-1 infection in areas traversed by the main national road (1.3%) in northern KwaZulu-Natal was approximately 45% higher than in areas not traversed by the road (0.9%), this difference was not statistically significant. Furthermore, the spatial distribution of HIV-1 infection (Figure 2) did not indicate clustering of HIV-1 infection in the vicinity of the main road.

Oscillatory migration (115), migrant labourers living apart from their wives but maintaining a rural base which they visit (sometimes as

infrequently as once a year), is associated with conjugal instability (116). Migrants, both men and women, engage in transient sexual relationships in the urban centres and thereby place themselves at risk of HIV infection (117). On their return to rural areas, HIV infection may be transmitted to their rural sex partners. HIV-1 transmission may be exacerbated when poverty-stricken women in rural areas exchange sex for favours, security, accommodation or money as a survival strategy when partners send little or no money home for the rest of the family (112).

Labour migration associated with deprived living conditions, disruption of social support, and dysfunctional social organisation in communities at the origin and destination of migration is postulated to enhance HIV transmission (118). HIV-1 infection was approximately three times more common among those who had changed their place of residence within the previous 12 months (approximately one in 10 inhabitants). The extent to which this association reflects a causal relationship between HIV and migration or a response to HIV infection could not be established in this study. This migrant population could be an important source of HIV-1 infection in the rural communities. Improving social conditions so that families can live together and become settled in their communities may be one way to help to reduce the spread of HIV-1 infection.



## **4.6. Conclusion**

Whilst at an early stage of the epidemic, women in these communities are already bearing a disproportionate burden of HIV infection compared with men. This has implications for HIV transmission to infants, food security and social service provision for these communities. The migrant labour system could be a key factor fuelling the epidemic in these rural communities. This highlights the need for targeting interventions that foster social cohesion and conjugal stability for these communities. Additionally, as these rural women are at substantial risk of infection they need to be targeted for risk-reduction interventions. Knowledge of HIV/AIDS and safer sex practices need to be assessed as a precursor to the design and targeting of risk-reduction interventions for women in these communities.

# **Chapter 5: Temporal changes in gender differences as an explosive epidemic unfolds in KwaZulu-Natal**

## **5.1. Introduction**

The HIV seroprevalence survey conducted in rural KwaZulu-Natal (Chapter 3) in November/December 1990 (Survey 1), demonstrated that the HIV epidemic in rural KwaZulu-Natal was at an early stage. It further demonstrated that: (i). HIV infection was 4 times more common amongst women compared with men; (ii). There could be an association between HIV infection and mobility; and (iii). Women were becoming infected with HIV at an earlier age. This magnitude of excess risk in women could be a function of the stage of the epidemic and monitoring of the temporal trends could throw more light on the dynamics of HIV transmission in this population, particularly with respect to the gender differences observed in the 1990 survey.

Thus far, our understanding of the epidemic in South Africa has been based on anonymous screening of pregnant women (119). There is evidence emerging from other population-based studies, that HIV infected women become progressively less fertile and that the longer their HIV infection progresses the less likely they are to become

pregnant (120). Therefore, as fewer HIV infected women utilise antenatal services, fewer will be tested and hence the antenatal estimates will underestimate the true extent of HIV infection in women.

Utilising the unique opportunity provided by the Malaria Control Programme (described more fully in Chapter 4), two more anonymous population-based surveys were undertaken to monitor the temporal trends in the HIV epidemic from 1991 to 1992.

## **5.2. Purpose**

To monitor the temporal trends in gender differences in the HIV epidemic in rural KwaZulu-Natal.

## **5.3. Methods**

Survey 2 and survey 3 were conducted 12 months apart in June/July 1991 and June/July 1992 respectively. Survey 2 was conducted 6 months after Survey 1 (November/December 1990). The methods, including sampling, employed for the conduct of surveys 2 and 3 were identical to that for survey 1 and have been described fully in Chapter 4.

**5.4. Results**

In survey 2, 140 of the 5 605 specimens collected; and in survey 3, 183 specimens of the 5 560 specimens collected; were confirmed to be HIV-1 antibody positive by Western Blot, yielding an overall prevalence of HIV-1 infection of 2.5% (CI: 2.1-2.9)) and 3.3% (CI: 2.9-3.7 ) respectively. None of the sera was positive for antibodies to HIV-2. The overall age and sex adjusted HIV seroprevalence estimates for each of the surveys is presented in Table I6.

**Table 16: Progression of the HIV Epidemic in rural  
KwaZulu-Natal: 1990-1992**

Survey #	N	Prevalence (%)	95% CI
Survey 1	5023	1.2	0.9 - 1.5
Survey 2	5605	2.5	2.1 - 2.9
Survey 3	5560	3.3	2.9 - 3.7

The gender differences in HIV infection in the three surveys is presented in Table 17. Data on sex was not available for 206 and 105 subjects in survey 2 and 3 respectively. The missing sex data could pose a bias in interpreting the findings on the gender differences. However, there is no reason to believe that the missing data is more biased towards one sex. Therefore the current interpretation of the data should not be substantially affected by this bias. The female-to-male ratio in the sample was 1.76 for survey 2 and 1.74 for survey 3.

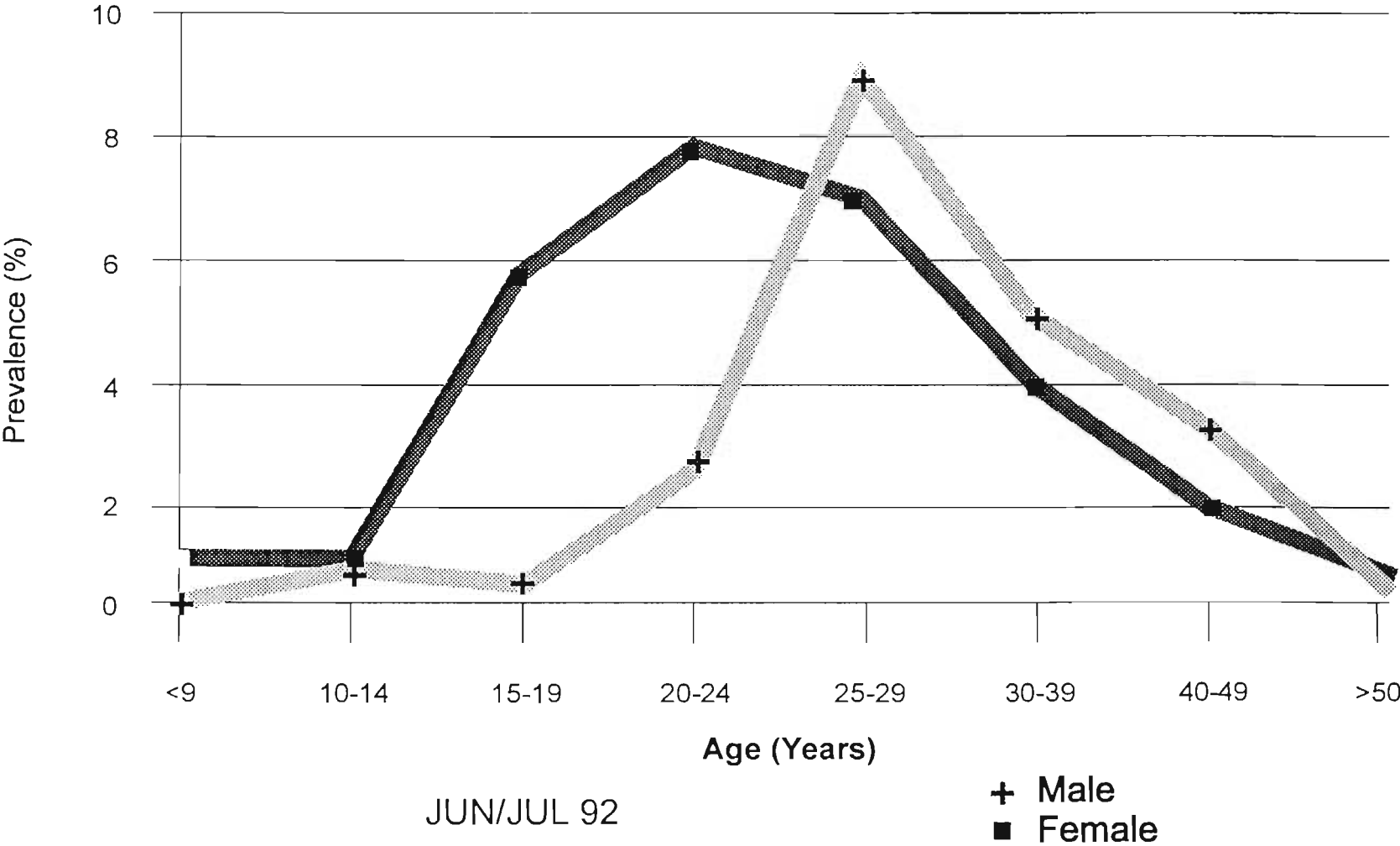
In the six months between surveys 1 and 2 the prevalence of HIV infection rose by 1.1% and 1.3% amongst men and women respectively. In the 12 months between surveys 2 and 3 the prevalence of HIV infection increased by 1% and 0.9% amongst men and women respectively.

**Table 17: Temporal trends in gender differences in the HIV epidemic in rural KwaZulu-Natal: 1990-1992**

Prevalence (%)				
Survey #	Men (N)	Women (N)	RR (CI)	Risk Difference(CI)
Survey 1	0.4 (1657)	1.6 (3155)	4 (1.4-5.6)	1.2 (0.7-1.7)
Survey 2	1.5 (1953)	2.9 (3446)	2 (1.3-3.0)	1.4 (0.6-2.2)
Survey 3	2.5 (1994)	3.8 (3461)	1.5 (1.1-2.1)	1.3 (0.4-2.2)

Whilst the gender differences are greatest in survey 2, the gender pattern was most clearly demonstrated in survey 3 (Figure 3). From the ages of 15 to 30 years women have more HIV infection than men. The difference is particularly marked in the youngest age group of 15 to 19 years. Whilst women become infected with HIV at an earlier age compared with men, HIV infection in women is found even beyond the reproductive age range. Amongst men, HIV infection starts at least five years later compared to women, peaking in the 30-35 year age range. The peak of HIV infection amongst men is higher compared to that in women. The HIV epidemic is particularly severe in women in the 15-25 year age group and men in the 30-40 year age group.

Figure 3: Age and gender pattern of HIV infection in Rural KwaZulu-Natal: 1992



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In survey 1, the HIV prevalence was highest in the 15-29 year age group. The gender adjusted HIV prevalence in the 15-29 year age group for the three surveys is presented in Table 18. In the six months between surveys 1 and 2, the number of new infections increased by 1.8%; and by 2.2% in the 12 months between surveys 2 and 3 in the 15-29 year age group. In survey 1 and survey 3, HIV prevalence was 4.2 and 3.6 times higher respectively in the 15-19 year age group, compared to the rest of the population (Survey 1: 2.1% vs 0.5% and Survey 3: 6.1% vs 1.7%).

**Table 18: Trends in HIV Infection in the 15-29 year age group in rural KwaZulu-Natal: 1990-1992**

Survey # (N)	Prevalence (%) (95%	RR (CI)
Survey 1 (2095)	2.1 (1.5 - 2.7)	1
Survey 2 (2204)	3.9 (3.1 - 4.7)	1.9 (1.3 - 2.7)
Survey 3 (1988)	6.1 (5.1 - 7.1)	2.9 (2.1 - 4.1)

The progression of the HIV epidemic in these surveys compared to the progression amongst antenatal clinic attenders nationally (4) and in the province of KwaZulu-Natal (4) is presented in Table 19.

**Table 19: Progression of the HIV Epidemic in rural KwaZulu-Natal, KwaZulu-Natal and South Africa: 1990-1992**

**Prevalence (%)**

<b>Year</b>	<b>Rural KZN - Overall</b>	<b>Rural KZN - Men</b>	<b>Rural KZN - Women</b>	<b>National #</b>	<b>KwaZulu-Natal #</b>
<b>1990</b>	1.2	0.5	1.5	0.76	1.61
<b>1991</b>	2.5	1.5	2.9	1.49	2.86
<b>1992</b>	3.3	2.5	3.8	2.69	4.5

**Source: #Kustner HG(4 )**

In survey 3, of the 5355 subjects for whom migrancy data were available, 8.2% had changed their place of residence within the previous 12 months. The prevalence of HIV infection in the latter group was 5.4% which was 1.7 times higher than among subjects who had been living at their current address for more than a year.

## **5.5. Discussion**

As an explosive epidemic unfolds in rural Kwazulu-Natal, it is being fuelled by substantially higher and increasing HIV seroprevalence among all women, and men and women in the 15-29 year age group. Whilst the difference in HIV prevalence between men and women is narrowing with time, the excess risk in women is still cause for concern. The HIV epidemic in rural KwaZulu-Natal is at a relatively early stage; however, it is progressing rapidly, especially in young



women and migrants.

As the HIV epidemic progresses the gender pattern remains; the HIV prevalence is 1.2% to 1.4% higher in women. Based on the RR, the four-fold higher prevalence observed in women in survey 1 compared to men has been narrowed to a 1.5 fold difference, 18 months later, in survey 3. A population-based survey conducted in 1995 in another rural community in KwaZulu Natal (121) observed a 2.3 fold difference in HIV infection between men and women. Population-based surveys from elsewhere in sub-Saharan Africa (122,123) also confirm higher HIV prevalence in women compared to men but of a much smaller magnitude. These population-based surveys have all been conducted in countries with well established and mature epidemics. Clearly, from these rural surveys it is evident that the gender differences are not static and are influenced by the maturity of the epidemic.

Major differences in age of infection between men and women appears to be a critical component of the gender difference in HIV prevalence. The early rise in infection in women (between the ages of 15 and 24 years) and the later rise in men (between 24 and 35 years) has major implications for the population pyramid in these communities (124). As in most developing countries, younger people comprise the broadest base of the population. HIV infection in young women will result in a narrowing of the pyramid, with more men surviving in the younger ages

compared to women. The later age group, where men are more likely to be infected is already narrow, and will get narrower. This overall narrowing of the population pyramid will be negatively weighted against women. The need to understand the social and behavioural factors influencing these trends to inform the design of interventions targeted particularly at young people is highlighted.

An additional implication for the younger age of infection in women relates to an important consequence of heterosexual transmission of HIV viz. mother-to-child transmission. More than 90% of transmission from infected mother-to-child occurs in sub-Saharan Africa (125). With the substantial burden of HIV infection in young women in these surveys there is likely to be a concomitant burden of mother-to-child transmission. Babies born to these young women are more likely to be infected with HIV compared to infants born to women after the age of 25 years. As mortality rates in HIV infected infants are high in the first year of life (126) this has implications for the further narrowing of the base of the population pyramid.

Migration increases the risk of HIV infection 1.7 times in these communities, thereby possibly fueling the epidemic in these rural communities. Data from other countries suggest that social cohesion is an important predictor of HIV risk (127). Male migration through the migrant labour system is the major form of migration in these

communities leading to conjugal instability and breakdown in family units (128). Whilst no link could be established with the absent migrant male sexual partner in this study they could pose an important source of infection and a bridge between the urban and rural populations in terms of enhancing the spread of HIV. Studies amongst mineworkers on the goldmines in Johannesburg describe high-risk sexual behaviours among mine-workers (129).

These anonymous, population-based surveys overcome most of the biases that are present in sentinel group studies and in particular the antenatal surveys. Importantly, the repeat cross-sectional surveys provide reliable temporal and demographic trends in the HIV epidemic since the survey is undertaken in the same catchment population and therefore the biases through the three surveys are similar.

HIV seroprevalence data for men in this rural population are comparable with the national antenatal HIV seroprevalence estimates, whilst that for women are comparable with estimates for the province of KwaZulu-Natal. This suggests that: (i). At this point in the epidemic in KwaZulu-Natal, there are no discernible differences in HIV infection amongst pregnant women and women in the general population; and (ii). That the prevalence of HIV infection in men has not caught up with that observed for women in this community and for antenatal clinic attenders.

## **5.6. Conclusion**

In 1990-1992, the HIV epidemic in rural KwaZulu-Natal was still at an early stage, but progressing rapidly. As the epidemic progressed the gender differences observed in the first survey narrowed, but HIV prevalence remained higher in women. The higher risk of HIV infection in women persists; ranging from 1.2% to 1.4% across the 3 years studied. HIV prevalence is 3.6 times higher among young people between the ages of 15-29 compared to the rest of the population. Further, differences in age of infection between men and women appears to be a critical factor in the gender differences in HIV prevalence. Migration could be playing a role in fueling the epidemic in these rural communities. The need for behavioural and sociological studies to better understand these epidemiological observations is highlighted. As the epidemic matures, monitoring of the epidemic through intermittent population-based surveys will strengthen our understanding of the transmission dynamics and enhance interpretation of the national antenatal surveys, thereby refining the design and targeting of prevention interventions.

# **Chapter 6: The HIV knowledge-behaviour gap: Obstacles to risk-reducing behaviours among women in KwaZulu-Natal**

## **6.1. Introduction**

In light of the epidemiological data presented in Chapters 4 and 5 and emerging understanding of the importance of social context in influencing individual behaviour with respect to adoption of HIV risk reduction measures, a series of studies were undertaken amongst urban and rural women (Chapter 6), urban mothers of teenagers (Chapter 7), sex workers at truck-stops (Chapter 8) and women utilising health services (Chapter 9) to better understand how each of these social contexts influences women's vulnerability to acquiring infection with HIV and in turn, individual decision-making about the adoption of risk-reduction measures.

This chapter describes the survey conducted amongst urban and rural women.

The population-based epidemiological data presented in Chapters 4 and 5 demonstrated that: (i). The prevalence of HIV infection is

higher among women compared with men (1.6% vs 0.4% in survey 1 );

(ii). Whilst the gender differences narrowed over time from 4 times more infection in women compared with men in 1990 to 1.5 times in 1992, HIV infection remains more common in women; and

(iii). Women become infected with HIV at a younger age when compared with men (15 - 19 years in women compared to 24-29 years for men).

To date, several studies (130-132) of HIV knowledge, attitudes, practices and beliefs (KAPB) have demonstrated a poor correlation between knowledge and the adoption of safer sex practices. Little is known, or understood, of the complex factors that are intermediate between knowledge of HIV and the adoption of safer sex practices, especially for women from the general population. Are the challenges facing rural women different from that of women living in urban areas?

## **6.2. Purpose**

This study was undertaken to determine the factors that influence womens' risk of acquiring HIV infection in an urban and a rural setting in KwaZulu-Natal.

## **6.3. Methods**

### **6.3.1. Study Sites**

The study was conducted at two sites: (i). an informal peri-urban settlement, Nhlungwane; and (ii). a rural community, KwaXimba.

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#### ***Nhlungwane***

Nhlungwane is an informal squatter settlement situated to the north of Durban. It is similar to other informal settlements that are mushrooming in and around all major cities in South Africa. They usually adjoin stable Black townships and there is often competition with the residents of these townships for access to scarce resources. Nhlungwane is divided into 5 sections, each having approximately 1 000 shacks. The total population in the area is estimated to be 30 000. The residents of Nhlungwane live in homes built of mud, timber and galvanised roofing. Basic infra-structure in the area is almost non-existent: there are no roads -- footpaths are used by residents to get in and out of the area; there are no sanitary facilities, electricity or telephones. The residents purchase water from two water standpoints. This often involves walking long distances to obtain the daily water requirement for the household.

There is one private general medical practitioner in the area. Most residents utilise health services at the KwaMashu Poly-clinic, the clinic at Newtown C or the Osindisweni Hospital in Verulam. Health care

needs of the residents are also met by the numerous traditional healers in the area.

In some instances the abolishment of the influx control laws<sup>1</sup> provided an opportunity for people to reconstruct family units and conjugal stability in the city and many brought their families and settled in shacks.

The community has many democratic structures through which community needs and issues are raised and discussed. These include civic structures, women's groups, youth groups, religious groups and extra-parliamentary organisations. Residents are informed about forthcoming activities and events through these meetings. Information is usually passed on to residents through informal communication networks or through a loudhailer.

### ***KwaXimba***

KwaXimba is a rural area in the Natal Midlands, about 80 km west of Durban. In 1987, the area experienced intense political violence. Since 1990, there has been peace and stability in the area and the community is attempting to rebuild itself after the years of unrest and instability. Families separated through the periods of violence are being reunited. There are large community efforts to improve living

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<sup>1</sup>These were laws created by the apartheid government to control the movement of men and women from rural areas to the cities.



conditions and service provision. KwaXimba is classified as tribal land. It is under the authority of a tribal chief and has tribal structures that administer the area.

KwaXimba is divided into 7 sections, each having approximately 970 homesteads constructed from mud and ash bricks. The total population is estimated to be approximately 10 000. The unemployment rate is high. Most employed men work either in Durban or in the neighbouring towns of Hammersdale and Inchanga during the week, and return home over week-ends.

The community is involved in the decision-making processes for the development of the area. Each section is represented at the Tribal Court Meetings. Wide consultative processes are undertaken before decisions are finalised. There are approximately 120 organisations in the area including civic, women, youth, religious, funeral and extra-parliamentary political organisations.

The infrastructure in the community is only just starting to be developed. Since the beginning of 1993, residents have access to water and electricity. Transport is a major problem as there is no public transport. The informal taxi service provides alternate transport to the residents.

There is one health clinic in the area that serves the entire community of KwaXimba. The closest hospital is Edendale Hospital, a secondary referral hospital in Pietermaritzburg. The only telephone in the area is at the clinic. There are 3 primary schools and 1 junior secondary school in KwaXimba. Pupils attend the senior secondary schools in areas under the jurisdiction of neighbouring tribal authorities.

Information on community activities and events is communicated through letters, and neighbours pass messages to each other. There are 2 loudhailers. One belongs to the Organisation of Churches and the other to the tribal court. These are also used to announce upcoming events and activities in the community.

### **6.3.2. Data Collection**

Data were collected in both Nhlungwane and KwaXimba from November 1991 to March 1993 using pre-piloted questionnaires. All questionnaires were administered by trained fieldstaff. Each interview took about 45 minutes to complete.

Questionnaires were scanned daily to monitor proper completion and to identify any problems and issues that arose during this phase.

Questionnaires were administered to women between the ages of 16 and 44 in both communities. Women interviewed were drawn from a 10% systematic sample of households. The first house visited was

chosen randomly and thereafter every tenth household was visited. At the selected household, the interviewer determined the number of women in each house and randomly selected one eligible women for the interview.

The questionnaires were administered by a trained female fieldworker who is a qualified nurse with social science training. Questionnaires were administered in English or Zulu, depending on the respondent's choice of language.

The questionnaire included items on: socio-demography, knowledge of HIV and AIDS, skills to adopt safer sex practices, perception of self and partner risk, perception of roles in relationship, experience of violence, access to condoms, perceptions of community values and norms relating to sexual behaviour, perceptions of rights to safer sex, decision-making within the relationship, and involvement and leadership roles in civic organisations.

### **6.3.3. Data management and analysis**

Open-ended questions were coded for content and analysed as categorical variables. Univariate analysis of the data were undertaken using EPI Info (Centers for Disease Control and Prevention, Atlanta, Georgia, USA).

#### **6.3.4. Ethical Issues**

The study was approved by the Ethics and Professional Standards Committee of the Faculty of Medicine, University of Natal.

At the community level, permission to undertake the study was sought from recognised leaders and existing democratic organisations in both communities.

At the individual level, processes that ensured confidentiality, rights and the welfare of each subject were adhered to at all times.

Confidentiality was guaranteed to respondents. All fieldnotes and questionnaires that contained identifiers were maintained in a locked file and were accessible only to selected members of the research team.

Benefits derived at both the community and individual level included information on AIDS and safer-sex practices, allaying of fears stemming from misconceptions, and access to condoms.

#### **6.4. Results**

A total of 219 women were interviewed - 111 from Nhlungwane and 108 from KwaXimba. During the pilot phase it became apparent that womens' knowledge of issues relating to reproductive health, including

sexually transmitted infections, was very limited. As responses to these questions were not meaningful, these questions were deleted from the final questionnaire administered to women.

#### **6.4.1. Sociodemography**

Women from both communities were similar with respect to occupational and marital status. The average age of respondents was 25.8 years (Range: 16-44 years, SD=8,6). The women had an average of 8 years of schooling (Range: 3-12 years). Data on occupational and marital status are presented in Table 22. Of the 219 women interviewed, 145 (75.1%) had at least one child (Average 1.7, Range 1-8). Of note is that 32% (n=44) of women under the age of 18 had to abandon their schooling because of teenage pregnancies.

Women in the peri-urban community were twice as likely to be members of a community organisation compared to women in the rural community. In Nhlungwane, 58 (52.2%) of respondents were members of a Civic Organisation, compared to 27 (25.0%) in KwaXimba with 11 (5.0%) of respondents from both communities holding an executive position in these organisations.

**Table 20: Occupational and marital status of respondents**

	<b>Nhlungwane (%)</b> <b>N = 111</b>	<b>KwaXimba (%)</b> <b>N = 108</b>	<b>Total (%)</b> <b>N = 219</b>
<b>Occupation</b>			
Scholar	24 (21.6)	29 (26.9)	53 (24.2)
Housewife	14 (12.6)	23 (21.3)	37 (16.9)
Semi-skilled labourer	4 ( 3.6)	6 ( 5.6)	10 ( 4.6)
Unskilled labourer	8 ( 7.2)	6 ( 5.6)	14 ( 6.4)
Self-employed	13 (11.7)	6 ( 5.6)	19 ( 8.7)
Unemployed	48 (43.2)	38 (35.2)	86 (39.2)
<b>Marital Status</b>			
Never married	79 (71.2)	84 (77.8)	163 (74.4)
Married	19 (17.1)	18 (16.7)	37 (16.9)
Divorced	8 ( 7.2)	2 ( 1.9)	10 ( 4.6)
Widowed	5 (4.5)	4 ( 3.7)	9 ( 4.1)

#### **6.4.2. Knowledge of HIV/AIDS**

All women had heard of HIV and AIDS. Data on knowledge, modes of transmission and methods of prevention are presented in Table 21.

Whilst correct knowledge of modes of transmission was high, a few misconceptions were common. These included: transmission of HIV through sharing utensils 85 (38.8%), and donating blood 131 (59.8%).

A common belief amongst women was that AIDS could be cured 175 (79.9%). Only 9 (4.1%) respondents had seen a person with AIDS and 27 (12.3%) thought that there were people infected with HIV in their community.

**Table 21: Knowledge of HIV/AIDS**

	<b>Nhlungwane (%)</b> <b>N = 111</b>	<b>KwaXimba (%)</b> <b>N = 108</b>	<b>Total (%)</b> <b>N = 219</b>
<b>Modes of transmission</b>			
Sexual	102 (91.9)	95 (88.0)	197 (89.9)
Mother-to-child	95 (85.6)	77 (71.3)	172 (78.6)
Contaminated Blood and blood products	97 (87.4)	76 (70.4)	173 (79.0)
<b>Methods of Prevention</b>			
Condoms	88 (79.3)	72 (66.7)	160 (73.0)
Monogamy	100 (90.0)	82 (75.9)	182 (83.1)
No casual sex	90 (81.1)	70 (64.8)	160 (73.0)

#### **6.4.3. Perception of self- and partner risk of infection with HIV**

Perception of self and partner's risk is presented in Table 22. Of note is that whilst 101 (52.3%) women thought that their partner was at risk of getting infected with HIV only 67 (30.6%) were able to translate this to their own personal risk.

**Table 22: Perception of self- and partner's risk of infection  
with HIV**

	<b>Nhlungwane (%) N = 111</b>	<b>KwaXimba (%) N = 108</b>	<b>Total (%) N = 219</b>
<b>Perception of self-risk</b>			
At risk	37 (33.3)	30 (27.8)	67 (30.6)
Not at risk (monogamous)	32 (28.8)	48 (44.4)	80 (36.5)
Not at risk (using condoms)	10 ( 9.0)	4 ( 3.7)	14 ( 6.4)
Not at risk (abstinent)	15 (13.5)	11 (10.2)	26 (11.9)
Don't know	17 (15.3)	15 (13.9)	32 (14.6)
<b>Perception of partner's risk</b>			
At risk	61 (55.0)	40 (37.0)	101 (52.3)
Not at risk	31 (27.9)	26 (24.1)	57 (29.5)
Don't know	4 ( 3.6)	31 (28.7)	35 (18.1)
No partner	15 (13.5)	11 (10.2)	26 (11.9)

#### **6.4.4. Socio-demographic characteristics of sexual partner's**

Of the 219 respondents interviewed, 193 (88.1%) were sexually active.

Data on partner's occupation, frequency of seeing their sexual partner and financial dependence are presented in Table 23. Most women from both the communities saw their sexual partner at least once a week. Not surprisingly, women from the peri-urban community were twice as likely to see their sexual partner daily compared to women from the rural community.



**Table 23: Socio-demographic characteristics of partner's of sexually active respondents**

	<b>Nhlungwane (%)</b> <b>N = 104</b>	<b>KwaXimba (%)</b> <b>N = 89</b>	<b>Total (%)</b> <b>N = 193</b>
<b>Frequency of seeing partner</b>			
Daily	53 (51.0)	25 (28.1)	78 (40.0)
1-3 X a week	42 (40.4)	52 (58.4)	94 (48.7)
1 X a month	7 ( 6.7)	8 ( 9.0)	15 ( 7.8)
< 1 X a month	2 ( 1.9)	4 ( 4.5)	6 ( 3.1)
<b>Partner's Occupation</b>			
Scholar	8 ( 7.7)	4 (4.5)	12 ( 6.2)
Unemployed	16 (15.4)	8 (9.0)	24 (12.4)
Self-employed	2 ( 1.9)	1 (1.1)	3 ( 2.1)
Unskilled	42 (40.4)	45 (50.6)	87 (45.0)
Semi-skilled	29 (27.9)	25 (28.1)	54 (28.0)
Professional	4 ( 3.8)	3 ( 3.4)	7 ( 3.6)
Retired	0 ( 0.0)	1 ( 1.1)	1 ( 0.5)
Don't know	3 ( 2.9)	2 ( 2.2)	5 ( 2.6)
<b>Provides financial support</b>	73 (70.2)	70 (78.7)	143 (74.0)

### ***Communication with partner on HIV/AIDS***

Of the sexually active women (n=193), 70 (36.3%) had discussed HIV/AIDS with their partner. The women who had discussed AIDS with their partner were more likely to have had about 9 years of schooling (51(73%) vs 19 (27%) ); saw their partner either everyday or over

week-ends ( 52 (74%) vs 18 (26%) ); were under 25 (51 (73%) vs 19 (27%) ) ; and single (61 (87% ) vs 9 (12.9%) ) .

***Feelings about current relationship***

Data on respondent's feelings about their relationship are presented in Table 24. Of note is that only 4.7% of respondents from both communities indicated that they were unhappy in their current relationship.

**Table 24: Respondent's feelings about current sexual relationship**

	Nhlungwane (%) N = 104	KwaXimba (%) N = 89	Total (%) N = 193
Happy	68 (65.4)	64 (71.9)	132 (68.4)
Okay	28 (26.9)	24 (27.0)	52 (26.9)
Unhappy	8 ( 7.7)	1 ( 1.1)	9 ( 4.7)

**6.4.5. Condoms**

Whilst 152 (69.4 %) women had seen a condom, only 28 (12.8 %) had used a condom.

***Condom Users***

Data on frequency of condom use, who condoms are used with and reason for use are presented in Table 25. Amongst reported condom users, 3 (10.7%) had a condom with them at the time of the interview.

**Table 25: Frequency and reasons for condom use**

	<b>Nhlungwane (%)</b> <b>N = 16</b>	<b>KwaXimba (%)</b> <b>N = 12</b>	<b>Total (%)</b> <b>N = 28</b>
<b>Frequency of condom use</b>			
Always	10 (62.5)	6 (50.0)	16 (57.1)
Frequently	3 (18.8)	2 (16.7)	5 (17.9)
Sometimes	2 (12.5)	2 (16.7)	4 (14.3)
Rarely	1 ( 6.3)	2 (16.7)	3 (10.7)
<b>With whom is condom used</b>			
Regular partner	12 (75.0)	10 (83.3)	22 (71.4)
New Partner	4 (25.0)	2 (16.7)	6 (28.6)
<b>Reasons for condom use</b>			
Fertility control	4 (25.0)	4 (33.3)	8 (28.6)
Disease prevention	4 (25.0)	4 (33.3)	8 (28.6)
Fertility Control & disease prevention	8 (50.0)	4 (33.3)	12 (42.9)

Data on decision-making among condom users with respect to condom use and access to condoms are presented in Table 26.

**Table 26: Decision-making on condom use and access to  
condoms**

	<b>Nhlungwane (%) N = 16</b>	<b>KwaXimba (%) N = 12</b>	<b>Total (%) N = 28</b>
<b>Who suggested condom use</b>			
Respondent	5 (31.3)	2 (16.7)	7 (25)
Partner	8 (50.0)	6 (50.0)	14 (50)
Joint decision	3 (18.8)	4 (33.3)	7 (25)
<b>Who obtains condoms</b>			
Respondent	6 (37.5)	2 (16.7)	8 (28.6)
Partner	10 (62.5)	10 (83.3)	20 (71.4)
<b>Source of condoms</b>			
Public health facility	12 (75.0)	8 (66.7)	20 (71.4)
Pharmacy	4 (25.0)	4 (33.3)	8 (28.6)

***Non-Condom Users: Attitudes, Beliefs and Ability to use***

***Condoms***

Whilst condoms were widely recognised as an HIV preventive device, about a third (29.6%) of the women had never seen a condom. Of the women who were sexually active but currently not using condoms (n=165), 96 (58.2%) would like their partner to use condoms which they would access from public health facilities [72 (75%)] or retail pharmacies [24 (25%)]. Women who did not want their partner to use condoms [69 (41.8%)], cited the following reasons for their decision: there is no need (47.8%); partner would disagree (29%); and partner dislikes condoms (23.2%).

Data on attitudes and beliefs about condoms amongst sexually active women who are not current condom users are presented in Table 27.

**Table 27: Respondent’s attitudes and beliefs about condoms**

<b>Condoms:</b>	<b>Nhlungwane (%) N = 88</b>	<b>KwaXimba (%) N = 77</b>	<b>Total (%) N = 165</b>
Offer protection against HIV	81 (92.0)	75 (97.4)	156 (94.5)
Indicate a lack of trust in partner	80 (90.9)	75 (97.4)	155 (93.9)
Can cause harm to women	9 (10.2)	34 (44.2)	43 (26.1)
Partner would think respondent is unfaithful	61 (69.3)	56 (72.7)	117 (70.9)
Partner would think respondent had AIDS	32 (36.4)	35 (45.5)	67 (40.6)
Difficulty in disposing of used condoms	47 (53.4)	43 (55.8)	90 (54.5)

Data on respondent’s reactions to partner suggesting condom use and perception of partner’s reaction to respondent suggesting the use of condoms are presented in Table 28.

**Table 28 : Perceptions of responses from self and partner to suggested condom use and decision-making**

	<b>Nhlungwane (%)</b> <b>N = 88</b>	<b>KwaXimba (%)</b> <b>N = 77</b>	<b>Total (%)</b> <b>N = 165</b>
<b>Respondent's Reaction to partner suggesting condom use</b>			
Would Agree (at risk of getting infected with HIV)	44 (50.0)	42 (54.5)	86 (52.1)
Would want a reason	18 (20.5)	18 (23.4)	36 (21.8)
Would disagree (Not at risk of getting infected with HIV)	19 (21.6)	10 (13.0)	29 (17.6)
Disagree (Dislike condoms)	7 ( 8.0)	7 (9.1)	14 ( 8.5)
<b>Perception of partner's reaction to respondent suggesting condom use</b>			
Partner would get angry	49 (55.7)	36 (46.8)	85 (51.5)
Partner would leave her	22 (25.0)	27 (35.1)	49 (29.7)
Partner will threaten her violently	12 (13.6)	35 (45.5)	47 (28.5)
<b>Respondent's perception as to who should initiate condom use</b>			
Woman	16 (18.2)	24 (31.2)	40 (24.2)
Man	35 (39.8)	37 (48.1)	72 (43.6)
Joint decision	21 (23.9)	14 (18.2)	35 (21.2)
Don't know	16 (18.2)	2 ( 2.6)	18 (10.9)

#### **6.4.6. Sexual Behaviour**

Data on sexually active womens' (n=193) past and current sexual behaviour and perceptions of partner's sexual behaviour are presented in Table 29.

Whilst self-reporting of current and past experiences in having multiple partners was low, about half of the respondents [116 (53%)] from both communities thought that it was common for women to have more than one sexual partner at a time for the following reasons: need for money (53.4%), need for accommodation (6.0%), sexual (11.2%), retribution for partner's infidelity (13.8%), and 15.6% did not have a reason.

In Nhlungwane, 15 (13.5%) women indicated that they were currently in relationships with more than one partner compared to 7 (6.5%) respondents from KwaXimba. This is in contrast to 27 (24.3%) women from Nhlungwane and 5 (4.6%) from KwaXimba who indicated that they had in the past had multiple partner relationships. The reported increase in multiple partner relations is almost exclusively among women between the ages of 16 and 24 years.

**Table 29: Respondents’ past and current sexual behaviour and perceptions of partner’s sexual behaviour**

	<b>Nhlungwane (%) N = 104</b>	<b>KwaXimba (%) N = 89</b>	<b>Total (%) N = 193</b>
Have had > 1 partner simultaneously in the past	27 (24.3)	5 (4.6)	32 (16.6)
Currently have >1 partner	27 (24.3)	5 (4.6)	32 (16.6)
Think partner has >1 partner	36 (32.4)	51 (47.2)	87 (45.1)

**6.4.7. Ability to adopt current safer sex practices**

Data on respondent’s ability to ask current partner to adopt safer sex practices are presented in Table 30.

**Table 30: Respondent’s ability to ask current partner to adopt safer sex practices**

	<b>Nhlungwane (%) N = 104</b>	<b>KwaXimba (%) N = 89</b>	<b>Total (%) N = 193</b>
<b>Able to ask current partner:</b>			
About other partners	38 (34.2)	52 (48.1)	90 (46.6)
To have an HIV test	22 (19.8)	30 (27.8)	52 (26.9)
To use condoms	36 (32.4)	45 (41.7)	81 (42.0)
To be monogamous	68 (61.3)	64 (59.3)	132(68.4)
Able to object to partner having >1 partner	38 (34.2)	30 (27.8)	68 (35.2)



Data on respondent's perceptions of ability to ask a new partner about adopting HIV risk reduction behaviours are presented in Table 31.

**Table 31: Ability to ask a new partner about adopting safer sex practices**

	<b>Nhlungwane (%)</b> <b>N = 111</b>	<b>KwaXimba (%)</b> <b>N = 108</b>	<b>Total (%)</b> <b>N = 219</b>
<b>Would be able to ask a new partner:</b>			
About other partners	70 (63.1)	57 (52.8)	127 (65.8)
To have an HIV test	67 (60.4)	37 (34.3)	104 (53.9)
To use condoms	69 (62.2)	48 (44.4)	110 (57.0)
To be monogamous	80 (72.1)	55 (50.9)	142 (73.6)

Data on the skills of respondents who are currently non-condom users, to use condoms are presented in Table 32.

**Table 32: Skills to use condoms**

	<b>Nhlungwane (%)</b> <b>N = 88</b>	<b>KwaXimba (%)</b> <b>N = 77</b>	<b>Total (%)</b> <b>N = 165</b>
Have difficulty in asking partner to use condoms	57 (64.8)	52 (67.5)	109 (66.1)
Have difficulty in convincing partner to use condoms	64 (72.7)	60 (77.9)	124 (75.2)
Do not know how to use condoms	67 (76.1)	69 (89.6)	136 (82.4)

Data on respondent's perceptions of friend's attitudes to safer sex practices are presented in Table 33.

**Table 33: Attitudes of friends to safer sex practices**

	<b>Nhlungwane (%)</b> <b>N = 111</b>	<b>KwaXimba (%)</b> <b>N = 108</b>	<b>Total (%)</b> <b>N = 219</b>
Approve of condom use	56 (50.5)	30 (27.8)	86 (44.6)
Disapprove of multiple partner relationships	100 (90.1)	71 (65.7)	86 (44.6)
Approve of discussing AIDS with partner	79 (71.2)	48 (44.4)	127 (65.8)

#### **6.4.8. Perception of Right to Safe Sex**

Womens' perceptions of rights to safer sex practices are presented in Table 34.

**Table 34: Perception of right to safer sex practices**

	<b>Nhlungwane (%)</b> <b>N = 111</b>	<b>KwaXimba (%)</b> <b>N = 108</b>	<b>Total (%)</b> <b>N = 219</b>
<b>If your partner puts you at risk of getting HIV infected:</b>			
You have the right to refuse to have sex with him	55 (49.5)	44 (40.7)	99 (51.2)
You have the right to insist on condom use	57 (51.3)	47 (43.5)	104 (53.9)
Men have the right to multiple partners	56 (50.5)	64 (59.3)	120 (62.2)

**6.4.9. Other factors influencing the adoption of safer sex practices**

Data on alcohol consumption, financial dependence, family and children in influencing relationship dynamics, particularly with respect to HIV transmission, is presented in Table 35.

**Table 35: Other factors influencing adoption of safer sex practices**

	<b>Nhlungwane (%)</b> <b>N = 104</b>	<b>KwaXimba (%)</b> <b>N = 89</b>	<b>Total (%)</b> <b>N = 193</b>
Partner is usually under the influence of alcohol when we have sex	46 (41.4)	68 (63.0)	114 (59.1)
<b>My partner is placing me at risk of getting infected with HIV but:</b>			
I am financially dependent on him	11 (9.9)	20 (18.5)	31 (16.1)
My children need a father	13 (11.7)	24 (22.2)	37 (19.2)
I love him	12 (10.8)	24 (22.2)	36 (18.7)
I fear rejection by my family	0 (0.0)	10 (9.3)	10 (5.2)

**6.5. Discussion**

Current HIV prevention interventions include combinations of behaviour modification, barrier methods use and treatment of sexually transmitted infections. Marriage has been created as an institution to ensure lifelong monogamy. For women in Nhlungwane and KwaXimba it is an insufficient safeguard to protect them from acquiring infection with HIV

because marriage is rare. Only 17.1% of respondents from Nhlungwane and 16.7% from KwaXimba were married; marriage being an indicator of commitment to monogamy. Serially monogamous relationships in women was common.

Women in Nhlungwane and KwaXimba are at high risk of acquiring HIV infection because of their own and their partner's sexual behaviour. Whilst 88.1% of the women in this study were sexually active, mutually faithful lifelong monogamy was rare in both the rural and peri-urban communities. A third of the women in Nhlungwane and 47.2% in KwaXimba thought that their partner had other partners.

Perception of HIV risk is a good predictor of the adoption of safer sex practices (133,134). Despite high levels of correct HIV knowledge with respect to transmission and prevention, an overwhelming 79.9% of the women from both communities believed that AIDS could be cured. This is a strong determinant mitigating against the adoption of safer sex practices. Furthermore, 33.3% of the women from Nhlungwane and 27.8% from KwaXimba did not perceive themselves to be at risk, despite the fact that 55% of the women from Nhlungwane and 37% of the women from KwaXimba believed that their partner was at risk of getting infected with HIV. In addition 28.7% of the women from KwaXimba did not know their partner's risk status. This low level of internalisation of knowledge and translation to personal risk is cause for

concern.

Perceptions of rights to safer sex practices is critically important to protection from acquiring HIV infection (73). Of importance is that 51.5% of the women from Nhlungwane and 59.3% of the women from KwaXimba did not believe that they had a right to refuse to have sex with their partner if he was placing them at risk of acquiring HIV infection. In addition, 48.7% of the women from Nhlungwane and 56.5% from KwaXimba did not believe that they had a right to insist on condom use if their partner was placing them at risk of HIV infection. Furthermore, 49.5% of the women from Nhlungwane and 59.3% from KwaXimba believed that men have a right to multiple partner relationships. This prevailing norm in several other settings (135-137) where sexual services are considered a conjugal right and a man's prerogative is a major barrier to the adoption of HIV risk reduction measures. An additional complication is the repercussion of going against this norm. In this study, as observed in other studies (138,139), experience of violence or even the threat of this is a strong deterrent to the adoption of risk reduction measures.

The majority of women who are at risk of acquiring HIV infection are in sexual relationships where abstinence is not practiced or desired nor are non-contact alternatives. The only option then is the male condom. This implies that the male partner must agree or be persuaded to its

use. This requires an understanding of heterosexual relationships, and specifically, interpersonal power (72,73).

The skills to implement safer sex practices are necessary for the adoption of safer sex practices. Despite being at high risk of acquiring HIV infection, condom use was low. Twenty eight (14.5%) of the sexually active women had used a condom and only 10 (5.2%) used condoms during every coital act. In addition to the low perception of risk of acquiring infection with HIV, an important contributor to low condom use could be that 29.6% of the women had never seen a condom and 76.1% of the women from Nhlungwane and 89.6% of the women from KwaXimba did not know how to use a condom.

The use of condoms in a stable relationship is rare and influenced by the pervasive belief that they are for casual partners and use with sex workers (140). The ability to have children in many cultures remain central to a woman's worth in a relationship (141) – options of abstinence and condom use undermine this fundamental basis that drives relationships in most cultures.

In both the communities, although 63% of the current non-condom users would like their partner to use condoms, 64.8% of the women from Nhlungwane and 67.5% from KwaXimba were not able to make this request to their partner. The ability to communicate and negotiate

also influences the adoption of safer sex practices. Whilst few women had discussed AIDS with their partner, the threat of violence amongst 13.6% of the women from Nhlungwane and 45.5% in KwaXimba impeded their ability to discuss AIDS and safer sex practices with their partner.

An additional issue in terms of reducing risk of acquiring HIV infection relates to frequency of seeing their partner. In a study in rural KwaZulu-Natal (121), women who saw their sexual partner for less than 10 days in a month were 15 times more likely to be infected with HIV compared to women who saw their partners more frequently. Whilst 51% of the women in Nhlungwane and 28.1% in KwaXimba saw their partner daily, the remainder of the respondents saw their partner less frequently.

Limited economic opportunities force men to seek employment away from their rural homes. This creates abnormal social conditions that separate partners and families for varying lengths of time and further encourages the establishment of sexual relationships in the cities, thus facilitating the spread of HIV in both urban and rural areas (142,143).

This separation makes it difficult for women when they do see their partner, to start to discuss AIDS or the use of condoms in the light of more pressing household decisions such as the purchase of food, school fees and issues relating to the children. More importantly, discussion of safer sex practices challenges and exposes the basis of the stable relationship – procreation, love and trust.

Alcohol consumption is associated with riskier sexual practices (144). In this study 41.4% of the women from Nhlungwane and 63% from KwaXimba reported that their partners usually consume alcohol prior to sex thus reducing the chances of adopting safer sex practices.

The majority of the women in this study are financially dependent on their partners; 70.2% from Nhlungwane and 78.7% from KwaXimba respectively. With already high rates of unemployment (43% in Nhlungwane and 35% in KwaXimba) and an average of 8 years of school attendance there are few options for economic independence open to these women. For many poor women such as these, who have always known risk of some sort in their struggle for daily survival, HIV is just another risk. The threat of AIDS five years hence is not so alarming.

The epidemiological data from several studies demonstrate the early rise and higher prevalence of HIV infection among young women between the ages of 15 and 25. Of note in this study was that a third of the women from Nhlungwane (32.3%) and 11.5% of the women from KwaXimba currently have more than one sexual partner. All of these women were between 16 and 24 years old. Furthermore, forty four (32 %) of the women had to quit school because of teenage pregnancies. The multiple partner relationships, together with unprotected coital acts is placing these young women at high risk of



acquiring HIV infection. Furthermore, despite high levels of AIDS knowledge in mothers in both these communities only 7.1% had discussed the dangers of AIDS with their children, the majority of whom are teenagers.

We were unable to explore the issue of STIs with women as they appeared to have little knowledge of their reproductive systems or the symptoms of STIs. Other studies (145-147) in the province demonstrate a high prevalence of asymptomatic STIs among women as well as high rates of co-infection with HIV.

Women in both communities, despite many impediments, have been able to organise themselves into a variety of interest and activity groups to address their material needs and political aspirations; however their perception of their own power to protect themselves from HIV infection is poor. The possibility of using their group support and power has not been explored as a mechanism to protect themselves from HIV infection.

Women's vulnerability to HIV infection is directly linked to their status in society (148,149) and in the family (150). Men need to acknowledge that unprotected sex with multiple partners not only puts them at risk, but also their partners and unborn children, and has implications for the entire family. The responsibility for caring, protecting and nurturing has

traditionally fallen on women but, with the sexual nature of the transmission of HIV, men have to take more responsibility in this regard.

## **6.6. Conclusion**

The majority of women who are at risk of acquiring HIV infection are in sexual relationships where abstinence is not practiced or desired nor are non-contact alternatives. The only option then is the male condom. This implies that the male partner must agree or be persuaded to its use. In both the urban and rural communities, the adoption of safer sex practices was influenced by perception of risk of getting infected with HIV, belief that AIDS could be cured, rights to insist on safer sex practices, and communication and condom use skills. At a societal level, limited education, few economic options, financial dependence on partner, the migrant labour system and the threat of violence were important determinants of women's ability to protect themselves.

In addition to low levels of interpersonal power, most significantly, many women did not believe that they have the right to insist on safer sex practices.

# **Chapter 7: The HIV knowledge-behaviour gap: Women and their teenage children in urban KwaZulu-Natal**

## **7.1. Introduction**

Epidemiological data presented in Chapters 4 and 5 demonstrated the higher risk of HIV infection in women and in teenagers. Mothers play an important role in influencing their teenage children's development and behaviour (151). Since mothers have both access and opportunity, they are potentially important agents for the education of their teenage children at an important stage of their sexual development. Mothers who are aware of the HIV epidemic and the risks associated with it, would want to educate their teenage children.

AIDS educational campaigns have been launched in many parts of the world; either as nation-wide campaigns (152,153) or targeted at specific groups of people (154-156). The process by which health knowledge is transformed into health promoting behaviour is not well understood, but many theories have been proposed ( 53,54, 60,119 ,157). While these models differ on how health behaviour is determined, they concur that appropriate knowledge is a pre-requisite for healthy behaviour (53,54,158). Hence, education programmes that are cognisant of

current perceptions and knowledge are more likely to succeed (152).

This study set out to investigate mothers' HIV knowledge and risk of acquiring HIV infection and whether they were acting on their knowledge to inform and educate their teenage children.

## **7.2. Purpose**

The purpose of this study was twofold: (i). To assess the knowledge of HIV/AIDS among urban black mothers of teenagers; and (ii). To assess the degree of communication between these mothers and their teenage children, and in particular whether mothers who have good knowledge of AIDS were acting on this knowledge by educating their teenage children about AIDS.

## **7.3. Methods**

### **7.3.1. Study site and Sampling**

This study was conducted in 1990 in Lamontville, a black township south of Durban. There are about 1000 houses in this established township. Most are standard 4-room township houses. In addition, there are a few blocks of flats and a rapidly developing section of privately built homes. Tap water and electricity are available.

Every eighth house was selected after the first house was randomly

chosen from the first eight. The sample consisted of 122 houses. This comprised a 12.5% sample of all houses in Lamontville.

### **7.3.2. Study Procedure**

Interviews were conducted both on weekdays and weekends to maximise the response from employed women. All interviews were conducted by a trained fieldworker in either English or Zulu, depending on the subject's preference.

For the purposes of this study an individual aged between 11 years and 19 years inclusive was regarded as a teenager.

A mother qualified for inclusion in this study if she had at least one teenage child. In houses where there were more than one eligible mother, only one randomly selected mother was included in the study. At 17 selected houses with no eligible mothers, the nearest house was visited.

When an eligible mother was found, the purpose of the study was explained to her and she was assured that the information provided would be treated in the strictest confidence. Only 5 eligible mothers refused to participate in the study; in these instances the next eligible mother agreed to participate.

### **7.3.3. Data Management and Analysis**

Data were collected and recorded on a standardised, pre-piloted questionnaire. The questionnaire included both open-ended and fixed response questions. The responses to open-ended questions were categorised in terms of their content. Data obtained from questions relating to childbirth were used to develop indirect indicators of sexual behaviour. A teenage pregnancy was defined as a child born to a mother under the age of 20 years. It should be noted that the questionnaire used in the pilot study included several questions on sexual partners, which were excluded from the final questionnaire because most mothers refused to answer these questions in the pilot study.

The data were analysed using Epi Info (Centers for Disease Control and Prevention, Atlanta, Georgia, USA). Where applicable, results are presented as mean  $\pm$  standard deviation.

## **7.4. Results**

### **7.4.1. Socio-demography**

The subjects comprised 122 mothers who collectively had 221 teenage children. Most subjects (84.4%) had been living in Lamontville for more than five years. Almost half the subjects (45.9%) were unemployed, 23% were unskilled labourers, 21.7% were semi-skilled labourers, 6.6%

were professionals and 3% were self-employed.

#### 7.4.2. Indicators of mothers' sexual behaviour

Of the 54 mothers who were married (court or church ceremony), 4 were divorced, 2 were widowed and 2 were separated. Twenty of these 54 mothers had given birth to children before marriage; 7 had children fathered by a person other than the person she later married. Data on age at first pregnancy, number of pregnancies, number of fathers and other indicators of sexual behaviour are shown in Table 36.

**Table 36: Indicators of Mothers'\* Sexual Behaviour**

Indicators	Ever Married (N=54)	Never Married (N=68)	All Mothers (N=122)
Mean age (yrs)	37,9 ±10,7	35,5 ±8,5	36,6 ±9,6
Mean age at first pregnancy (yrs)	21 ± 4,8	20,2 ± 5,3	20,4 ± 5,1
Mean No. of pregnancies	4,1 ±1,3	2,6 ±1,4	3,3 ±1,5
Teenage pregnancies	24	43	68
Mean No. of fathers	1,2 ± 0,58	1,8 ± 0,9	1,6 ± 0,81
Mothers with more than 1 child	54	53	107
Mothers with all children by the same consort (%)*	45 (83%)	15 (28%)	60 (56%)

\* Denominator is mother's with more than 1 child

### 7.4.3. Mothers' Knowledge of HIV/AIDS

All mothers had heard of AIDS. Radio was the most often (91.8%) quoted source of information on AIDS, followed by television (28.7%), friends (5.7%), clinics (8.2%) and newspapers (5.7%).

All mothers knew about heterosexual transmission of HIV and 117 (95.9%) knew about vertical transmission. Only 2 mothers (1.6%) knew of transmission of HIV by blood and blood products.

Having one partner and the use of male condoms were indicated by 95.9% and 97.5% of mothers respectively, as mechanisms of preventing the spread of HIV. Twelve mothers refused to answer a question on whether they would like their partners to use condoms. Of the remainder of mothers, none had used condoms.

Six mothers (4.9%) felt that there was a possibility that they could get AIDS, but all qualified their answers by saying that while they were monogamous they had doubts about their partner's fidelity. Almost all mothers (99.2%) believed that there were no people with AIDS living in Lamontville in 1990.

Two-thirds of mothers believed that AIDS could be cured by treatment from a doctor and 9.8% said that *muti* (traditional medicine) from the traditional healer (*inyanga*) could cure AIDS. Other misconceptions



about AIDS included spread by touching (8.2%) or living in the same house as someone with AIDS (9.8%) and that eating good food prevented AIDS (20.5%).

All mothers said that they were scared of AIDS. Concern about the AIDS epidemic was common, with 67.2% of mothers expressing interest in supporting a local campaign against AIDS.

#### **7.4.4. Communication between mothers and their teenage children**

Not one mother had spoken to her teenage child about AIDS. Only 13 mothers (10.3%) had discussed contraceptive methods with their teenage children. The mean age of the children when contraceptive methods were discussed was  $14.3 \pm 0.8$  years (range 13-16 years).

The majority of mothers (97.8%) who had teenage daughters felt that their daughters should only have their first child after marriage, 1.1% said after they had completed school but not necessarily before they had a job and 1.1% said only after they started a job. Mother's reaction to their children having more than one partner at the same time is shown in Table 37.

**Table 37: Responses from mothers when asked for reaction to teenage children having more than one sexual partner**

<b>Response</b>	<b>Sons (N=106) (%)</b>	<b>Daughters (N=116) (%)</b>
Refuse to allow this	82.1	86.5
Get angry but accept	12.3	7.2
Accept it	5.7	0.9

Seventeen (14.7%) teenage daughters had become pregnant, 6 were daughters of married mothers and 11 of unmarried mothers. The mean age of these 17 girls when they had their children was  $17,0 \pm 1.1$  years (range 15-19 years). Contraceptive methods had been discussed with 4 of these daughters.

### **7.5. Discussion**

Urban black mothers, regardless of marital status, are at high risk of acquiring HIV infection and despite their knowledge of the modes of transmission and prevention of HIV infection, have not begun using condoms as a preventive measure, nor have they communicated the risk of unprotected sex to their teenage children.

The high teenage pregnancy rate among both mothers and daughters indicated the early age at which they experienced their first sexual relationship and supported the findings of a recent study (159) that 75.4% of black school pupils (aged 13-26 years; median 17 years) had

already had sexual intercourse; of these only 11.4% had used a condom at least once.

These findings, together with the observation that 44% of mothers had children by more than one consort, demonstrated the extent of multiple sexual partnerships and the high frequency of unprotected sexual intercourse among urban black women, thereby placing them at high risk of HIV infection.

While the risk of HIV infection is clearly substantial, it should be noted that our study underestimates the risk because direct questions on the number of sexual partners were avoided and use was made of innocuous questions on pregnancy history to develop rough indicators of mothers' sexual behaviour. This method yields minimum estimates of the number of consorts and teenage sexual activity, since pregnancy is not an invariable outcome of a sexual relationship.

Importantly, this method places serious limitations on being able to draw any conclusions regarding the impact of AIDS knowledge on the number of sexual partners. This study therefore focused mainly on the women's AIDS prevention behaviour by assessing whether she had used condoms and communicated the risks of HIV to her teenage children.

The effectiveness of the public media, especially radio and television, in transferring facts about AIDS to mothers was reflected by their considerable knowledge on the subject. While some misconceptions were present, most mothers knew about heterosexual and vertical transmission of HIV as well as about methods for reducing their risk of becoming infected with HIV, ie. monogamous relationships and use of condoms. A study among goldminers in Gauteng reported similarly high levels of knowledge of AIDS (160).

It was, however, of great concern that mothers had not yet instituted condom use to reduce their risk of acquiring HIV infection despite their extensive knowledge of HIV transmission mechanisms and prevention strategies. Most mothers knew about condoms and their role in preventing the spread of HIV. While the majority of mothers said that they would like their partners to use a condom, not a single mother had experienced sexual intercourse during which a condom was used. Results from a national study in South Africa demonstrate low condom use amongst adults practicing high risk sexual behaviour (161).

Mothers have either not informed their partners that they would like condoms to be used or their partners have not complied with their requests. The failure to use condoms may stem from the mother's inability to successfully negotiate this with their partners. Negotiations about safe sex are constrained by prevailing gender norms which

discourage equitable decision-making (162). Whilst sexual roles may vary across cultures, gender imbalances are widespread and entrenched (163). Most women remain at a distinct disadvantage when compared to men in terms of asserting their rights to reduce their risk to HIV infection (164).

Another possible explanation for this scenario is that mothers did not feel that AIDS risk factors were applicable to them, ie. they did not perceive themselves to be at risk. The 6 mothers who did perceive themselves to be at risk felt that their risk was related to their partner's behaviour, rather than their own, and felt a sense of helplessness in trying to influence his behaviour.

The prevalent belief that AIDS can be treated by a doctor is also likely to influence condom usage. In such an instance the powerful incentive to prevent a fatal disease is removed, thereby reducing the probability of risk-reducing behaviour being adopted.

While mothers would like their daughters to have children only after marriage, there is already a high teenage pregnancy rate (14.7%) among the daughters, as young as 15 years, highlighting the need to inform teenagers about contraception during their early rather than late teens.

In this study, there was poor communication between mothers and their teenage children regarding AIDS. An AIDS KAP (knowledge, attitude and practice) study among adolescents in Massachusetts (165) showed that approximately 50% of these adolescents had discussed AIDS with their parents or other family members. It was disappointing to find that mothers in this study were not communicating the risks of HIV infection to their teenage children. While AIDS knowledge may not translate to risk-reducing behaviour such as condom use due to resistance from male partners, communication with teenage children is not limited by these constraints. A national study conducted in the USA (166) among high school students, demonstrated that students who discussed HIV with their parents were less likely than those who did not, to have multiple sex partners, have unprotected sex or engage in other high risk activities. In another study on family communication in the US (167) it was found that young women are more likely to be influenced by discussions with parents to adopt HIV risk reducing behaviour compared to young boys.

Women had adequate knowledge of AIDS but this has not impacted on their behaviour with regard to AIDS. The knowledge-behaviour gap is explored further in Chapter 7 using both quantitative and qualitative methods.

## **7.6. Conclusion**

Interviews with urban mothers of teenage children demonstrated that a single lifetime partner was rare in this community, placing women at risk of acquiring HIV infection. Despite high levels of knowledge of HIV/AIDS, perception of self-risk and desire to adopt safer sex practices, none were able to translate this into one action viz condom use.

Their teenage children are at high risk of acquiring HIV infection because of their already high levels of unprotected sexual activity. However, none of the mothers' had discussed HIV/AIDS or the dangers of unprotected sex with their teenage children. Whilst for mothers their ability to reduce their personal risk of acquiring infection with HIV may be constrained by existing social, cultural or economical systems, of concern is the perpetuation of this vulnerability into the next generation because of the lack of communication about HIV/AIDS with their children.

The need for mothers to acquire skills such as assertiveness and communication to reduce their own, and their children's risk of acquiring HIV infection, is highlighted.

# **Chapter 8: Gender barriers to reducing HIV risk: The case of sex work at truck-stops in KwaZulu-Natal**

## **8.1. Introduction**

Inequality in the job market, including in some instances exclusion of women from the formal economy, has forced them to explore other options for survival, including sex work. Sex work in several countries is an illegal activity, which restricts women's recourse to protection or support when faced with adversity such as harassment, refusal to pay, or violence from clients.

The definition of what constitutes sex work is complex; it includes clearly identifiable sex work in a variety of settings such as escort agencies, massage parlours, on the street and at truck-stops. Less easily identifiable is sex work that takes place in informal settings in which sex is exchanged for gifts and favours, school uniforms, security and survival as opposed to sex work in a formal setting.

In countries such as South Africa, where transmission of HIV is predominantly sexual, having multiple sexual partners is a key risk behaviour. Sex workers, by virtue of the nature of their work, which is



characterised by multiple sex partners, and frequent coitus, have a higher risk of acquiring and transmitting HIV than the general population. The high prevalence of HIV infection observed among female sex workers in Kenya (168), Uganda (169), and Somalia (170) is attributed not only to high-risk sexual behaviour, but also to common background characteristics such as poor social conditions, poor knowledge about HIV infection, and a high prevalence of other sexually transmitted diseases (112,171). Female sex workers are a specific group of women with a high risk of HIV and therefore the study of impediments to risk-reducing behaviour, such as condom use, in this group could have a substantial impact on HIV transmission.

Although sex work is illegal in South Africa, it is nevertheless common. Sex workers of higher socio-economic status work out of escort agencies and massage parlours, while those of a lower socio-economic status work on the street or at harbours, mines, bars, and various working class socializing areas. Just as the “migrant labour system has created a market for prostitution in mining towns” (129), the trucking industry has created a similar market at certain petrol and diesel filling stations known as truck-stops. Women working at truck-stops are typically at the upper end of the scale for risk of HIV infection (172). Efforts to educate them as to HIV protective strategies have been impeded by frequent police harassment, which has made them a “hard-to-reach” group.

While health education and risk-reduction strategies that go beyond mere information dissemination targeted at sex workers and their clients are obviously required, the success of these interventions depends on an understanding of the social context within which these behavioural changes must occur. This context is defined by the social and economic needs of sex workers, particularly in settings where negotiation for safer sex methods is difficult.

## **8.2. Purpose**

This study of a group of women engaged in sex work at a popular truck-stop in South Africa was undertaken to explore the gender barriers that place sex workers at high risk for HIV infection, and impede their ability to reduce their risk.

## **8.3. Methods**

### **8.3.1. Study Site and Study Population**

The study population comprised a small community of women selling beers and sex to truck-drivers and local men at a major truck stop almost midway between Durban and Johannesburg. There are usually 12 women living and working at this truck stop, but the composition of this group changes constantly. Each month, about two new women join the group while a similar number leave. This mobile group usually

moves along the truck route or to other worker sites, usually hostels; some women return to this stop over variable lengths of time. A stable group of eight sex workers was present at the truck stop throughout the study period. Their mobility was usually related to family visits. Contact was made with them through a local health official, who, through his health promotion efforts, had developed a relationship of trust with the group over time. All sex workers present at the truck stop during the study period were included in the study.

### **8.3.2. Study Procedure**

Fieldwork for the study was conducted over 6 months, from December 1991 to May 1992, using a combination of qualitative and quantitative techniques. In November 1991, following a consultative meeting with the group at the study site, the women agreed to participate on the precondition that all data be collected by a sex worker elected from within the group. At the end of the consultative meeting, the sex workers held their own meeting to elect an individual for that purpose. She was subsequently remunerated as a part-time fieldworker for the study but continued, by her own choice, with sex work during the study period.

In preparation for the study, the fieldworker was briefed about its objectives and given extensive training in qualitative and survey methods, including ethical issues in HIV. The training, which took place

in Durban, included conducting mock interviews, conducting and recording informal in-depth interviews, administering questionnaires, and receiving basic information about HIV and AIDS. Subsequently, the fieldworker returned weekly to Durban, where regular contact with the research staff enabled them to follow-up and build on her initial training as well as to debrief her on her progress.

Through in-depth interviews with women at the stop, from December 1991 through February 1992, the fieldworker obtained qualitative descriptions of the group (herself included), which covered social conditions at the truck-stop, sex work, family history, and attitudes and practices with regard to HIV/AIDS and other sexually transmitted diseases. She prepared detailed notes at the end of each interview.

During March and April 1992, the same fieldworker administered questionnaires to each sex worker at the truck-stop. The questionnaires, which were developed to quantify the findings from the in-depth interviews, contained both open- and close-ended questions on such items as socio-demography; social support systems; types and frequency of sexual encounters; prices charged for sex work; knowledge, attitude and practices with regard to HIV; issues regarding condom use; and contraceptive and sexually transmitted diseases history.

In May 1992, in-depth interviews were conducted with a select group of truck-drivers, and data were obtained on socio-demography, AIDS knowledge, perception of risk, sexual behaviour and condom use.

In addition to the group consent obtained at the beginning of the study, informed consent was obtained from each individual prior to the in-depth interviews and administration of the questionnaire. All field notes and records were collected without names. Linkage of interview notes and questionnaires was not possible.

### **8.3.3. Data Analysis**

The field notes compiled at the end of the in-depth interviews were scrutinised for completeness during the fieldworker's visit to Durban. Content analysis of the notes was undertaken, and this report is a compilation of the themes from the fieldnotes; supplemented with quantitative information from the questionnaires.

Questionnaire data were recorded on a standardised form. Responses to open-ended questions were categorised in terms of their content and then treated as categorical variables. Data were analysed using Epi Info (Centers for Disease Control and Prevention, Atlanta, Georgia, USA).

## 8.4. Results

Ten in-depth interviews and 12 questionnaires were completed with women at the truck-stop. The respondents, all of whom were Black, ranged in age from 17 to 34 years (mean=25.9 years; SD=3.8) and had been based at the truck-stop for an average of 3.6 years (range=1 month to 8 years). A further 9 in-depth interviews were conducted with truck drivers.

### 8.4.1. Socio-demography

*"We abide all kinds of problems because there is no place else we can go to"*

Six of the 12 respondents had been at the stop for 5 years or more. With the exception of 2 women who were born in Gauteng, all were born in the KwaZulu-Natal Midlands ie within a 100km radius of the truck-stop. One respondent was married, one was divorced and the remainder were single. The married respondent saw her husband at least once a month. Of the single respondents, 7 had a regular, non-commercial sexual partner. Eight respondents were mothers, 1 had 4 children, 2 had 3 children, 3 had 2 children, and 2 had 1 child each. The children ranged in age from 1 to 15 years. All the children were cared for by their relatives. One of the respondents, a 25 year old single mother with one child, was, at time of the study, 5 months pregnant and still actively engaged in sex work at the stop.

All respondents had family whom they visited at least once a month. Five respondents had contact with both their parents, a further 4 had contact with their mothers only as the father's existence or whereabouts was unknown. Of the 3 orphaned respondents, 2 had no dependent family while one supported her sister and grandmother. With the exception of the 2 women with no dependents, the remainder described themselves as financial supporters of dependent children or relatives. Families were told only of beer selling activities at the truck-stop. Sex work was kept secret and some women expressed shame and fear of their family learning about their sex work.

With the exception of one women who had 9 years of schooling, the remainder had an average of 5 years of schooling and indicated this as a barrier to obtaining other employment. Some had previously worked as shop assistants or domestic workers but had either lost their jobs or found the income insufficient to support their families.

The women complained of being treated badly as tenants of the truck-stop with poor sleeping, ablution and cooking facilities. The women relied on each other for help and support when beaten by clients, arrested by police or when they fell ill.

Two of the women are described briefly below to illustrate the women's

lifestyle<sup>2</sup>.

Thembi is 23 and has been a sex worker at the truck-stop since she was 18. She was first fell pregnant when she was 15 and now has 2 children who are cared for by her grandmother. Thembi now uses condoms to prevent pregnancy and protect herself from disease. Condoms are not popular with the clients and she can only charge R5 per client. She has 10 clients each day in order to earn R250 per week.

*"..she has problems of the men (who) do not want to pay....(they) blame the condoms which she used"*

Nomsa is 19 years old, she has no children but 2 dependent parents. Nomsa became a sex worker at 14 when she was seeking work to support her parents. Nomsa uses no contraception and earns R250 each week by selling beers and sex to 3 clients each day of the week.

*"....she is the supporter of the family....she works day and night"*

#### **8.4.2. Sex Work**

Questionnaire data indicate that the 12 respondents had a total of 266 clients per week (mean=22; range = 4-40). Ten of the 12 respondents worked a seven day week selling beers and sex. One of the respondents who worked a 5-day week used the remaining two days to work in single sex hostels in Durban. This was a fairly stable

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<sup>2</sup>Names have been added. No names are recorded in the fieldnotes or questionnaires.



population of sex workers. Mobility amongst sex workers was the exception rather than the norm.

Women did not engage in sex work whilst menstruating. They used this time to seek medical attention, visit family and catch up with general chores such as cleaning and shopping. The sex workers were most likely not to be at the stop when they were menstruating.

Sex work could be divided into short jobs and overnight sessions. In a 7-day week, an average of three out of four nights were worked as overnight sessions, during which one client would spend the entire night with the sex worker and two to four coital acts would be performed. In addition, each woman performed an average of 17 short-jobs (range=0 to 35) each week. Although these were performed during the day or night, they were seldom performed at night when an all-night session was in progress. Coitus among the group occurred from 2 to 10 times in a 24 hour period.

Coital acts were very carefully defined in the context of sex work. Women refused to perform oral sex, manual stimulation or anal sex. Only peno-vaginal sex was practiced with clients. This decision was based on strongly held perceptions of cultural taboos towards these sexual practices. The frequency of these requests and how exactly the sex workers negotiated with their clients were not quantified in this

study.

The majority of the sex workers described having regular clients as well as clients whom they did not know at all. Most described having about three regular clients. The frequency of these client visits varied from once a week to once in six months. While respondents thought that clients preferred younger women, the interview data suggest that the average payment was higher to older women.

Frequency of coital acts. However, it appeared that it was related to number of dependents. For example, the woman with the lowest frequency of coital activity was the lowest earner and also reported not having any dependents.

#### **8.4.3. Sexually Transmitted Diseases and Contraception**

Of the 12 respondents, 7 (including the two youngest and as yet, childless women) indicated that they were not using any form of contraception. Of the remaining respondents, two used condoms, one used oral contraceptives and two used intrauterine devices.

All respondents who were not on any form of contraception reported postcoital douching with antiseptics such as Dettol, Savlon, Jik, or *imbiza* (a herbal poultice to prevent conception and sexually transmitted diseases). Postcoital douching for hygienic reasons, either with soap

and water, or with water only, was reported by the women who were on contraceptives. The use of a variety of products to enhance the clients sexual satisfaction were reported. There was a common perception that the use of some of these intravaginal substances would ensure client loyalty.

Knowledge of HIV aetiology, modes of transmission, prognosis, and methods of prevention was high among the sex workers, reflecting the earlier educational activity conducted by a local health authority official.

Six respondents reported a past episode of a sexually transmitted disease. In the three months preceding the interview, two respondents reported an episode of a sexually transmitted disease. Of note is that only one had sought treatment. Respondents who reported a STD episode in the past had sought medical treatment from both traditional healers and the formal health service. Traditional healers usually dispensed a herbal remedy.

Women who recognised they had a sexually transmitted disease or who wanted to be on some form of more reliable contraception cited judgmental attitudes of health care workers at public facilities a deterrent to seeking care. Prohibitive costs in the private sector also precluded the use of these health care services.

#### **8.4.4. Condoms**

Condoms were obtained from clinics, the fieldworker or the health official. However, condoms were rarely used. Three respondents with an average of approximately 84 clients per week never asked clients to use condoms. Of the remaining 9 respondents who requested condom use, 7 reported that most clients refused to accept their use. In the latter instance, only 3 respondents would not have sex with the client while the remaining four would have sex with the client anyway. The 2 respondents who indicated using condoms for fertility control and disease prevention, did not use them at every sexual encounter. Only one respondent indicated using condoms with every client.

Condom use was reportedly responsible for lost clients, more frequent non-payment and being physically abused following coitus. Personal sexual dissatisfaction was cited by 4 respondents for objecting to and not insisting on condom use. Problems experienced with the use of condoms included them remaining in the vagina and causing harm, and breakage during use.

Clients paid less for sex when a condom was used. The only woman who always insisted on condom use charged one quarter the average price of the other women (R5 vs R20).

None of the eight respondents with regular, non-commercial sexual

partners used condoms in these relationships as they trusted their regular partner.

#### **8.4.5. Violence**

The women encountered frequent physical abuse and rape from clients. The police offer no protection in these cases. Several women testified to increased likelihood of aggressive behaviour from clients when condoms were used or suggested, and were consequently fearful of suggesting their use.

According to 5 independent accounts from the respondents, police occasionally helped themselves to beers and sought free sexual favours from the sex workers.

*"The police who come here usually come here to take the beers.."*

#### **8.4.6. Interviews with Clients**

The fieldworker encountered resistance when she tried to interview the clients, nonetheless 9 truck-drivers were interviewed. Resistance stemmed from fear of prosecution, or loss of employment to reluctance to discuss their lives or AIDS. Some of the resistance also came from other women who feared the fieldworker interviewing clients might result in them losing clients. The information may, therefore, not be representative of the truck-drivers or clients visiting the truck-stop.

The average age of the clients was 39 years (Range: 25-52). Five were married, 2 divorced and 2 were single. All had children. The men had been working as truck-drivers for an average of 10 years (Range: 3-19 years) and travelled widely within South Africa and neighbouring southern African countries. Visits to sex workers varied in frequency from 4 women per day to once a fortnight. Alcohol consumption was an integral part of the sex worker visit. Clients frequently consumed beers purchased from the sex workers. Visits to their home base and family ranged in frequency from once a month to once a year.

Knowledge and attitudes with regard to HIV/AIDS varied. Six of the 9 clients interviewed were aware that HIV was sexually transmitted and that AIDS was incurable and fatal. This knowledge generated some fear amongst clients, particularly of infecting their families. Of note is that three clients "did not believe in AIDS". Reasons cited for this belief included successful recovery from STDs in the past, not knowing anyone with AIDS, and denial that multiple sexual partners was avoidable.

Misconceptions about transmission included the belief that infection resulted from walking over urine from an infected person, casual contact or eye contact with an infected person.

One respondent described his need to visit sex workers to be a

consequence of his rejection by other women who knew that he was a truck-driver and were therefore scared of being infected by him.

## **8.5. Discussion**

*"When you are a prostitute, you do not think of tomorrow; you just think of now." (Sex worker from the truck-stop)*

The ability of women generally to negotiate safer sex practices within the current paradigm of HIV risk reduction strategies is low (173,174). The ability of sex workers to negotiate in sexual contracts is expected to be lower, especially where sex work is illegal and carries with it few social or legal rights. The sex workers at this truck stop are at high risk of heterosexually transmitted HIV but have little power to negotiate safer sexual practices, particularly in their commercial sexual relationships. Violence, or the threat thereof, plays an important role in their disempowerment. For these women, who are living in overcrowded conditions, in poverty, with poor health, and with many dependents, the risk of an infection that may not materialise for many years is perhaps not so alarming a spectre. A high risk of HIV infection is just one more vulnerability to be faced, one more consequence of their lack of social and economic power.

Because sex with condoms brings a lower price, sustaining earnings

while using condoms requires having more clients. However, time constraints and competition for clients limit the feasibility of this option. Older women in particular are already experiencing difficulty attracting clients. Thus, to maintain prices while insisting on condom use would require a co-operative approach, with the women standing together as suppliers in the market place. But although the women have demonstrated group support and strength during times of crises such as client assaults or police raids, competition for clients has prevented them from using this strength to promote condom use with clients.

All the women in this study were able to insist on only peno-vaginal sex with their clients. While this implies that they do have some ability to negotiate and exercise control over the type of sexual encounter, it is not known to what extent this then weakens their leverage to negotiate on HIV protective issues, such as condom use or other lower-risk sexual practices such as oral or inter-crural sex.

The role of alcohol consumption by clients as an impediment to the promotion of safer sex practices among sex workers has been previously documented (175). It is likely that negotiating for safer sex practices with a client under the influence of alcohol not only reduces the sex worker's chances to succeed but also increases the possibility of a client reacting irresponsibly and perhaps violently.



A few women were able to insist on condom use with their clients. Yet these same women also testified to being powerless with clients who refuse to pay or who beat them up after having sex. And while the violent consequences of condom use are sufficiently severe to explain their low usage and undermine the promotion of safer sex practices, there are even further constraints to their use - notably, the limited AIDS knowledge of truck drivers.

Long-distance truck drivers have been identified as a group at high risk for acquiring and transmitting HIV (176), owing to their mobility and multiple sexual partners. In an HIV vaccine preparedness study among truck-drivers in Mombasa (176), an HIV prevalence of 17.4% and an annualized seroincidence of 4% was observed. Preventing and controlling HIV transmission at truck stops may therefore have a significant impact on efforts to reduce HIV incidence within South Africa and the region.

Sex with regular partners and husbands is unprotected. Because these relationships are of unknown stability and fidelity, they may also constitute a considerable HIV risk. Introducing condoms into these relationships involves different communication and negotiation skills from those required for clients.

While the focus thus far has been on issues relating to the sexual

transmission of HIV, the extensive practice of douching and the wide array of vaginal insertions used by the women are also sources of concern. Studies undertaken among women in the general US population have demonstrated an association between douching at least once a week and ascending genital tract infection (177,178). Several other studies conducted in Sub-Saharan Africa in sex worker and non-sex worker populations (179-182) have also observed this practice. However, the association between these “dry sex” practices and HIV transmission remains unresolved.

Undertaking research in situations where respondents are wary of sharing intimate and sensitive information with strangers for fear of victimisation, prosecution, or discrimination poses many challenges. The participatory processes used in this study enabled the collection of important insights that would not otherwise have been obtainable. The fieldworker provided an important link between the sex workers and the research team, enabling the research to go beyond mere data collection to the initiation of critical examination and group dialogue about the women's risk of HIV infection and the steps they can take to reduce that risk.

To address the issues central to the disempowerment of sex workers, long-term programmes that redress the workers' lack of social and legal rights are required. In Nevada (183) where sex work is conducted

within a legally sanctioned and organised setting, there have been no HIV seroconversions observed in a group of 350 sex workers and the prevalence of gonorrhoea is stable at about 1%.

In the short term, enabling sex workers to get their clients to use condoms and expanding the availability of methods that women can control (174) will increase their options to protect themselves from HIV infection. The “100% condom use” policy in brothels in Thailand initiated in 1989 (184) demonstrated a dramatic decrease in STD incidence rates from 6.5 per 1000 population in 1989 to 1.64 per 1000 population in 1993.

While the social processes to build group identity and strength are underway, the sex workers at the truck-stops have been emphasizing their need for a protective method that does not require client co-operation. Research with intravaginal microbicides is now underway with this group. Two acceptability studies of different formulations of Nonoxynol-9 have been completed (185,186) and an efficacy trial of nonoxynol is nearing completion (187).

To empower women such as the truck-stop sex workers in their relationships with their clients would be a step toward developing their ability to reduce the threats to their health and might have far-reaching effects on the reduction of HIV incidence. Negotiation and

communication skills, information and access to barrier methods they can use and control, and improved access to health care services could start this process.

Specifically, increasing the technical capacity of key, respected individuals within the group through education and training, could be crucial in providing peer support and leadership to enable the women to explore ways to use their group strength to facilitate unified action in negotiating safer sexual practices with their clients and thereby acquiring more power to protect themselves within the commercial sex contract.

## **8.6. Conclusion**

This study highlights the extent to which social and economic constraints influence micro-level interactions and individual survival strategies and thereby determine vulnerability to HIV. Faced with many dependents, few years of education and limited or no employment opportunities for many women at this truck-stop, engaging in sex work is their only means of survival.

The illegal status of sex work in South Africa limits their legal recourse to protection or support when faced with adversity from clients or indeed from the institution that could protect them viz the police.

Labeling of sex workers as “vectors of, and reservoirs of disease” results in the social isolation of sex workers because of the stigma and discrimination at community level when their occupation becomes known. Clearly from the limited work on clients of the sex workers, it is the clients who also need to be targets of HIV risk reduction interventions.

Whilst in many settings sex workers have more control in minimising exposure to HIV with their clients, sex workers at this truck-stop are at high risk of heterosexually transmitted HIV but have little power to negotiate safer sexual practices with their clients. Economic loss and fear of violence are major impediments to sex workers not insisting on condom use with clients.

These sex workers are also at risk of acquiring HIV in their personal or non-transactional encounters for the same reasons that place women in stable relationships at risk viz love, trust and negative connotations of condoms in intimate relationships.

In the short-term, negotiation and communication skills, barrier methods that they can use and control and increased access to health care services are required to facilitate change and reduce risk.

# **Chapter 9: Gender barriers to reducing HIV risk: Health service obstacles to condom accessibility in urban KwaZulu-Natal**

## **9.1. Introduction**

Chapter 6 and 7 highlighted the high risk that women in stable relationships are exposed to for acquiring HIV infection. The knowledge-behaviour gap is influenced by a number of factors relating to an absence of a rights base for sexual decision-making, social constructions of gender, societal expectations of women and the patriarchal dominance of all aspects of their lives. Exclusion from the formal economy has left many women with few options for survival. In Chapter 7 the vulnerability of sex workers to HIV infection in their transactional and intimate relationships was highlighted. This chapter explores the role of the health services in influencing women's vulnerability to acquiring infection with HIV.

Condom promotion is one of the central components of HIV control strategies (188,189). The widespread recognition of their role in preventing the spread of HIV has been highlighted in the surveys of the

general population (Chapters 6 and 7) and sex workers (Chapter 8).

However, in these, and most other settings, condom use remains low (192-195). In addition to issues such as love and trust (196), type and nature of relationship (197,198), control over coital act (199), familiarity with and access to condoms, influence their use (200,201).

Contraception is widely practiced in South Africa (202). Public sector health clinics are the main source of family planning services. The contraceptives most widely promoted and distributed are hormonal methods such as the pill and long-acting progesterone (203).

Additionally, family planning service providers act as gatekeepers of contraception and are key in influencing user patterns, acceptance and continued use (204,205). In Zambia, limited intra-uterine device use has been attributed to strong provider bias, lack of knowledge of the method, and service delivery system barriers (206).

Family planning services in South Africa are the major distributors of condoms to the public and potentially have an important role to play in improving access to them, particularly for teenagers who are known to be a high-risk group for HIV infection. Anecdotal accounts from teenagers who have sought condoms from family planning clinics indicate that the experience may be daunting and even an unpleasant one (196).

## **9.2. Purpose**

This study was undertaken to assess the accessibility of condoms to teenagers, especially teenage girls, at family planning services in Durban.

## **9.3. Methods**

### **9.3.1. Clinic based family planning services in Durban**

Both the KwaZulu-Natal Provincial Administration and the local authority, the Durban City Health Department, provide family planning services in Durban. The provincially administered clinics provide family planning services exclusively and are located predominantly in the provincial hospitals; the exceptions are an adult and a youth family planning clinic in the city centre. The Durban City Health Department provides primary health care services, including family planning, at 33 clinics, some operating from Monday to Friday in permanent premises, some from mobile clinics and the rest using community facilities for limited fixed periods.

### **9.3.2. Study Procedure**

The clinics run by the provincial authority and the Durban City Health Department comprised the sampling frame for the study. Prison, private and other family planning services were excluded.



This study is presented from the perspective of the teenager, ie. the user, and is based on the experiences of teenage fieldworkers visiting clinics to request condoms.

The fieldwork was conducted in April and May 1991 in 12 clinics, comprising a 30% random sample of provincial and local authority clinics in Durban. Each clinic was visited separately by each of 4 black teenage fieldworkers (2 men and 2 women) on different days and at different times, thereby providing data on 48 clinic visits.

All 4 fieldworkers had been trained in community-based research and were given further tuition in qualitative methods of data collection. This included role-playing, practice in observation and writing skills, and carefully monitored and evaluated pilot visits to a family planning clinic.

Each fieldworker visited only one clinic a day and a report on the visit was submitted before the next clinic was visited. The report was checked to ensure that it contained the following information: accessibility to the clinic, how long the fieldworker waited for attention, the presence or absence of posters and reading material on AIDS, the degree of privacy during consultation and the dispensing of condoms, the attitude of the clinic staff during the consultation, the length of the consultation and the information provided by the person in attendance.

### **9.3.3. Data Analysis**

Content analysis (207) of the field reports was undertaken and the interpretation was checked for consistency with the original reports of the clinic visits.

Since all 4 fieldworkers visited each clinic, albeit at different times, it was possible to check the consistency of observation and reporting. Erratic fieldwork and idiosyncratic responses would have shown up during this process and the level of consistency between different fieldworkers' observations on each clinic suggests that a high degree of reliability can therefore be attributed to the data.

### **9.3.4. Ethical considerations**

The study was approved by the Ethics and Professional Standards Committee of the Faculty of Medicine, University of Natal. Permission was granted for the research by the Medical Officer of Health of Durban and the Director of Provincial Family Planning Services, but clinic staff were unaware of the study until the clinic visits were complete. To prevent victimisation, names of the clinic staff were not recorded and the findings cannot be attributed to any specific clinic.

## **9.4. Results**

### **9.4.1. Accessibility of Clinics**

The general location and distribution of the clinics in hospitals, residential areas, the city centre and near stations and shopping complexes made them accessible to people using public transport. Some, however, had restricted opening hours or dispensed condoms at specific times only. Those in public buildings were often difficult to locate and the atmosphere of the building was sometimes intimidating. In an extreme case a fieldworker thought he was the butt of a cruel joke when directed to a clinic in the grounds of a police station. While visiting the same clinic, another fieldworker was disturbed by the rifle carried by the police guard.

The fieldworkers commented that signposts providing directions to clinics were rare and that even local residents or hospital employees did not always know where the clinics were situated. Much time was spent and embarrassment experienced in asking for directions. One fieldworker, on entering a busy hospital, was embarrassed by being given directions loudly in front of patients and visitors.

### **9.4.2. Security guards**

Security guards, while in some cases helpful and neutral, constituted an unexpected hurdle which upset and alienated some of the fieldworkers. The female fieldworkers were embarrassed at having to tell the guard

that they wanted to visit the family planning clinic. One guard queried what a young girl wanted with “family planning”. In another instance, the guards appeared to joke at the expense of the fieldworker. Male fieldworkers were merely irritated by the security procedure, but the women were intimidated both by having to explain their quest and by having to run the gauntlet of sexist comments.

#### **9.4.3. Opening times**

In some cases, the fieldworkers visited the clinic on a day or at a time when either the clinic was closed or family planning services were not offered. While it could be argued that they should have checked the opening times before making the journey, it is also true that it is not easy to get this information if one does not know whom to ask and does not have a telephone.

#### **9.4.4. The waiting period**

The waiting period before being attended to, varied widely. In some cases, the fieldworkers waited up to (but seldom more than ) 30 minutes for attention; in others there were no other clients and they were assisted immediately. In some instances, where the clinic staff were “just waiting” for clients, more than one member of staff entered into the consultation. While this was informal and friendly, some of the fieldworkers did not like their requests being dealt with in what they viewed as a “public” manner.

#### **9.4.5. AIDS posters**

Posters about AIDS were present in all permanent clinics and most had booklets on AIDS on display. Clinics utilising community facilities were the only ones where AIDS posters were not displayed.

#### **9.4.6. Attitude of clinic staff**

Clinic staff were generally efficient and welcoming, although in a minority of cases the fieldworkers felt that they were treated abruptly, especially when it became clear that they only wanted condoms.

The staff clearly did not give a high priority to condom distribution.

Some of the nurses continued with other concerns of the clinic while dispensing the condoms, in a manner that suggested to the fieldworkers that they regarded condom dispensing to be of secondary importance. This occurred with both male and female fieldworkers and some clinic staff showed surprise when a woman requested condoms.

In one clinic, two of the fieldworkers felt they received negative treatment and interpreted it in racial terms. In these cases the fieldworker had already been upset, either by not being able to find the clinic, or by the security guards. Experiences before entering the clinics may thus influence the users' perceptions once inside.

#### **9.4.7. Information provided during the consultation**

Few of the consultations lasted more than a few minutes. Condoms were supplied "over the counter". The fieldworkers were not required to fill in a record card and usually no questions were asked. Unsolicited offers of verbal instruction on condom use were seldom forthcoming.

It seemed to be presumed that the request for condoms indicated familiarity with their use. When the fieldworkers asked for instructions the clinic staff seemed taken aback - especially when the request came from a male. In two instances, both at the same clinic, the female fieldworkers were told to "ask their boyfriends" when they requested more information on condom use.

When asked how to use condoms, most clinic staff simply provided an explanatory pamphlet with little or no additional verbal instruction. In some clinics, the pamphlets had run out, and at one clinic, were only available in English. The clinic where this occurred was not in a black neighbourhood and the nurse advised the fieldworkers to go to a clinic in "their own area" for one in Zulu.

The availability of pamphlets seemed to be taken as an adequate reason not to provide a verbal explanation of how condoms should be used. One nurse said *"you are educated...you can read...take it to your boyfriend and then if you have problems, come back"*.

When the fieldworkers asked for verbal instructions the clinic staff generally seemed reticent. Only a few dealt with issues such as when the condom should be put on, that it be pulled up well, that no semen be allowed to escape and that it should be disposed of carefully. In only two instances did clinic staff open a condom and familiarise the fieldworker with it.

#### **9.4.8. AIDS Education**

In only one of the 48 visits did clinic staff initiate discussion on the issue of AIDS. In another instance, however, a fieldworker inadvertently indicated her awareness of the dangers of AIDS and the clinic staff responded by giving her 250 condoms and a number of pamphlets to distribute among her friends. She praised the fieldworker and took the opportunity of reinforcing preventive action. It is not known if this nurse would have taken this course of action had the fieldworker not intimated her awareness of AIDS. The other fieldworkers who visited this clinic did not report a similar experience, but may not have encountered the same nurse.

#### **9.4.9. Number of condoms provided**

A packet of 10 condoms was dispensed on each occasion. Some nurses explained that this was all they were able to provide and apologised for this limit, telling the fieldworker to return the following month if more were required.

In one clinic, when the fieldworker did not leave immediately after receiving the condoms, the nurse jumped to the conclusion that he was about to ask for more. She said defensively that she was unable to give any more at once and the fieldworker should buy more condoms if they were needed. She added that because people often sold them, the policy was to restrict the number issued.

In two instances, no condoms were given to the fieldworkers because they were out of stock.

#### **9.4.10. Lack of privacy**

Private rooms for consultation were available in most permanent clinics. Since they had come for condoms, the fieldworkers were not usually taken into them. They did note that, in some instances, the partitions did not reach the ceiling so that private conversations could be heard in the waiting rooms. In the few instances when the fieldworkers were taken into a private consultation room - and this was to demonstrate condom use - the door was not shut during the consultation. This embarrassed the fieldworkers because not even a semblance of privacy was maintained. The fieldworker reports are full of references to the lack of privacy, which was found unpleasant and embarrassing.

The male fieldworkers were uneasy at having to wait with women and girls, both at the counters and in the waiting rooms. One fieldworker



commented that he felt uncomfortable sitting with the mothers of young children because he felt that they were “looking” at him. The problem seemed to be particularly acute when the women in the waiting room were not black; this racial factor may have exacerbated the problem. Sitting with mothers and babies was not a problem for the female fieldworkers.

The lack of privacy undoubtedly inhibits questions, particularly when those within earshot are of the opposite sex. The fieldworkers found it difficult to ask for condoms, or information about their use, with other people present. They stated that, had they not had specific instructions to ask for explanations of condom use, they would not have been able to stand their ground while making requests in front of a crowded waiting room.

For their part, the clinic staff may have been hesitant to go into detail in public, and this may have led to their reliance on pamphlets. Those staff members who decided to give full instructions did take the fieldworkers into a consulting room. Opening a condom and demonstrating how it works is not easily done in public. Such an operation would have caused the fieldworkers immense embarrassment; one even commented that she was pleased that this had not happened.

#### **9.4.11. Gender differences in the service provided**

Attitudes towards and treatment of male and female fieldworkers differed and it was clear that the nurses did not expect women to come to the clinic for condoms. In several instances clinic staff tried to persuade female fieldworkers to use more effective methods of contraception.

It was in response to requests for explanations as to the use of condoms that gender stereotyping was clearest. At two clinics, the women were advised to give the pamphlet to their “boyfriends”. In one instance, a female fieldworker was told to ask her boyfriend instead of asking the nurse. When she suggested that her boyfriend did not know how to use them, the nurse told her to tell him to ask his other girlfriends.

#### **9.4.12. Contraceptive focus**

In only two cases was information on AIDS provided. Condoms were treated as contraceptive devices and their role in preventing HIV infection was not stressed. No consideration was given to the condom’s protective properties against sexually transmitted infections (STIs), especially HIV infection. These make it an important method to be used in conjunction with other more reliable methods of contraception.

## **9.5. Discussion**

It was not easy for teenagers to get condoms from clinics offering family planning services in Durban. Some clinics were difficult to find and in some instances condoms were not available because family planning services were not being offered at the time of the visit. In two instances, condom stocks had run out. When condoms were available, they were given without instruction in a setting that lacked privacy. Information on how to use condoms, if offered at all, was by way of pamphlets and information on AIDS was rarely offered. Although the clinic staff quickly provided condoms when asked, many were busy with other concerns and appeared to regard the dispensing of condoms as being of secondary importance. Young women seeking condoms were actively discouraged from using condoms as clinic staff perceived condoms as an unreliable contraceptive method rather than as a method for preventing the spread of STDs which could be used in addition to a more reliable contraceptive method.

Unenthusiastic promotion of the male condom has been linked to providers' beliefs that it is ineffective (208). Providers' lack of skills in sexual counselling can inhibit candid discussion of sexual issues with clients. Several studies have demonstrated that health care worker discomfort is one factor accounting for the low frequency of provider-initiated discussion of sexuality issues (209-211).

A critical issue was the provider emphasis and promotion of what they felt to be the best fertility control methods. The opportunity for expanding their role to include better reproductive health services by including discussions on other HIV and other sexually transmitted diseases was lost. This single-minded focus on fertility control is a reflection of the limitations of vertical prevention programmes. The transformation of health care service provision currently underway in South Africa (212) with an emphasis on integrated primary health care services, is a first step towards the provision of enhanced primary health care services. Included in core services to be provided at all health care centres is HIV, STDs and contraception (212). The training of staff at these facilities to meet the demand of this expanded role will go a long way towards better access to HIV prevention services for users. As the majority of health care providers are women, the type of training provided could also enhance providers' assessment of their personal risk to HIV. Outside of South Africa there has been growing recognition of the importance of family planning staff in enhancing HIV prevention efforts and several calls of have been made for the integration of both services (213,214).

## **9.6. Conclusion**

As important gatekeepers to reproductive health services, staff at family planning services need to be better prepared to fulfil their responsibility

in reducing the spread of HIV. The need for staff to recognise the importance of condom promotion for disease prevention as an adjunct to other more reliable fertility control methods promoted, is highlighted. In addition to ensuring that adequate stocks of condoms are maintained, discussions on sex, condoms and STIs should take place under conditions that ensure privacy. Staff need to view themselves as playing as important a role in preventing STIs as they do in preventing pregnancies. In particular, they should not discourage the use of condoms in young girls.

# **Chapter 10: Conclusion and Recommendations**

## **10.1. Conclusion**

Gender as it intersects with race, class and sexuality plays a significant role in the way women have been infected and affected in relation to HIV/AIDS. These issues are brought to the fore very starkly by these epidemiological and socio-epidemiological studies undertaken amongst black women in KwaZulu-Natal, South Africa.

Whilst the HIV pandemic comprises a complex mosaic of dynamic epidemics within and between countries, Sub-Saharan Africa contributes a disproportionate 70% of the global burden of HIV infection in only 10% of the world's population. An unique feature of the HIV epidemic in sub-Saharan Africa is that this is the only region in the world where more women than men are infected with HIV. Hence the focus of this research on women and HIV.

Up to 1987, HIV infection in Southern Africa was rare. Despite the late introduction of HIV in this country, it has spread at an unprecedented rate. Using antenatal clinic attenders as a proxy marker for HIV infection in the general population, almost 1 in 20 sexually active adults were already infected with HIV by 1992. Whilst the anonymous

antenatal surveys provide a reliable indication of temporal trends in HIV infection, they are inadequate to understand the complexities of the unfolding "explosive epidemic". Hence, the need for population-based surveys.

The three population-based surveys undertaken over an 18 month period from 1990 to 1992 provide a clearer understanding of the nature of the emerging epidemic in South Africa. The first survey conducted in November/December 1990, demonstrated that:

- i. The HIV epidemic in rural South Africa was at an early stage, the prevalence of HIV was 1.2 % (CI:0.9-1.5);
- ii. HIV infection was four times more common amongst women (CI:1.4-5.6) compared to men;
- iii. Young people between the ages of 15 and 29 were 4.2 times more likely to be infected than the rest of the population; and
- iv. HIV infection was 3.1 times (CI:1.7-6.0) more common among mobile/migrant residents compared to their more stable counterparts.

As the epidemic in South Africa matures it will be important to monitor these epidemiological trends at a population level in order to:

- i. Enhance our understanding of the epidemic;
- ii. More meaningfully interpret and extrapolate HIV

prevalence data from the national antenatal surveys and from other sentinel sites; and

- iii. Better target interventions to prevent the further spread of HIV.

Surveys 2 and 3 conducted in June/July of 1991 and 1992 respectively demonstrated:

- i. The rapidity with which HIV was spreading in rural South Africa; the prevalence of HIV rose from 1.2% in 1990 to 3.3% in 1992;
- ii. The constant risk difference of 1.2-1.4% of HIV infection in women compared with men;
- iii. The younger age of infection in women (15-24 years compared to men 24-39 years); and
- iv. The continued disproportionate burden of HIV infection in young people between the ages of 15 and 29 (6.1% vs 1.7% in 1992).

Not only is HIV infection higher in women, but specifically in young women. The high incidence rates of HIV infection in young women appear to be key to the growing HIV epidemic in rural South Africa. More recent data from the national antenatal surveys demonstrate the continued, rapid rise in HIV infection from 4% in 1993 to 22.8% in 1998 with no signs of plateauing or stabilising.



The socio-epidemiological studies highlight the importance of social context in understanding women's risk of acquiring infection with HIV. The presumption of most safer sex campaigns viz. economic, physical and cultural parity does not characterise the majority of women in these studies who were having sex, be it for pleasure, work, cultural expectation or even under threat of violence.

Marriage, a patriarchal mechanism to ensure monogamy, was rare in all the community based surveys. Regardless, the majority of the women were sexually active. Early age of sexual debut and high rates of unprotected sex as evidenced by teenage pregnancies placed these women from urban and rural communities at high risk of acquiring HIV infection.

Not surprisingly, the social and behavioral studies that were undertaken to better understand the factors underlying the excess burden of HIV infection in women uniformly demonstrate a poor correlation between knowledge of HIV/AIDS (in terms of modes of transmission and methods of prevention) and the adoption of safer sex practices.

Knowledge of HIV and risk factors in all surveys were high. There was also a prevalent belief that AIDS could be cured. This belief, whilst incorrect, is a strong disincentive for behavior change.

## **10.2. Recommendations:**

The formulation of responses to reduce women's vulnerability to HIV need to take into account social contexts in which femaleness and femininity are constructed and lived. More specifically, the following recommendations are made to guide the design of strategies and interventions to reduce women's risk of acquiring infection with HIV.

### **10.2.1. Recognition of gender differences in the epidemic**

The population-based studies not only demonstrate the stark gender patterns in HIV infection but also highlight the persistent risk difference between men and women over time. Planning and design of HIV/AIDS Programmes need to be cognisant of this gender difference.

### **10.2.2. Urgent need for action in teenagers, especially adolescent women**

Not only are women at high risk of acquiring HIV infection but it is young women in particular that are at higher risk. Interventions need to be targeted not simply at teenagers but especially at adolescent women.

### **10.2.3. Strategies to address the gender gap**

The need for programmes to take cognisance of the vulnerability of women and for governments especially to respond through the creation of supportive legislation and policies, has already been underscored at the Cairo and Beijing conferences. The Platform for Action has yet to

be implemented by most governments. Whilst these international meetings and the resolutions and actions emanating from them are symbolically significant, there are no mechanisms to evaluate and monitor adoption and implementation at the national level.

The recently established Gender Commission by the democratically elected South African government is currently an unexplored vehicle to reduce women's vulnerability to HIV infection but is potentially a powerful tool for this purpose. However vigilance needs to be maintained to ensure that HIV/AIDS gets onto the agenda and is addressed in a substantive way.

#### **10.2.4. Health Services need to be gender sensitive**

Health services need to better understand the needs of women. Integration of clinic services to provide comprehensive primary health care, will help eliminate the distinction between condom use for infection prevention and contraception. The training programmes for health service providers needs to include modules on gender sensitivity and responding to the special needs of women.

#### **10.2.5. Increase access to barrier methods**

Since the establishment of the new government, the distribution of male condoms has increased substantially from less than 6 million a year to more than a 150 million. Wider access to condoms and consistent

and correct use of condoms remain a challenge.

Women need a wider choice in barrier methods. The demand for the female condom is growing. Increased access to the female condom is needed.

#### **10.2.6. Fast-tracking the development of new technologies**

In the short-term the development of biomedical interventions that can be initiated by women needs to be supported, these include vaccines and microbicides. Lobbying and advocacy for more products to be developed and to proceed with human trials, are a critical component of the challenges posed in redressing the existing gender imbalances in society.

In addition, the development of simple tools for detecting STIs that can be utilised at a primary health care centre will be useful.

#### **10.2.7. More research at the population level**

As the HIV epidemic matures it will be important to continue to monitor trends at the population level with respect to gender and age differences to enhance interpretation and extrapolation of data derived from antenatal clinic attenders and other sentinel sites.

#### **10.2.8. More research on men and women to understand the gender issues in more detail**

These surveys start to quantify the gender differences in HIV infection and also risk factors, however there is a need to understand these gender differentials in much more detail. Research on men and couples could add substantially to a deeper understanding of the issues emerging in this study. We need to understand how to increase women's access to power and resources as the ultimate strategy to reduce women's vulnerability to HIV.

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