

**FACTORS CONTRIBUTING TO THE SEXUAL BEHAVIOURAL
PATTERNS AND INCREASED RISK OF HIV INFECTION
AMONGST MIGRANT CONSTRUCTION WORKERS
IN BOTSWANA**

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of
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DECLARATION

I, Clive Ashby declare that this thesis is my own work.

It is being submitted for the degree of Master of Public Health in the
University of the Witwatersrand, Johannesburg.

It has not been submitted before for any degree or examination at this
or any other university.

Signed

On this day of (month), 2006.

ABSTRACT

Background: HIV/AIDS has been one of the major crises to affect Southern Africa, particularly Botswana where prevalence rates have reached 37.3% of the adult population (2003). Due to the difficult working environment and long periods of separation from their partner, migrant workers have been highly susceptible to HIV infection and one of the main vehicles through which the virus has been transmitted. While much research has been carried out with mine workers, truck drivers, and other migrant groups, few studies have investigated the risk factors of construction workers, which form one of the largest employment groups in Botswana and Southern Africa. The purpose of this study was to determine which factors contributed to construction workers' engagement in sexual risk behaviours, which have placed them at greater risk of HIV infection.

Methods: A cross-sectional analytic study design was used. Structured interviews were carried out with individual migrant workers using a standardised questionnaire. 171 male migrant workers were interviewed, involved in skilled, semi-skilled, and supervisory professions. Interviews took place at three construction sites across Botswana, in the capital city of Gaborone and the rural village of Serowe. Bivariate and multivariate logistic regression analysis were carried out to determine which contributing factors were significantly associated with respondents' sexual risk behaviours.

Results: Unprotected sex was the most prevalent sexual risk behaviour, practised by 68.1% of construction workers. Significantly more workers engaged in unprotected sex with their long-term partner (70.3%) than with their casual girlfriend (35.1%). The second most common sexual risk behaviour was having multiple sexual partners. 57% of migrant construction workers reported having an extra girlfriend in addition to their long-term

partner during the last five years. Transactional sex, involving the exchange of sex and material support, was a key part of most workers' (76.6%) sexual relations with casual girlfriends. Commercial sex, though, was rarely reported and accounted for only 1.8% of workers. Men having sex with men (MSM) was strongly denied by construction workers, although 9.5% reported its occurrence in the workplace.

In the multivariate analysis, migration was one of the most significant factors associated with respondents' sexual risk behaviours. Compared to those who remained in one location during the last year, workers who migrated between work locations were 3.01 times more likely to have had transactional sex ($p=0.013$) and 4.42 times more likely to have had an extra girlfriend over the last five years ($p=0.005$). Workers who were separated from their main partner for a month or more at a time were 3.74 times more likely to have had an extra girlfriend in the last year ($p=0.009$) and 4.57 times more likely to have had transactional sex in the last five years ($p=0.001$). Workers who stayed in the construction on-site accommodation when away from home were 3.00 times ($p=0.023$) more likely to have multiple partners compared to those who stayed in private accommodation, where their partner had more opportunity to visit them.

A second major contributing factor was respondents' gender attitudes, particularly the perception that 'one woman is not enough to sexually satisfy me as man'. Workers with this attitude were 6.21 times more likely to have currently multiple partners ($p<0.001$), 9.05 times more likely to have had an extra girlfriend in the last five years ($p=0.015$), and 3.35 times likely to have had transactional sex ($p=0.031$). A number of socio-demographic factors were significantly associated with sexual risk behaviours including respondents' age, number of children, employment position, salary, workplace location, and education

level. It is important to note, however, that respondents' alcohol consumption and level of HIV/AIDS awareness did not significantly influence their sexual risk behaviours.

Conclusion: These findings indicate that labour migration plays a central role in determining whether workers engage in sexual risk behaviours. Steps taken by employers to: (i) increase the frequency with which workers can visit their partner, (ii) provide facilities for long-term partners to visit the workplace, and (iii) reduce the frequency with which workers are transferred between sites - could significantly reduce workers' susceptibility to HIV infection. Alongside migration, though, gender attitudes played a major role, pointing to the need for more education which focuses on gender attitudes and behaviour change rather than solely HIV/AIDS awareness.

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1.0 INTRODUCTION

1.1 BACKGROUND

Southern Africa has been dramatically affected by the HIV/AIDS epidemic during the past two decades. Botswana, in particular, has suffered from one of the highest HIV prevalence rates, accounting for 37% of the adult population in 2003 (NACA, 2003a). This has led to a substantial increase in mortality and morbidity rates and a rapid decline in life expectancy. Numerous studies, have demonstrated how migrant workers are one of the most susceptible groups to HIV infection, and one of the main channels through which the disease has spread (Hunt, 1989; Jochelson, Mothibedi & Leger, 1991; Decosas, 1998; Brockerhoff & Biddlecom, 1999; Williams, Gouws & Lurie, et al., 2002; Lurie, Williams & Zuma, 2003a;).

Across Southern Africa, some of the largest groups of migrant labour included mine workers, truck drivers, seasonal farm workers, military personnel and construction workers. Due to the nature of their work they often spent long periods of time away from home, living a pattern of circular migration between the workplace and their long-term partner. In addition to this circular migration, truck drivers and construction workers have frequently migrated from one location to another as part of their work. Migrant workers have usually been employed in rural areas where they have come into contact with economically disadvantaged women, some of whom, in order to support their families, entered into sexual relations for material support.

In Botswana, construction workers have been one of the largest groups of migrant labour, accounting for an estimated 10.5% to 12.5% of formal employment (Kaboyakgosi & Sengwaketse, 2003). A number of studies (Muchiru, 2000; UNDP, 2000; NACA, 2003a), have indicated how construction workers' sexual behaviours contributed to increased

levels of HIV infection. The Botswana government's HIV surveillance report (NACA 2003a), found that construction projects have played a major role in the spread of HIV, bringing about a situation where economically buoyant young men frequently come into contact with economically vulnerable young women. A study of the Kgalagadi region of South-West Botswana (Muchiru, 2000) reported that one of the major ways in which residents were initially exposed to HIV infection was through contact with migrant workers employed at large construction sites in the area. A Botswana UNDP (2000:36) report indicated that "areas that had hosted development projects often involving construction were found to have especially high rates of HIV infection."

A similar situation has occurred in South Africa, where it has been reported that the local construction industry suffers from the third highest incidence of HIV/AIDS. The Construction Industry Development Board (CIDB, 2003) argued that this was mainly due to its migrant working environment, making it a prime contributor to the spread of the disease.

1.2 STATEMENT OF THE PROBLEM

While it has been demonstrated that construction projects contribute to the transmission of HIV in Botswana, few studies have established why this is the case. Amongst other groups of migrant labour, research has identified a number of sexual behaviours involving multiple partners, transactional sex, commercial sex and unprotected sex, which have placed workers at greater risk of HIV. Long-distance migration, involving the separation of workers from their long-term partner, has been identified as one of the central factors contributing to workers' engagement in these sexual risk behaviours. Other factors identified by studies of migrant labour included: - (i) workers' living conditions, (ii) alcohol consumption, (iii) location of work, (iv) lack of leisure opportunities, (v) gender

attitudes, (vi) perception of HIV risk, and (vii) local availability of commercial sex workers.

However, within the construction industry, little is known of what factors have contributed to workers' engagement in these sexual behaviours, which have resulted in an increased risk of HIV infection. The study seeks to resolve this problem by examining whether the risk factors identified by other studies of migrant labour, apply to migrant construction workers.

1.3 RATIONALE FOR THE STUDY

Given that construction work has been identified as one of the major contributors to the spread of HIV/AIDS in rural Botswana (NACA, 2003a), there is an urgent need to identify the sexual behaviours and contributing risk factors which have led to higher levels of HIV/AIDS. In order to determine which forms of HIV prevention would be most effective in the construction industry, this form of research needs to be carried out.

Without such research, and the subsequent development of effective prevention programmes, construction companies and the government are likely to continue suffering from the impact of HIV/AIDS upon migrant construction workers. With the construction sector accounting for an estimated 6.1% of Botswana's GDP in 1999/2000 (Kaboyakgosi, et al., 2003), any decline in this industry as a result of HIV/AIDS could significantly affect the country's economic future.

Major construction companies, such as 'Murray and Roberts', have reported dramatic increases in the number of migrant workers on sick leave or terminating employment due to ill-health over the last five years, directly in line with rising HIV infection rates across the country. As a result, the company has lost a substantial number of employees and man-

hours to sick leave and absenteeism. The impact of HIV/AIDS has led to a loss of productivity, rising medical costs, and higher recruitment costs to replace lost staff. Given that the vast majority of migrant workers are skilled and semi-skilled, replacing them has been difficult and costly with the acute skills shortage in Botswana. In an industry where competition is intense, and profit margins are limited, companies such as 'Murray & Roberts' (M&R) are very concerned about the threat of HIV/AIDS to their future sustainability.

The majority of these construction companies however, are not fully aware of what factors have placed their workers at greater risk of HIV infection. Most employers are not aware that some of their employment practices may have been responsible for increasing workers' susceptibility to HIV infection. Without this understanding, managers are unlikely to be able to develop effective workplace prevention programmes, which could potentially reduce infection rates and save companies from declining productivity.

1.4 AIM OF THE STUDY

The aim of this study is to determine the sexual risk behaviours of migrant construction workers, and the risk factors which have contributed to these behaviours.

1.5 RESEARCH OBJECTIVES

1. To describe the socio-demographics of migrant construction workers.
2. To explore the migration patterns of migrant construction workers.
3. To describe migrant construction workers' living conditions.
4. To identify patterns of alcohol consumption amongst migrant construction workers.

5. To explore attitudes to gender and sexual relationships amongst migrant construction workers.
6. To identify migrant construction workers' awareness of HIV/AIDS.
7. To examine workers' engagement in high-risk sexual behaviours which could potentially place them at higher risk of HIV infection.
8. To determine the extent of association between migrant workers' high-risk sexual behaviour patterns and contributing factors of socio-demographics, migratory patterns, living conditions, alcohol consumption, gender attitudes, and HIV/AIDS awareness.

1.6 OPERATIONAL DEFINITIONS

Migrant construction worker:- refers to skilled, semi-skilled and professional workers in the construction industry, who are required by their employer to work away from home and move between locations on a perpetual basis.

Skilled & Semi-skilled worker:– refers to construction workers who have been trained in a particular skill and are employed specifically to do this specialised work.

Batswana:- the people of Botswana, which includes not only the seven Batswana tribes but also other ethnic groups and tribes which form part of the country, including the Kalanga, San people, etc.

On-site accommodation:- accommodation for workers provided by the employer on construction sites in remote rural locations.

Off-site accommodation:- accommodation in the nearby locality, outside the construction site, arranged by the individual workers in urban areas.

Long-term partner:– a partner of more than six months. May be a marital or non-marital partner (also referred to as the 'main partner').

Casual girlfriend:- a temporary, short-term partner of less than six months. In this study, construction workers often had casual girlfriends in addition to their long-term partner. The casual girlfriend usually came into contact with respondents near the workplace. Relationships usually continued while the respondent was working at that construction site. (also referred to as the ‘casual partner’)

Multiple partners:- refers to having more than one concurrent sexual partner. In this study multiple partners were measured according to (i) the number of sexual partners at this present time, and (ii) having extra girlfriends in addition to their main partner during the past year or five years.

One night sex:- a sexual encounter, usually with a stranger, which lasted for only one night and did not lead to any future relationship.

Transactional sex:- where sexual encounters are accompanied by an exchange of either money or material goods.

Commercial sex worker:- someone who earns an income from offering sex to strangers in return for money or material goods.

Unprotected sex:- refers to sexual encounters where a condom is not used on every occasion.

Protected sex:- otherwise known as ‘safe sex’, refers to sexual encounters where a condom is used on every occasion.

Perception of HIV risk:- level of respondents’ awareness of being at risk of HIV infection as a result of their sexual behaviour.

1.7 NOMENCLATURE

AIDS	-	Acquired Immune Deficiency Syndrome
CI	-	Confidence Interval
CIBD	-	Construction Industry Development Board (South Africa)
CSW	-	Commercial Sex Worker
HIV	-	Human Immuno-Deficiency Virus
IMR	-	Infant Mortality Rate
KAP	-	Knowledge, Attitudes and Practices survey
M&R	-	Murray & Roberts Construction Company (Botswana)
MSM	-	Men having Sex with Men
NACA	-	National AIDS Co-ordinating Agency, Government of Botswana
O/R	-	Odds Ratio
PLWHA	-	People Living With HIV/AIDS
STD	-	Sexually Transmitted Disease
U5MR	-	Under 5 years Mortality Rate
UNAIDS	-	United Nations AIDS Programme
UNDP	-	United Nations Development Programme

2.0 LITERATURE REVIEW

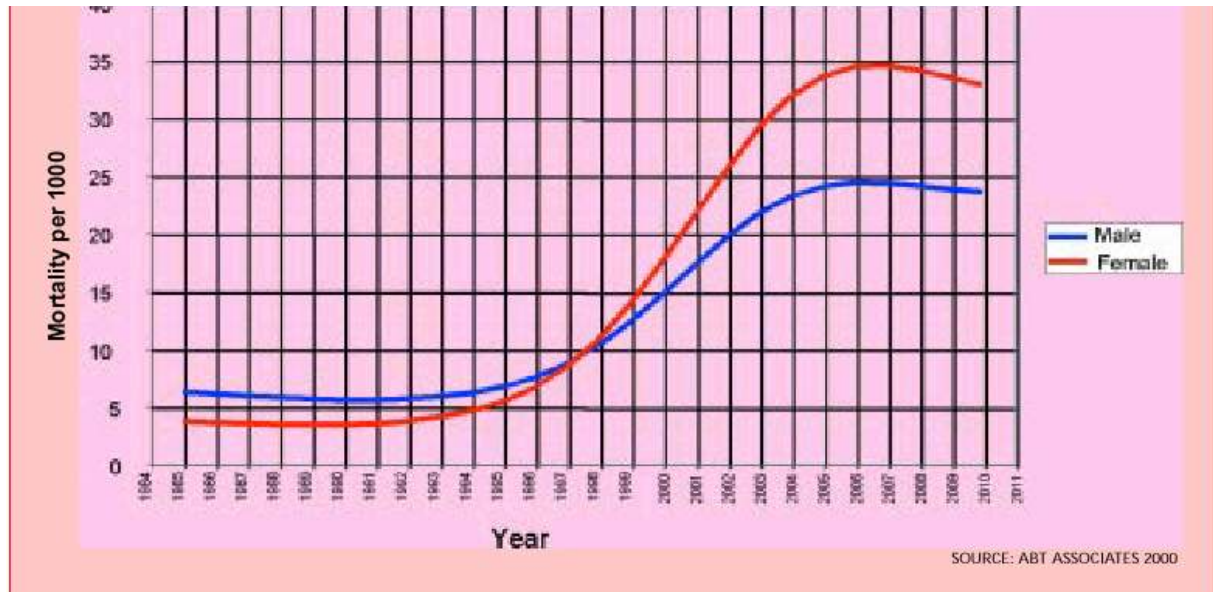
2.1 HIV/AIDS IN BOTSWANA & SOUTHERN AFRICA

HIV/AIDS has been one of the major crises to affect sub-Saharan African in the last two decades. The recent report on the global AIDS epidemic (UNAIDS, 2004:30) indicated that sub-Saharan Africa is home to nearly two-thirds of all people living with HIV, an estimated 25 million out of the 37.8 million worldwide. Within this continent, it is Southern Africa which has been the worst affected. With only two percent of the world's population, Southern Africa is currently home to 30% of people infected with HIV (UNAIDS, 2003). All eight countries with the highest HIV prevalence rates are in Southern Africa (UNAIDS, 2004), including Botswana (37.4%), Swaziland (38.8%), Lesotho (28.9%), Zimbabwe (24.6%), Namibia (21.3%), South Africa (21.5%), Zambia (16.5%), and Malawi (14.2%).

Botswana in particular has been one of the worst hit countries with an HIV prevalence of 37.4% of pregnant women in 2003 (UNAIDS, 2004). Since it was first detected in 1985, HIV levels have increased dramatically, spreading from the confines of high-risk groups throughout the entire population. The impact of this epidemic upon Botswana has been devastating resulting in a dramatic rise of mortality and morbidity levels. By October 2002, 60% of all medical wards admissions for that year were due to HIV-related conditions, with national bed occupancy rates of some 50% to 70% resulting from HIV/AIDS (NACA, 2003c). The IMR rose from 48 to 56 deaths per 1000 live births between 1991 and 2001, while at the same time the U5MR rose from 62 to 74 deaths per 1000 live births. In 2002, AIDS related conditions were responsible for an estimated 33,000 deaths, 18% of the population's annual deaths (NACA, 2003b). It is projected that by 2006 (UNDP, 2000), adult mortality rates will rise to a maximum of 35 female deaths

and 25 male deaths per 1,000 (figure 2.1).

Fig.2.1. Projection of adult mortality rates in Botswana from 1985 to 2010 (UNDP, 2000)



At the business level, the loss of working adults to AIDS will lead to acute shortages of skilled labour and lower productivity (BIDPA, 2000). At the household level this will lead to a substantial loss of income earners with as many as a quarter of households losing their breadwinner in the next ten years, while at the same time the numbers of dependants will increase, including children, the elderly and people sick with AIDS. With less income earners and more dependants there will be a rapid increase in the number of destitute households over the coming decade, pushing an additional 6% below the poverty line. Some 4000 to 7000 more households are expected to become destitute with virtually no income to support them. Consequently the country's economic growth is expected to fall from 3.9% to 2.0% per annum and in the next 25 years the country's economic development will be reduced by a third as a result of HIV/AIDS (BIDPA, 2000).

2.2 RISK FACTORS FOR HIV TRANSMISSION

2.1.1 BIOLOGICAL FACTORS

The HIV/AIDS epidemic was initially explained by the bio-medical model as being primarily the result of biological factors (Gilbert, Selikow & Walker, 1996). This approach focussed on the manner in which the human immuno-deficiency virus (HIV) is transmitted to determine which forms of infection are most likely (Roux, 2003). Given that HIV is able to form large concentrations within blood, seminal fluid, vaginal fluid and breast milk, the highest chances of infection are therefore, biologically speaking, through (i) contaminated blood, (ii) mother to child transmission, (iii) unprotected male to male anal intercourse, (iv) needle-stick injury, (v) unprotected male to female vaginal intercourse, and (vi) unprotected female to male vaginal intercourse (table 2.1). The infection rates for sexual contact can be greatly increased by the pre-existence of other sexually transmitted diseases (STDs) such as gonorrhoea and syphilis (Royce, Sena & Cates, 1997; Ward, 1999; Van Dyk, 2001; Johnson & Budlender, 2002; Williams, et al., 2002). This was found to be the case in Botswana, where the high rates of STDs in the 1980s helped fuel the spread of HIV over the following decades (Novick, 1998).

Table 2.1 Probabilities of HIV infection according to different modes of transmission. (Roux, 2003)

Mode of transmission	Infections per 1000 exposures
Male –to- Female (unprotected)	1 – 2
Female –to – Male (unprotected)	0.33 – 1
Male –to – male (unprotected)	5 – 30
Needle stick	3
Mother – to – child	130 – 480
Exposure to contaminated blood products	900 - 1000

According to the recent global HIV/AIDS report (UNAIDS, 2004), the major forms of HIV transmission have varied greatly between different regions of the world. Whereas the majority of HIV transmission in North America, South America and European countries have been through intravenous drug use and men having sex with men, the main form of HIV transmission in Sub-Saharan Africa has been through heterosexual contact.

In the United States and Europe a pattern of transmission known as ‘pattern one AIDS’ has primarily affected male homosexuals, drug users and their sexual partners, resulting in a gender ratio of AIDS cases in the U.S of 8:1, eight males to one female. In contrast, sub-Saharan Africa has experienced a pattern of transmission known as ‘pattern two AIDS’ where the ratio of AIDS cases has been 1:1 male to female. The disease has primarily occurred in sexually active heterosexuals and children infected through mother to child transmission (Hunt, 1996; Heineken, 2001; UNAIDS, 2004).

In Botswana, the predominant form of HIV transmission is heterosexual contact between men and women in the reproductive years of 15 to 49 (NACA, 2003b). As a result, prevalence rates have been highest amongst women aged 20-39 years and men aged 30-49 years. The Human Development Report (UNDP, 2000) indicates that the gender ratio of 1:1 male to female infection rates indicates a predominantly heterosexual mode of transmission in Botswana.

2.2.2 BEHAVIOURAL FACTORS

As the HIV/AIDS epidemic has spread from the confines of certain high-risk groups into the general population, many studies have started to question the bio-medical theory. It has become evident that biological factors by themselves are not sufficient to explain the manner in which the disease has spread – behavioural factors need to be considered as well (Johnson, et al., 2002; MacPhail, Williams & Campbell, 2002)).

In a South African township, a study by MacPhail, et al., (2002) observed significantly higher levels of infection in women compared to men. This could not be fully explained by the biological factors of :- (i) larger genital contact surfaces in women which can lead to more coital tearing and injury; (ii) longer exposure of women to potentially infectious fluids during sexual intercourse. Differences between men and women's behavioural patterns need to be considered as well. The involvement of most women in sexual relations with older men, who had higher levels of HIV prevalence, was found to have exposed them to greater risks of HIV infection (Johnson, et al., 2002; Mac Phail, et al., 2002).

In Botswana, sexual encounters between young women and older men, known as 'intergenerational sex', were reported to be widespread (UNDP, 2000). As a result, HIV infection amongst young women (aged 15 - 24 years) was significantly higher than amongst young men (NACA, 2002a). For every HIV positive boy under the age of 14, there were two HIV positive girls of the same age (UNDP, 2000). Much of the intergenerational sex has been driven by the exchange of sex for gifts or material support, known as transactional sex (UNDP, 2000). In Botswana these sexual relationships have often been exploitative, whereby adult males have targeted teenage girls for sexual relations through offers of gifts and special favours to entice them. This has been referred to in Botswana and across sub-Saharan Africa, as the 'sugar daddy syndrome' (UNDP, 2000; Evian, 2002; Illingworth, 2004; Luke, et al., 2002).

A number of psychological theories have been developed to explain the role of human behaviour in the transmission of HIV/AIDS. The following five key theories are examined by Denison (1996) and UNAIDS (1999b). One of the earliest theories on behaviour, the 'health belief model', was developed in the 1960s and has been used widely in the

HIV/AIDS field. It explains how people's sexual behavioural patterns are a result of their socio-demographic characteristics, knowledge of HIV/AIDS, and their belief / attitudes to sexual behaviour and preventing HIV infection. A development of this model was the 'theory of reasoned action' which looks into the role that subjective norms (social influence) and people's attitudes to certain behaviours, play in determining their future behavioural patterns.

The 'social cognitive (or learning) theory' focuses on the role that self efficacy (belief in being able to carry out preventative behaviour) and outcome expectations (belief that behaviour change will prevent HIV infection) play in determining people's behaviours. The 'stages of change' model developed in the 1980s to examine smoking behaviour has been used since in the field of HIV/AIDS. It proposes that there are six stages that individuals pass through in the process of changing their behaviour, including: pre-contemplation (original state), contemplation (awareness), preparation (considering change), action, maintenance (consistent behaviour change over a period) and relapse (periodic return to original behaviour). Finally, the 'AIDS risk reduction model', the only model developed specifically for HIV/AIDS research, combined many aspects of the previous theories to explain sexual behaviour change. It states that there are three stages involved in behaviour change to reduce the risk of HIV transmission including, (i) behaviour labelling, (ii) commitment to change, and (iii) taking action.

Within the behavioural model, studies have identified certain 'risk behaviours' which greatly increase people's susceptibility to HIV infection. In sub-Saharan Africa the major risk behaviours are:- multiple sexual partners, transactional sex, sex with CSWs, men having sex with men (MSM), and unprotected sex.

2.2.2.1 Multiple sexual partners

A number of studies have identified the risk behaviour of having multiple sexual partners as one of the major contributors to HIV infection in sub-Saharan Africa. In Nairobi, a study of over 22,000 patients attending a primary health care clinic reported that HIV seropositivity among both men and women was significantly associated with having multiple sexual partners in the past year (Ndinya-Achola, Ghee & Kihara, et al., 1997). A study of factory workers in Harare, Zimbabwe also indicated that multiple sexual partners were a major risk factor for HIV infection (Basset, McFarland & Ray, 1996).

In South Africa, a study of 507 people in the Carltonville township found that HIV infection rates increased significantly with multiple sexual partners. Amongst men with one sexual partner, 8% were infected, whereas among those with eight or more sexual partners, 27% were infected. Amongst women with one partner, 24% were infected, whereas among those with two sexual partners, 45% were infected (MacPhail, et al., 2002). The driving force behind South Africa's dramatic rise in HIV prevalence has been argued to be the result of the widespread and frequent occurrence of multi-partner sexual relations (Evian, 2002).

However, the difficulty of most studies investigating this risk behaviour has been the lack of clarity as to whether respondents' multiple partners involved sequential or concurrent relationships. This distinction is important given that concurrent relationships, where partners overlap in time, dramatically increase peoples' risk of HIV. During concurrent relationships a person is more likely to be exposed to HIV given that their sexual partner could become infected at the same time through other partners. The opportunity for HIV transmission is greatly multiplied compared to sequential monogamy where earlier relationships are not placed at risk if the virus is introduced during a later relationship

(Royce, et al., 1997; Hankins, 1998).

Several factors have been found to contribute to having multiple sexual partners, including gender attitudes, alcohol consumption and long-term separation from one's partner. In Kwa-Zulu Natal, South Africa, it was found that masculine values which placed an emphasis on having multiple partners contributed towards the dynamic of multiple concurrent partners in Mandeni township (Hunter, 2002). Alcohol consumption has been found to contribute to men's engagement in casual sexual partners through the way in which it reduces social restraints and inhibitions (Graves & Leigh, 1995; UNAIDS, 1999; Mbulaiteye, Raberantwari & Nakinyingi, et al., 2000; Foreman, 2002; Kington & Bryant, 2002; Bryceson, Fonseca & Kadzandira, 2004). Migrant workers were found to have engaged in multiple partners as a result of being separated from their partners for long periods of time working in the mines (Jochelson, et al., 1991; Campbell, 1997; Meekers, 2000), armed forces (Foremann, 2002) or on commercial plantations (Bond & Dover, 1997; IOM, 2004). Truck drivers who spent long periods of time away from home and frequently moved between locations were found to have more frequent changes of partner (Rao, Pilli & Rao, et al., 1999; Michael, Whiteside & Smart, 2000; Gibney, Saquib & Macaluso, et al., 2002; Manjunath, Thappa & Jaisankar, 2002).

In Botswana, a number of studies have pointed to the widespread sexual practice of having multiple sexual partners. The majority of Botswana men aged 15 to 19 were reported to be sexually active in a study by Palai, Letshwiti & Maswabi (1991) and most of them had more than one sexual partner. In the Makgabaneng radio listenership survey of 807 respondents aged 15 to 24 years, 16.9% of women and 31.7% of men reported having more than one sexual partner in the last year, although again it is not clear whether these were sequential or concurrent relationships (NACA, 2003a). A study of Botswana

tuberculosis patients in 1999 revealed that compared to uninfected patients, people with HIV/AIDS were significantly more likely to have had two or more sexual partners in addition to their regular partner (Talbot, Kenyon & Moeti, 2002).

2.2.2.2 Commercial sex

Commercial sex has been defined conventionally as the provision of sexual intercourse in exchange for money. Commercial sex workers have usually been identified as women who earn an income through offering sex to strangers in bars, hotels, or on the street. However, questions have been raised as to the validity of this definition (Preston, 1996). Particularly in South Africa, where it has been found that sex workers were not always paid in hard cash but often with gifts including food or clothing. The sexual contact CSWs had with 'clients' often lasted far longer than a single encounter. Many of the participants combined sex work with other types of informal work. Unlike the stereotype of CSWs these women are continually moving between sex work and other forms of employment depending upon its potential for income. As a result, it was impossible to describe sex workers collectively, as some were full time, some part time, some permanent, and some temporary (Preston, 1996).

In sub-Saharan Africa, it has been argued that the Western understanding of CSW cannot be easily translated into an African context, since it has not been an historical part of the cultural behaviour in this region (Wojcicki, 2001). In urban areas such as Hillbrow, Berea etc, commercial sex has been practised in a similar way to Western cultures. However, in traditional rural communities, sex work was found to encompass a much broader informal scope of activities involving women who had numerous sexual partners on a long-term basis to support their material needs (Wojcicki, 2001).

This was also reported to be the case in Botswana, where commercial sex according to its

conventional definition, was found only in the cities of Gaborone and Francistown, whereas a more informal type of transactional sex occurred in the rural areas. One of the few studies investigating CSW in Botswana was carried out just outside the capital city in Tlokweng, location of Botswana's busiest border with South Africa and a central focus of commercial sex activity. The study of 55 CSWs, while not representative of commercial sex across Botswana, provided an in-depth insight into the activities of CSWs through focus groups and qualitative interviews (Ntseane, 2003).

As in South Africa, it was observed that sex workers in Botswana were not one homogenous group but had various profiles, some involved on a full-time basis while others occasionally, some for subsistence ('survival sex') and others for extra income. Of the reasons given for engaging in sex work, 40% were unemployed and needed the money to survive and take care of their children. A further 10% worked as a CSW part-time to be able to afford a higher standard of living. Other women had low-paid jobs and became active during the month-end when there were more customers with their month's salary to spend (Ntseane, 2003).

This study, alongside research from other countries, noted how local bars acted as a magnet for sex work and excessive alcohol consumption contributed to sexual encounters between CSWs and their clients (Johnson & Budlender, 2002; Kington, et al., 2002; Ntseane, 2003). Unprotected sex accounted for most of the sexual encounters between CSWs and their clients (Ramjee, Karim & Sturm, 1998; Bwayo, Omari & Mutere, 1991b; Rao, et al., 1999; Gibney, et al., 2002). Even when sex workers preferred to use condoms, many often had no choice but to engage in unprotected sex in order to earn an income (Johnson, et al., 2002; Ntseane, 2003).

As a result, commercial sex has been identified as one of the major risk factors for HIV

and STD infection (Bwayo, et al., 1994; Basset, McFarland & Ray, 1996; Messersmith, Kane & Odebiyi, 2000; Gibney, et al., 2002). In KwaZulu-Natal, South Africa. 50.3% of commercial sex workers surveyed were found to be HIV positive (Ramjee, et al., 1998). In Tlokweng, Botswana, every sex worker interviewed reported that they knew at least three sex workers who had died from AIDS and others currently sick with HIV (Ntseane, 2003).

2.2.2.3 Transactional sex

Across much of sub-Saharan Africa, the more informal type of sex work, known as transactional sex has been found to be practised widely (UNAIDS, 1999a; Hunter, 2002; Johnson, et al., 2002; Luke & Kurz, 2002; Chatterji, Murray & London, et al., 2004; Illingworth, 2004). A study in Mandeni Township, South Africa, found that the close association of sex and gifts known as transactional sex was the main factor driving multiple-partner sexual relationships and the principal cause of HIV infection in the township (Hunter, 2002).

While similar to commercial sex, transactional sex differs in the way that participants are referred to as ‘girlfriends’ and ‘boyfriends’ rather than ‘prostitute’ and ‘client’. Sexual contact often covers a period of months or even years instead of a single encounter. The exchange of money / gifts for sex is not clearly defined as in commercial sex and does not necessarily occur following each sexual encounter. Instead, ‘boyfriends’ will from time to time provide gifts such as a cell-phone, leather jacket etc. and material support for the ‘girlfriend’ as requested (Hunter, 2002).

Two different forms of transactional sex have been identified. Sex for subsistence, where women would offer sex in order to survive, and sex for consumption, which occurred in exchange for gifts and consumption goods. The study identified three factors within Mandeni township which fostered the high prevalence of transactional sex :- (i) better

economic position of men compared to women, with higher income and greater employment opportunities; (ii) gender attitudes amongst men which placed a high value on having sex with multiple partners; (iii) the active role women played in using transactional sex to access the resources they needed from men (Hunter, 2002).

The active role women have played to access resources has been highlighted in another study which reported how women may have a number of different transactional partners in order to cover their needs, with one man paying the rent, another providing food, and another providing transport to work (Illingworth, 2004). In the Democratic Republic of Congo, these extra sexual partners were known as 'pneus de rechange' or 'spare tyres', whom women occasionally sought out to help meet their economic needs (UNAIDS, 1999a).

Through its facilitation of multiple-partnered sexual relations, transactional sex has become one of the major risk behaviours contributing to the spread of HIV/AIDS in sub-Saharan Africa (Wamoyi, Mshana & Plummer, et al., 2003; Dunkle, Jewkes & Brown; 2004). Many of these women practising transactional sex were at risk of HIV not only because of multiple partners but also as a result of the high risk sexual behaviours they had to engage in. These often involved having anal sex or unprotected sex, which was difficult for women to refuse given their limited negotiating power (UNAIDS, 1999a; Johnson, et al., 2002). They could also be exposed to extensive sexual violence. A study amongst women in Gauteng, South Africa, revealed that the violent nature of transactional sex and commercial sex prevailed, due to the secretive nature of sex work, its illegal status and the general acceptance of violence against these women by the community (Wojcicki, 2001).

In Botswana, while a number of reports indicate that transactional sex is widespread (UNDP, 2000), few studies have ascertained its extent or the effect it has had upon the

spread of HIV/AIDS across the country. MacDonald (1996) pointed out that in Botswana, while full-time sex workers did exist, a far more significant proportion of women ‘sold’ sex on a much more casual, informal basis in exchange for gifts, clothing or other forms of support. They would never have described themselves as ‘sex workers’ and would have defined their partners as ‘boyfriends’ rather than clients.

2.2.2.4 Men having sex with men (MSM)

Men who have sex with men (MSM) included not only those who identified themselves as homosexuals but also heterosexuals who engaged in MSM when separated from their partners and placed in an all-male environment (UNAIDS, 2004). This occurred in prisons, military service and migrant labour camps. Construction workers in Brazil, when separated from their regular partner for extended periods, were found to have engaged in MSM with one another, which they called ‘solidarity sex’ because they didn’t have to pay (Hughes, 2000). A study of 4229 prisoners in rural Malawi found that 28% of STIs diagnosed were acquired through sexual contact within the prisons (Zachariah, 2002).

In South Africa, the HIV prevalence rate amongst prisoners was estimated to be 41% of inmates in 2002 (Goyer, 2003). The number of natural deaths in South Africa’s prisons from 1995 to 2000 increased nearly six-fold, of which 90% were from AIDS-related causes. Three aspects of sexual activity within prisons lead to higher risks of transmission: anal intercourse, rape and the presence of STIs. MSM was found to be a common occurrence in South African prisons with 65% of inmates reporting to have participated in homosexual activity. Prisoners were often sexually abused by other prisoners, particularly those in prison gangs, as a way of asserting their power and control (Goyer, 2003).

Amongst other studies of MSM further sexual risk behaviours have been identified including: multiple partners, unprotected sex, and commercial sex with male CSWs. A

study which examined the risk behaviours of 217 men who have HIV/AIDS and engage in MSM found that 62% of men had multiple partners, and 34% of these had unprotected sex. Condom use depended upon whether their partners were also infected (Lightfoot, Song & Rotheram-Borus, et al., 2005).

Condom use is often low amongst MSM as indicated in a study of Chinese men who had sexual relations with same-sex partners across the border in Hong Kong. Amongst men who engaged in anal sex with men 42.9% used condoms consistently. With male commercial sex workers only 35.7% used condoms consistently. There was an incredible lack of perception of HIV risk amongst the men having sex with men with only 2% of those surveyed believing that their chances of HIV infection were 'very likely' (Lau, Kim & Lau, et al., 2004).

As a result of engaging in these risk behaviours, MSM are at a high risk of HIV infection. In the United States, MSM accounted for 42% of total infections (Teeter, 2002), in Canada, for 75% of AIDS cases (Teeter, 2002) and in Australia, for more than 85% of men diagnosed with HIV (UNAIDS, 2004:30). In Latin America, sex between men has constituted an important route for HIV transmission across the region with prevalence rates amongst MSM at significant levels, ranging from 11.0% in Peru to 20.6% in Bolivia (Bantista, Sanchez & Montano, 2004). In Thailand (Carter, 2004), and India (Go, Srikrishnan & Sudha, 2004), infection rates amongst MSM have also been found to be significantly higher than national levels.

MSM can be a major route for HIV transmission into the general population when men who have unprotected sex with men also have unprotected sex with women (UNAIDS, 2004). In China, a study of over 800 men who have sex with men found that 59% also had unprotected sex with women during the previous year (Ministry of Health & UN theme

group, 2003).

While in Europe and North America MSM has been one of the main forms of transmission, in Africa heterosexual contact has been responsible for most of the HIV infections (Hunt, 1996; Heineken, 2001; UNAIDS, 2004). However, it has been difficult to assess the extent of MSM in sub-Saharan Africa given that many communities and governments deny its existence (Kiama, 1999; UNDP, 2000). MSM, though, has been reported on the continent, particularly in situations which have placed men together for long periods of time such as in prisons, boarding schools, the military and single sex hostels (Kiama, 1999; Zachariah, 2002; Goyer, 2003). Despite this, governments have opposed the provision of condoms for fear that they would be inviting more people to engage in this illegal activity (Zachariah, 2002).

The illegal nature of homosexuality and negative taboos in many African countries has led homosexuals to live a secretive lifestyle, often getting married and in many instances engaging in unprotected sex with both their wives and secret male partners (Kiama, 1999). This was found to be the case in Botswana, where many homosexuals, in order to hide their sexual activity, led a double life in which they also dated girls and even married. Homosexual activity, widely viewed as a form of sexual perversion in Botswana culture, is considered a criminal offence in the country's legal system (UNDP, 2000; Tlou, 2001). This double life, however, has the potential of increasing the spread of HIV between MSM and the wider heterosexual population.

2.2.2.5 Unprotected sex

A number of studies have identified unprotected heterosexual sex as one of the major risk behaviours for HIV transmission (Gender-health, 2004). On the other hand, consistent use of condoms has been found to reduce the risk of HIV infection by as much as 87% (NIH,

2000). A major European longitudinal study across eight nations investigated the condom use of 256 couples where one partner was negative and the other HIV positive (de Vincenzi, 1994). Amongst the 124 couples who used condoms consistently, none of the sero-negative partners became infected despite a total of 15,000 sexual contacts. On the other hand, amongst the 121 couples who used condoms inconsistently, 12 of the sero-negative partners became infected. The study concluded that given the low incidence of condom breakage during vaginal intercourse (1%), most cases of sexual transmission amongst couples using condoms were related to the inconsistent use of condoms rather than failure of the contraceptive itself.

In South India, a study of 263 truck drivers found that those who reported consistent condom use were all HIV negative. Of those who tested HIV positive none had used condoms regularly (Manjunath, et al., 2002)

In Thailand, a study of 4,311 men conscripted into the army revealed decreasing rates of HIV and STDs mainly as a result of increased condom use during commercial sex. Men's reported use of condoms during their most recent sexual encounter with CSWs increased from 61.0% (1991) to 92.5% (1995) while at the same time STD rates fell from 42.2% to 15.2% (Nelson, Celentano & Eiumtrakol, 1996).

The dramatic reduction of STDs in Thailand has been a result of the government's 100% condom policy which aggressively promoted the use of condoms and in 1992 alone distributed 45 million condoms to brothels. As a result, the use of condoms amongst Thai men with commercial sex workers has increased from 14% to 95% and the prevalence of five major STDs have decreased by 79% (1989 to 1993). The dramatic reduction of HIV prevalence, down to 2.5% in 1995, has been argued as evidence of the success of men's increased use of condoms (Royce, et al., 1997; Hankins, 1998).

While it has been established that condom use significantly reduces the transmission of HIV and STDs, large proportions of the population still engage in unprotected sex for various reasons. Van Dyk (2001) considered an objection often raised in traditional African cultures, that condoms are not ‘natural’, that they inhibit physical pleasure, and interfere with the natural development of the foetus. Many traditional cultures believe that semen contains important vitamins which the woman needs to receive in order for her continued physical and mental health, beauty and fertility.

A study of 252 male informal sector workers in Kenya found that single men were more likely to use condoms regularly, especially with women when there was less intimacy. On the other hand, older men with long-term partners were less likely to use condoms. (Ferguson, Pere & Morris, 2004).

In South Africa, despite the rising levels of HIV/AIDS, married people were less likely to use condoms due to the fact that it leads to a suspicion of unfaithfulness by the other partner. A household survey found that poorly educated men and women were less likely to use condoms, as were those whose first sexual encounters were at an early age. While knowledge of being HIV positive had an effect on women’s desire to use condoms, it had no effect on the likelihood that men would use a condom (Kelly & Vancatachellum, 2003)

A focus group study in a South African township found that there were certain factors which hindered condom use and reinforced the practice of unprotected sex. These included (i) lack of perceived risk of HIV infection, (ii) peer norms promoting unprotected sex, (iii) restricted availability of condoms, (iv) negative attitudes of adults to using condoms, (v) gender power relations, and (vi) the economic context of adolescent sexuality (MacPhail & Campbell, 2001).

In Botswana, Tabane (2004) reported that condoms were widely available both in health

facilities and retail outlets where adolescents often obtained them. As a result, condom use amongst young adults (15 to 24 years) was very high with 84.4% of men and 77.2% of women reportedly using condoms in their last sexual act. Amongst the adult population (25 to 49 years) condom use was slightly lower, involving 64.3% of men and 70.8% of women, though still comparatively high compared to other countries in the region (NACA, 2003a). When measured over the last three months, however, regular condom use diminished greatly accounting for just 43% of women, and 48% of men (NACA, 2003a). HIV prevalence was found to be significantly higher amongst those who do did not use condoms regularly in the past three months (NACA, 2003a).

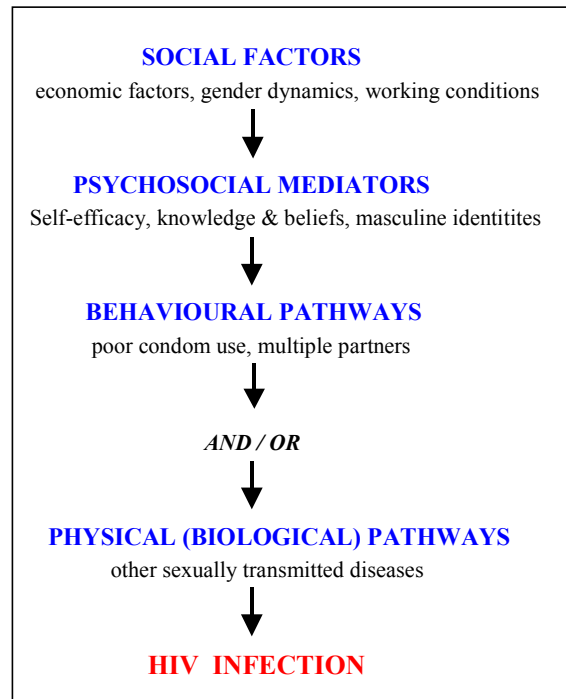
2.2.3 SOCIAL FACTORS

While most research into HIV/AIDS has focussed on the biological and behavioural factors, the social and developmental dimensions have been largely ignored. Campbell & Williams (1999) argue that it is essential for social factors such as poverty, mobility, working conditions and gender dynamics, to be considered if we are to fully understand why people engage in such high-risk sexual behaviours which place them at risk of HIV infection. Campbell's (1999) model of pathways to HIV infection (figure 2.2) shows how it is the social factors which determine the context through which the filter of psycho-social mediators lead to sexual risk behaviours. These behavioural pathways when combined with the physical (biological) pathways can potentially result in HIV infection.

In the South African mining context the social factors of rural poverty and unemployment forced men to migrate thousands of kilometres away from their partner and families to work on the mines. As a result of being away from their partners for long periods of time, living in cramped single sex hostels with little opportunity for leisure, many miners were drawn to seek female company with CSWs who were readily available near the hostels.

Given the dangerous working conditions where illness, death and injury were a daily threat, miners were less likely to consider the risk of AIDS which would only have an effect in some five to ten years time (Campbell, et al., 1999).

Fig. 2.2 Pathways to HIV infection in Southern African mining context (Campbell, 1999).



In Botswana the National AIDS Co-ordinating Agency acknowledged the major role that social factors have played in determining the spread of the epidemic. NACA (2003a) identified a number of key social factors which have played a major role in the spread of HIV/AIDS, including poverty, gender inequalities, and migration.

2.2.3.1 Poverty

Poverty has been identified by a number of studies as a key factor contributing to people's engagement in sexual risk behaviours and increased risk of HIV/AIDS (Collins & Rau, 2002; Williams, et al., 2002; Cohen, 2004). In the United States, it has been the poorest segment of the population, African-Americans, comprising 26% of the country's poor, who accounted for 37% of all reported cases of HIV/AIDS. The active drug trade in poor

inner city neighbourhoods has fostered the spread of HIV through intravenous drug use and people's engagement in drug-induced unprotected sex. Women were often found to be at risk of HIV, not because of their ethnic group but as a result of the effects of poverty upon their lives (Collins & Rau, 2002).

In South Africa, poverty has been identified as one of the main risk factors which has forced men to leave their partner and rural homes in search of work in the mines - where they were more likely to engage in sexual risk behaviours and become infected with HIV (Williams, 2002). In sub-Saharan Africa, Cohen (2004) explained that how poverty perpetuates itself through low levels of education, literacy and consequently few employment opportunities. Women trapped in this cycle while single-handedly trying to support their household, were likely to engage in transactional sex from time to time as a survival strategy. In the process, they inevitably placed themselves at greater risk of HIV infection. This was especially the case when women accepted clients who refused to use condoms, because at the time they may have had no alternative but to accept the money being offered in order to feed themselves and their dependants (Collins & Rau, 2002).

2.2.3.2 Gender inequalities

Gender inequalities refer to major differences in the widely-shared social expectations and norms about appropriate male and female behaviour, characteristics and roles (UNAIDS, 1999; Gupta, 2000). Since 1985, the percentage of women amongst adults living with HIV/AIDS has risen dramatically from 35% to 48% world-wide (UNAIDS, 2005). UNAIDS argues that gender inequalities are a major driving force behind the global AIDS epidemic (UNAIDS, 2001a). Women are at an increased risk of HIV/AIDS as a result of the imbalances they are often subjected to in social expectations, limited access to resources, physical abuse and sexual treatment.

It has been observed that traditional societies have often promoted cultural ideas of sexual innocence and virginity amongst women. As a result women have often been poorly informed about sex and reproduction, and so lacked understanding of the dangers of HIV/AIDS and how to protect themselves (UNAIDS, 1999). The limited access of women to financial and material resources in many societies, means that women often make up the poorest segments of the population. This can lead to some women resorting to commercial sex in order to survive and support their household, in the process exposing themselves to great risks of HIV infection.

Research has shown that women's economic vulnerability increased the likelihood that they will engage in commercial / transactional sex and makes it less likely that they will be able to negotiate protective measures such as the use of condoms (Gupta, 2000). In Botswana, Maundeni (2001) explained how women have been economically dependent on men because of less employment opportunities and lower paid jobs. This vulnerability meant that women have been less able to successfully negotiate safer sex or leave high-risk sexual relationships for fear of future destitution (UNAIDS, 1999).

The proportion of women affected by intimate partner violence in their lifetime ranges from 10% to 69%, depending on the country. Physical violence against women has been reported widely in South Africa where women beaten and/or dominated by their partners were nearly two times more likely to become infected with HIV (UNAIDS, 2005).

2.3 MIGRATION AS A CONTRIBUTING FACTOR

Migration has been defined as “the movement of people from one place to another, temporarily, seasonally or permanently, for a host of voluntary or involuntary reasons” (IOM, 2002:7). The International organisation for migration argues that it is best seen as a

process involving the stages of : source, transit, destination & return.

Numerous studies have demonstrated how migration has played a key role in increasing people's susceptibility to HIV/AIDS (Quinn, 1994; Decosas, 1998; Brockerhoff & Biddlecom, 1999; Hope, 1999; UNAIDS, 2001b; Johnson, et al., 2002; IOM & UNAIDS, 2003). However it is not the issue of being mobile which places people at risk of HIV/AIDS but rather, "the situations encountered and the behaviours possibly engaged in during mobility or migration that increase vulnerability and risk regarding HIV/AIDS" (UNAIDS, 2001b:5). In a similar way, Decosas, et al. (1995:826) argued that "the fact that population movements distribute HIV is secondary to the fact that certain types of migration cause HIV epidemics". Migrants and mobile populations may be more susceptible to HIV/AIDS than populations which do not move because they are exposed to unique pressures including separation from their regular partner and exposure to new social norms and living environments, where often the only recreational activities involve alcohol and commercial sex (UNAIDS, 2001b).

In West Africa, Decosas (1998) found that the profile of HIV infection is linked to the regional pattern of labour migration across the region. Areas of high HIV prevalence corresponded closely with recruitment and destination points of migrant workers. Migration often led to huge gender imbalances with a large excess of males at destination points and an excess in females in recruitment areas. As a result, sex with casual girlfriends has increased, which has over time led to an erosion of tradition norms of sexual behaviour.

In Senegal and Guinea-Bissau, short-term mobility amongst rural communities was found to be a risk factor for HIV infection, while in Uganda, people who had moved within the last five years were three times more likely to be infected than those who had remained in

the same place (Lagarde, Schim van der Loeff & Enel, et al., 2003).

A study of migration and sexual behaviour in Kenya found that migrant men and women separated from their spouses were much more likely to engage in high risk sexual behaviours than non-migrants, which could lead to HIV infection. Brockerhoff, et al. (1999) attributes migrants' engagement in sexual risk behaviours to three factors: (i) the pre-disposing individual characteristics such as age, values, attitudes etc.; (ii) changes in the individual which occur as a result of migration, particularly being separated from one's partner over long periods of time; (iii) exposure to a new social environment - involving easier access to CSWs, different sexual norms, and less traditional restraints of the family home.

Within Southern Africa, human mobility has been the key factor which has given rise to the rapid spread of HIV/AIDS over the last decade (Williams, 2002). In Carltonville, South Africa, a study by Johnson, et al. (2002), found that male migrants suffered from significantly higher HIV prevalence levels (29%) compared to non-migrants (19%). Amongst the women at Carltonville, those who had migrated there from other locations also suffered from significantly higher levels of HIV infection (51%), compared to non-migrants (39%).

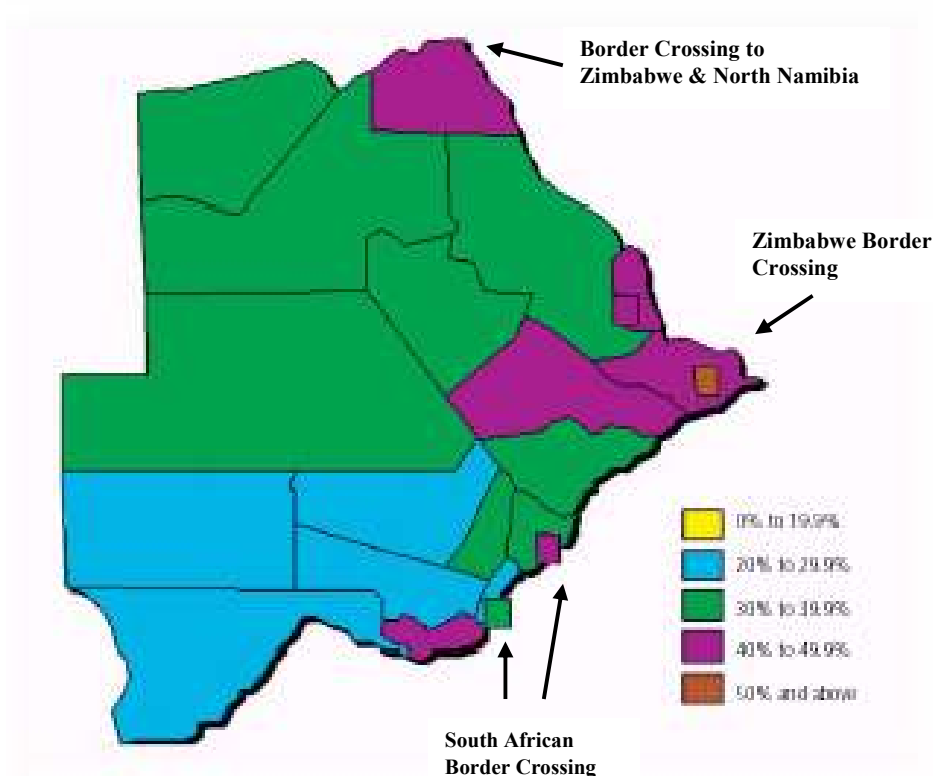
In a rural study of 4531 men in South Africa, migration amongst those who moved in the last 12 months, was associated with a 7.3 - fold increased risk of HIV infection (Jochelson, et al. 1991). Migration was also a determinant of HIV infection in rural Kwa-Zulu Natal, where people who had recently changed residence were three times more likely to be HIV positive compared to those who had not (Karim, Karim & Singh, 1992).

In Botswana, migration has been a major contributing factor. Sentinel surveillance over the last decade revealed how HIV has spread across Botswana from the borders with

neighbouring countries, along the major transport routes people use to migrate across the country (NACA, 2003a). As a result, the highest HIV prevalence levels continue to be in areas adjacent to the busy border crossings with Zimbabwe in the North East, with South Africa in the South East and with Zambia / Zimbabwe in the north (figure 2.3). Areas in the West and South-West with comparatively limited transport infrastructure and no major border crossings, on the other hand, have some of the lowest HIV prevalence levels in the country (NACA, 2003a, 2003b).

High levels of urbanisation and substantial movements of people across the country have contributed to the dramatic rise of HIV/AIDS in rural parts of the country (UNDP, 2000). As a result there is no longer any significant difference in HIV prevalence levels between pregnant women in urban (37.9%) and rural areas (36.5%). As figure 2.3 illustrates, prevalence rates are now greater than 25% in every district of Botswana, including even the sparsely populated, under-developed regions (NACA, 2003a).

Fig. 2.3 HIV prevalence distribution in Botswana by district (NACA, 2003a)



A study by Hope (2000) of mobile workers in Botswana identified a strong association between the high level of human mobility and the spread of HIV/AIDS. He explained how for cultural and economic reasons, Botswana has one of the most mobile populations in the world. Traditionally, there has been a tremendous amount of movement in the rural areas between the three homes a typical Motswana had, in the village, at his lands, and at the cattle post (Hope, 2000; Tabane. 2004). In the last century, employment in the mines of South Africa led to the labour migration of the majority of Batswana men. More recently, the country's rapid economic growth has resulted in substantial movements of people through urbanisation and expanding numbers of migrant labour involved in development projects. This increase in migration has coincided with the rapid spread of HIV/AIDS across the country.

In general, there are two main types of migrants, those who move for voluntary reasons and those who move involuntarily (IOM, 2002). Refugees and internally displaced persons (IDPs) have moved involuntarily, due to wars, ethnic tensions, human rights abuses, violent conflicts or other emergencies. Between 1989 and 1996 there were 1.1 million internally displaced persons in the Commonwealth states alone (UNAIDS, 2001b). Migration can be divided between international movements of people, and internal movements of people within the country's borders. Internationally there are an estimated 150 million migrants who live and work outside their country of citizenship, and some two to four million people who migrate permanently each year (UNAIDS, 2001b). Within countries, urbanisation and labour migration are the main forms of voluntary movements of people. Voluntary migration within countries can involve definitive, long-term, circular, periodic or seasonal movements of people. Definitive migration is when people permanently move from one residence to another, whereas long-term migration involves a return visits back to the original residence after an absence of more than a year. Circular or

oscillating migration involves the regular movement between two locations, often between one's rural home and the work place. Periodic movements are usually just short-term changes in residence whereas seasonal migration have a regular annual rhythm (Quinn, 1994).

2.4 MIGRANT LABOUR

In 2001, an estimated 80 million people across the world migrated for employment reasons (IOM, 2004). Numerous studies have identified the key role that labour migration has played in the transmission of HIV/AIDS across Southern Africa (Hunt, 1996; Jochelson, et al., 1991, Williams, 2002; IOM, 2004).

Historically, European colonialism was responsible for the expansion of labour migration, causing the movement of working populations on a regional scale (Hunt, 1996). Through a process of imposing taxes and restricting the development of certain areas, colonial governments were able to pressure young men to leave their homes and travel to the mines, factories and plantations for income. This led to the long-term separation of men from their partners and family. Forced to live in the company's single sex hostels, workers endured difficult living conditions where their only entertainment involved alcohol and an abundance of CSWs. As a result, Hunt (1996) argued that the breakdown of marriages and rise in multiple sexual partners was inevitable.

With the end of colonialism, the widespread use of migrant labour in the mines, plantations and the cities continued to be practised in the newly independent countries. Hunt (1996) explained how this led to the rapid spread of gonorrhoea and syphilis epidemics across Southern and Eastern Africa during the 1960s and 1970s. With the arrival of HIV/AIDS, migrant labour populations already exposed to STDs, and engaging

in sexual risk behaviours became highly susceptible to HIV infection. Consequently, migrant workers were one of the first groups to be infected. When workers became sick with HIV/AIDS and were unable to continue working, they returned to their rural homelands and in the process transmitted HIV to rural areas previously unaffected. As a result, in Southern Africa, across Botswana, Lesotho, Swaziland, Namibia, Zambia, Zimbabwe, and South Africa, the epidemic has managed to spread rapidly through this segment of the population.

Within Botswana, labour migration is one of the major socio-economic factors which continues to fuel the spread of this epidemic (NACA, 2003b). A study of migrant workers across Botswana indicated that most have had sexual relations with both casual girlfriends and CSWs, despite having extensive knowledge of HIV/AIDS (Hope, 2000). Just under half of those surveyed had a live-in partner at the workplace, and a significant proportion of married men had set-up parallel families near their place of work. Condom use was generally poor, with half the men surveyed using condoms only occasionally or not at all. Three major factors were found to be contributing to these patterns of sexual risk behaviour : (i) the availability of commercial sex workers who often visited the work place to provide sexual services; (ii) the comparatively large level of disposable income with which workers could afford to engage in transactional and commercial sex with local women; (iii) the way in which migrant workers became isolated from traditional cultural and social networks as a result of working away from home for extended periods of time (Hope, 2000).

Across Southern Africa, the main groups of migrant workers included long-distance truck drivers, miners, military personnel, seasonal farm workers, and construction workers.

2.4.1 TRUCK DRIVERS

Long-distance truck drivers have been some of the most mobile labour groups, frequently travelling thousands of kilometres, and forced to spend long periods of time separated from their partner and family. In a South African study, 71% of long-distance truck drivers were found to have spent fifteen days or less at home during the last six months (Michael, et al., 2000). This ongoing separation, combined with the difficult working conditions, poor access to health services, limited awareness of HIV/AIDS, and frequent engagement in high risk behaviours, has placed truck drivers at great risk of HIV infection (IOM & UNAIDS, 2003).

A number of studies have confirmed this, observing significant levels of STDs and HIV prevalence amongst truck drivers. In South India, a study of 263 drivers and their assistants reported HIV prevalence rates of 15.9% and STD prevalence of 38.7% (Manjunath, et al., 2002). In East Africa, a study of 970 drivers along the Nairobi – Mombassa highway revealed HIV prevalence rates of 27% (Bwayo, Plummer & Omari, 1994), while in Nairobi, a study of 331 drivers reported HIV rates of 31.8% among Central African drivers and 16.7% amongst East African drivers (Bwayo, et al., 1991a). In South Africa, the HIV prevalence of truck drivers in Kwa-Zulu Natal was extremely high, accounting for 56% of drivers (Ramjee & Gouws, 2002). In these studies, HIV rates were significantly higher than in the local population as a result of the sexual behaviours drivers engaged in and the risk factors which contributed towards these behavioural patterns.

Across the Indian sub-continent, studies of truck drivers indicated a common pattern of sexual behaviour involving frequent sexual encounters with casual girlfriends and CSWs, often without the use of condoms. 94% of drivers across India reported having frequent changes of sexual partners (Rao, et al., 1999), while in Bangladesh 40% had been with

three or more sexual partners during the last year (Gibney, et al., 2002). In South India, over two-thirds of men had sexual contact with CSWs (Manjunath, et al., 2002), while in South-East India an estimated three-quarters of drivers reported having sex with CSWs (Bryan, et al., 2000) and in Bangladesh 54% of truck drivers visited CSWs (Gibney, et al., 2002). The use of condoms was very low, involving only 16% of drivers in South India (Manjunath, et al., 2002). Regular condom use was even lower with only one to two percent of drivers reporting that they always used condoms with their marital or non-marital partner (Bryan, et al., 2000).

It was interesting to note that in South India, the main risk factor for HIV infection was unprotected sex (Manjunath, et al., 2002). In Bangladesh, the main risk factor for having STDs was sexual contacts with CSWs (Gibney, et al., 2002), and in Brazil it was having sex with casual girlfriends (Villarinho, Bezerra & Lacerda, et al., 2002). Having multiple partners was the main pattern of sexual behaviour in Brazil involving 59% of short-route drivers (Villarinho, et al., 2000). In East Africa, the most common form of risk behaviour was having sex with CSWs, which involved 61% of truck drivers in Nairobi (Bwayo, Omari & Mutere, 1991b). In South Africa, 37% of drivers had sex with CSWs, but the majority, 70% of drivers, engaged in sexual contact with multiple partners. 87% did not use a condom during their last sexual encounter (Ramjee, et al., 2002).

Several risk factors resulting from truck drivers' working environment have contributed significantly to their sexual behaviours and increased risk of HIV.

The number one risk factor contributing towards these sexual risk behaviours was long periods of time drivers had to spend away from home (Villarinho, et al., 2002). In a univariate analysis, HIV infection amongst drivers correlated with longer durations of truck driving, travel outside Kenya, and less frequent visits to their wife (Bwayo, et al.,

1994). In a study by Manjunath et al. (2002), HIV sero-positivity increased dramatically with the number of years drivers had worked on long-distance routes as well as the number of trips drivers made every month.

The presence of women willing to sell sex at most truck stops was also a major contributing factor to truck driver's high-risk behaviours (Rao, et al, 1999; Bwayo, et al, 1991b; Geysels, Pool & Bwanika, 2001). The heavy consumption of alcohol at these truck stops helped to lower inhibitions and opening opportunities for sex with casual girlfriends and CSWs (Rao, et al., 1999; Gibney, et al., 2002; Manjunath, et al., 2002). Ramjee, et al. (1998) indicated that as a result the trucking industry has created a market for prostitution in South Africa.

Although poor knowledge of HIV was suggested by Bryan, et al. (2000) as being linked to sexual risk behaviours, Singh & Malaviya (1994) found that increased HIV awareness demonstrated no link with more frequent use of condoms. Bwayo et al (1991b:718) argued that "Knowledge alone was found to be insufficient to result in safer sexual behaviours".

2.4.2 MINERS

In Southern Africa, mining has been responsible for some of the largest movements of people across the region. In the 1990s, 40% of the workforce, approximately 300,000 miners, were foreign migrants, coming from Mozambique, Botswana, Lesotho and Swaziland (Raditapole, 1995).

HIV levels have risen dramatically in Lesotho as a result of the majority of men spending up to 15 years working in South African mines (Raditapole, 1995). Separated from their partner for long periods of time, many miners became involved with casual girlfriends and CSWs who were readily available in the mining towns. When miners returned to visit their

families, HIV was often transmitted to their partners back home. In cases where men died at the workplace or remained in South Africa to set up parallel families, their stranded wives often had no choice but to engage in commercial sex work to support their families, in the process placing themselves at great risk of becoming infected (Raditapole, 1995).

In South Africa, the mining towns of Carltonville, Klerksdorp and Welkom have become major centres of infected people. Williams et al. (2003) explained how the high levels of HIV prevalence have resulted from the system of circular labour migration. In order to find work in the mines, men had to leave their partner and family behind in the rural areas only able to return home several times a year as the work and money allowed. This system was introduced by the mining companies to ensure that the migrant workers' home remained in the rural areas, where they could be sent following an injury or illness. The mining companies used limited employment contracts to prohibit workers from bringing their families with them, forcing the men to go home once a year with no guarantee of further work (Williams, 2003).

As a result, even 50 years ago, a study carried out in the mines suggested that the widespread prevalence of STDs (especially gonorrhoea and syphilis) was a consequence of the migrant labour system (Kark, 2003). Since the 1940s, sexually transmitted diseases have continued to be spread across the country as a result of the migrant labour system (Jochelson, et al., 1991). At an STD clinic in the Transvaal, a study of patients found that while 49% contracted STDs from their regular partner, 33% contracted it from a casual girlfriend and 15% from local prostitutes (Jochelson, et al., 1991).

The situation of being away for months from their wives and families, living in single sex hostels with up to twenty men in one room, has contributed to migrant workers' increased risk of STDs and HIV infection (Williams, et al., 2003). Mineworkers often responded to

the difficult working conditions and separation from their long-term partner by engaging in sexual contact with multiple partners, often without using condoms. “The need to escape loneliness, the uniformity of male company, and grim hostel environments encourage some men to seek the company of women.” (Jochelson et al., 1991:164).

A study of trends in sexual risk behaviours amongst South African gold miners in Welkom found that the “prolonged separation of men from their wives encourages them to have several sexual relationships with other women” (Meekers, 2000:22). However, given the limited number of women staying near the mines, most workers were unable to find a stable partner and so resorted to visiting sex workers - who target the mineworkers for their relatively good pay. The study found that 44% of miners engaged in sexual encounters with multiple partners: 23% with two partners, 8% with three partners and 13% with four or more partners. Limited opportunities for leisure and the proximity of bars meant that the two activities most easily available were drinking and seeking the company of women (Meekers, 2000 & Campbell, 1997). As a result, despite much exposure to HIV/AIDS education, unprotected sex with multiple partners (often sex workers) was the norm rather than the exception (Campbell, 1997).

A further issue, particularly in the case of mining, was found to be the dangerous nature of the work, involving a one in forty chance of being killed and a one in three chance of being injured over a period of twenty years. Amongst some workers this led to a sense of helplessness concerning one’s future and as a result promoted a risk-taking mentality with their sexual behaviour as a way of dealing with the dangerous work (Smart & Whiteside, 2000). The relative lack of control over one’s fate which resulted from working in such life-threatening environments, shaped the way in which miners approached other dangers such as HIV/AIDS which seemed faint in comparison to the daily odds of being maimed

or killed in the mine (IOM & UNAIDS, 2003).

2.4.3 MILITARY PERSONNEL

Military personnel constituted one of the largest groups of migrant labour with an estimated 25 million men and women currently active in the armed forces world-wide (Yeager, Whiteside & Smart, 2000). Numerous studies have shown how they are amongst the most susceptible to HIV infection with prevalence levels far above those found in the local civilian populations (Newman, Miguel & Jemusse, et al., 2001; Manthey & Tan, 2002; Foremann, 2002; Heinecken, 2001).

While in stable countries such as Namibia, Botswana and South Africa, HIV rates have remained similar to the civilian population, in areas of conflict and political/economic instability HIV prevalence has increased dramatically. HIV has infected 50% of Congolese soldiers compared to 6.43% of the civilian population; 50% of Angola's forces compared to 2.78% nationally; 40% of Lesotho's soldiers compared to 23.6% of civilians; 50% of Malawi's armed forces compared to 15.96% nationally; and 55% of Zimbabwe's armed forces compared to 25.06% nationally (Heinecken, 2001). As a result, in some military hospitals across Africa, 75% to 80% of beds were occupied by AIDS patients.

This has led to a situation where "in many parts of the world HIV and AIDS pose a far more serious threat to military populations than the inherently hazardous nature of their occupation" (Yeager, et al, 2000:2). Such high levels of HIV prevalence amongst military personnel in sub-Saharan Africa were found to be the result of frequent sexual contact with casual girlfriends and CSWs, often without the use of condoms. In northern Uganda, amongst the local women selling alcohol and sex to re-deployed soldiers, a third of those infected with HIV/AIDS had last had sex with an army soldier (Foremann, 2002).

Separation from one's partner over long periods of time has been cited by studies as one of the major factors contributing to military personnel's susceptibility to HIV and STD infections (UNAIDS, 1998; Foremann, 2002). When the Nigerian military served as peacekeepers, HIV prevalence rates increased from 7% amongst soldiers serving one year to 16% for soldiers serving three years overseas. The dramatic rise in HIV prevalence was found to be a result of the fact that Nigerian peacekeepers were only allowed to visit their partner back home after two years of service abroad (Heineken, 2001).

A second contributing factor has been the relatively high income of military personnel on duty in comparison to the people in surrounding communities. This has given soldiers the financial means to purchase sex and access to CSWs who are attracted to army barracks by the lucrative business on offer (UNAIDS, 1998; Foremann, 2002). With limited opportunities for leisure a large proportion of soldiers resorted to drinking in the local bars when on leave, which often ended in sexual encounters with casual girlfriends or CSWs (Foremann, 2002; IOM & UNAIDS, 2003).

Studies have noted the significant role 'macho' masculine attitudes have played in the sexual behaviour of soldiers, emphasising the willingness to accept risk, which though crucial in combat, could increase soldiers' willingness to engage in risky behaviour. The role of aggression in the military could also influence soldiers to pursue sex with many partners as a form of 'conquest' (UNAIDS, 1998; Foremann, 2002). In the event of warfare, the increased likelihood of death means that soldiers may be more willing to engage in risky sexual activity. They were less worried about the consequences of AIDS in ten years time when they could be killed tomorrow. IOM & UNAIDS (2003) observed that during times of war, sexual activity increased, prostitution spread, the age of sex workers tended to decline, rape became more commonplace and protection against STIs was seen

as less important.

The increasing numbers of specially trained, experienced military personnel falling sick and dying from AIDS were seen to threaten to weaken the armed forces, particularly across Southern Africa. This would inevitably diminish government's ability to curb unrest, defend national interests and deploy peacekeeping forces to deal with regional conflicts (Heineken, 2001).

2.4.4 SEASONAL FARM WORKERS

Migrant farm workers have been essential to the success of commercial agriculture, which in most developing countries is the backbone of the national economy. Studies of farming in the United States revealed that as many as two to four million people worked as seasonal farm workers; over half of whom migrate to and from Mexico each season in search of work. HIV infection rates significantly higher than the national average (0.28%) have been detected amongst migrant farm workers in Florida (5%), New Jersey (3%), and South Carolina (13%) (Frees, Polkowski & Farmer, 1992; Perez & Fennelly, 1996).

Such high levels of HIV infection resulted from migrant workers' frequent sexual encounters with casual girlfriends, CSWs and other male workers (IOM & UNAIDS, 2003). Research has found that the environment of migrant farm work, involving long periods away from home, living in camps surrounded by men, with no leisure opportunities besides alcohol, influenced men to resort to sexual risk behaviours that they would not necessarily engage in at home. After the monthly pay, CSWs were often available in the local bars and, in the wake of much alcohol, unprotected sex with CSWs was common. The HIV infections which resulted from this lifestyle were often transmitted at the end of the season to their wife in Mexico when the workers returned home (Perez, et al., 1996; IOM & UNAIDS, 2003).

In sub-Saharan Africa, studies have been carried out of migrant farm workers in Zambia, South Africa and the Ivory Coast. In rural Zambia, a study of 2,500 seasonal migrant workers on a large commercial farm revealed that most men had extramarital sexual relations while working there, and in the process facilitated the spread of HIV across the region as they migrated between their family and the workplace. Bond, et al. (1997) explained that these sexual behaviours were the result of being separated from their spouse over extended periods of time. Migrant farm workers mostly engaged in unprotected sex, with condom use only negotiated in some short-term relationships and then not consistently. Sex was perceived as an essentially procreative act to display the man's potency and the woman's fertility. Unfortunately this perception prevailed over people's desire to avoid HIV and STD infection. Even when the woman wanted to prevent HIV infection, she was in a weak position to negotiate condom use given that sexual contact was often commercial / transactional in nature, leaving her economically dependent on the man for support.

In the Ivory Coast, a study of seasonal migrant agricultural workers found that sex with casual girlfriends and CSWs was common (Decosas, 1995a). This was especially notable on the weekend following pay-day, when a convoy of 30 to 40 CSWs arrived at the plantation (often brought from town by the employer) to 'sexually satisfy' an average of 25 workers each over two nights. Inevitably, HIV spread rapidly as a result of CSWs being shared with 10 to 15 men per night. This type of behaviour, Bond, et al. (1997) argued, was a result of the social environment in these temporary camps where the strict social controls of the home village were replaced by 'masculine' attitudes and competitions for 'physical prowess' amongst the 2000 young men.

In South Africa, two studies have explored the risk factors of migrant workers on commercial farms in the border regions of Limpopo and Mpulanga (IOM & Care, 2003;

IOM, 2004). Multiple sexual partners were found to be the norm amongst workers, involving two or more girlfriends at the farm and a 'senior wife' back home. Long-distance migration to the commercial farms from workers' homes in Zimbabwe and Mozambique was found to have led to the growth of 'split households' whereby many workers cultivated new concurrent sexual relationships at the workplace while away from their partner for long periods of time. In addition, seasonal migration between farms in search of work further discouraged the formation of stable relationships. The unstable employment situation and poorer pay for women resulted in many female workers engaging in transactional sex with their male counterparts for financial / material support (IOM, 2004).

Overall these findings have shown how the pattern of labour migration has led to the long term separation of workers from their partner. Combined with difficult working / living conditions, this contributed to sexual behaviours which have placed workers at greater risk of HIV infection.

2.4.5 SUMMARY OF RISK FACTORS AMONGST MIGRANT LABOUR

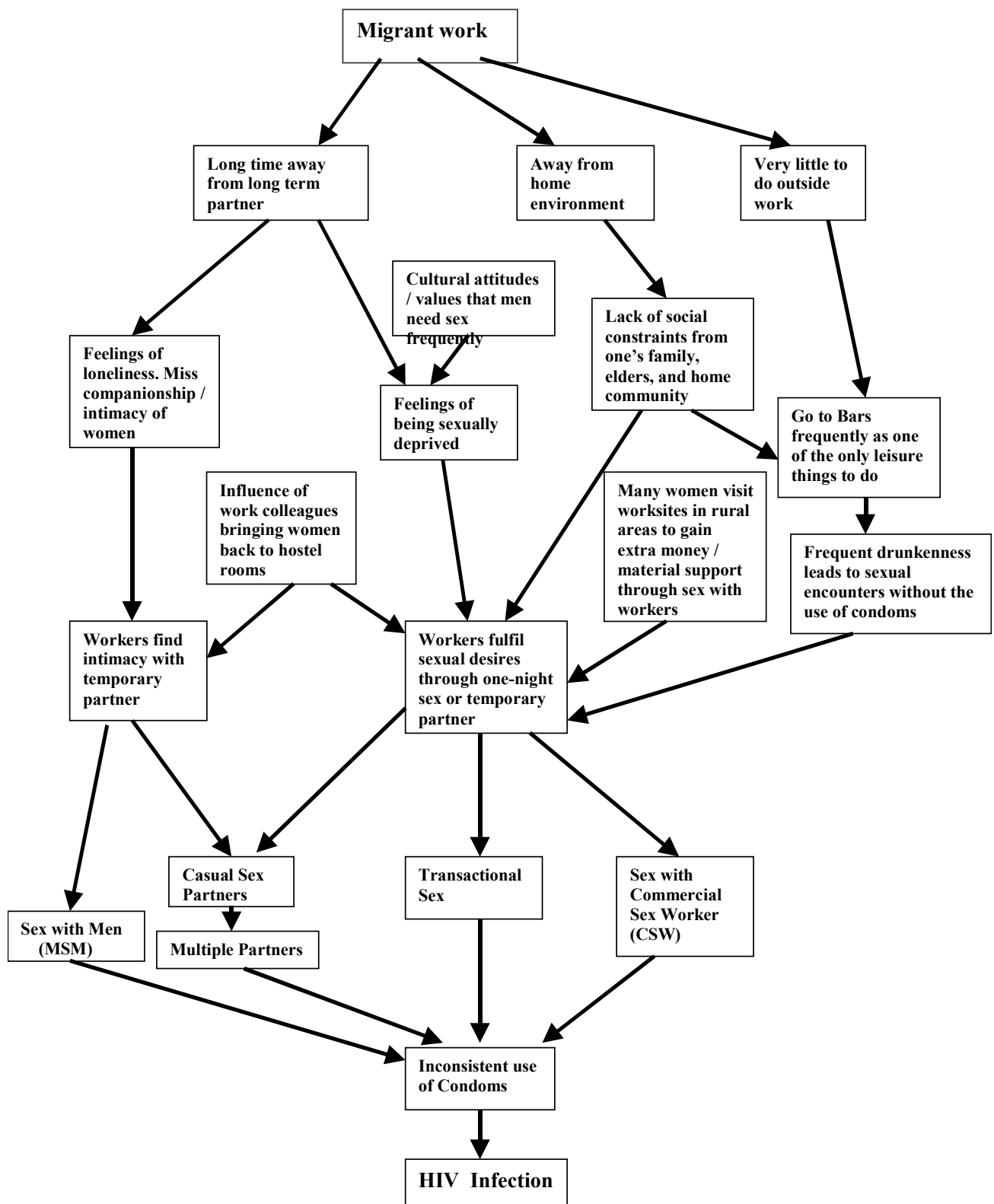
This brief overview of migrant labour groups (truck drivers, miners, military personnel and farm workers) has revealed a common pattern of sexual behaviours which have placed workers at increased risk of HIV/AIDS. These sexual behaviours included: (i) unprotected sex; (ii) multiple sexual partners; (iii) sex with CSWs; (iv) transactional sex; and (v) men having sex with men (MSM).

A number of common risk factors were identified as having contributed to migrant workers' engagement in sexual risk behaviours, including :-

- Separation from partner and family for long periods of time,
- Cramped living conditions in single-sex accommodation,
- Limited facilities or opportunities for leisure,
- Proximity of bars as one of the only forms of leisure,
- Concentration of men together leading to 'macho' masculine attitudes to women,
- Workers with disposable income in areas of relative poverty
- Availability of women involved in commercial sex to support their livelihood

Figure 2.4 is a flow diagram drawing together the risk factors and sexual behaviours identified from these migrant labour groups. It was designed in preparation for this study, in an attempt to illustrate how various risk factors can lead to migrant workers' engagement in sexual risk behaviours and possible HIV infection. The diagram, summarising the findings from these groups of migrant labour was used to provide a guide to the possible issues involved in the migratory environment of construction workers.

Fig. 2.4 Contributing factors and sexual risk behaviours of migrant workers.



2.5 MIGRANT CONSTRUCTION WORKERS

Only a limited number of studies have been conducted amongst migrant construction workers. These have revealed increased levels of HIV infection in communities where construction projects have been carried out.

In Ghana, over eighty thousand villagers were displaced during the construction of Akhosombe river dam. Most of them found work on the construction site, in the bars and the emerging 'prostitution industry' in the area. A survey in 1985 found that the nearby town of Amomaya had HIV infection rates five to ten times higher than national levels in Ghana (Colvin, 2002). Further HIV surveillance carried out amongst pregnant women in 1992 recorded prevalence rates of 18% in the Eastern Region surrounding the Akhosombe dam compared to 2% nationally. Decosas (1995a) explains how the CSWs serving the construction workers at Akhosombe dam, then followed them to the next construction site in the Ivory Coast and then later onto Abidjan. In the 1990s, a large proportion of CSWs in Abidjan were from Eastern Ghana, with infection rates of up to 86%. Many of these CSWs have since returned home, sick with HIV/AIDS, to live out their last days near the river dam where they first started as sex workers.

In the Chad, the major health risk facing the construction of the oil export pipeline was the threat of HIV/AIDS (Kigotho, 1997). During the second year of construction, 200 to 600 STD cases were diagnosed each quarter. Already 50% of prostitutes in some areas of the pipeline, and 25% of truck drivers using the road adjacent to it were infected with HIV (Kigotho, 1997). More than 100 deaths per year are estimated to result from HIV/AIDS as a result of the pipeline construction project, through the sexual interaction of migrant construction workers with the local population. Concerns have been raised about how construction of the pipeline could introduce HIV/AIDS to regions where it was previously

absent and possibly accelerate the transmission of HIV into Central Africa (Jobin, 2003).

In South Africa, research has shown how the construction Industry has the third highest incidence of HIV/AIDS in the country. This has been due to the industry's predominantly migrant labour force (CIDB, 2003). In Lesotho, a study of the Highlands Water Project discovered a sero-prevalence rate of 5.3% amongst construction workers at the Katse dam, compared to only 0.8% of people living in the highlands. Kravitz, Mandel & Peterson, et al. (1995:2) argued that "the initiation of the Lesotho Highlands Water Project has resulted in the influx of a migrant workforce of predominantly single males into a relatively isolated mountainous area where human immuno-deficiency virus (HIV) was previously unknown"

While these studies have demonstrated a clear link between construction projects and HIV infection, very few studies have investigated the reasons behind this link. It is generally unclear as to which sexual behaviours and risk factors contribute to the spread of HIV amongst migrant construction workers. Several articles have pointed to risk factors involving workers' separation from their partner, movement from site to site, lack of recreational opportunities, cramped men-only accommodation, and remote work locations (Smallwood & Venter, 2002; Simon-Meyer, Whiteside & Smart, 2000; CIBD, 2003; SAFCEC, 2003). But few of these arguments are actually based on empirical research which has investigated the risk factors for migrant workers in construction.

2.5.1 CONSTRUCTION WORKERS IN BOTSWANA

As in other parts of sub-Saharan Africa, studies in Botswana have found a clear link between construction projects and HIV transmission. In the rural Bakgalagadi region of South-West Botswana, a study by Muchiru (2000) found that one of the major ways the local community was initially exposed to HIV was through sexual contact with migrant

workers employed by large construction companies in the area. Across Botswana, the UNDP (2000:36) reported that “areas that had hosted development projects were found to have especially high rates of HIV infection.” They argued that the reason for higher levels of HIV infection around construction sites was the widespread involvement of migrant construction workers with casual sex partners. Multiple formal and informal sexual liaisons were found to be common features of labour migration in the construction industry across Botswana.

The government’s sentinel surveillance report (NACA, 2003a) argued that one of the major reasons for the spread of HIV/AIDS and the closing gap between rural and urban prevalence rates was the large number of construction projects which have brought economically buoyant men into contact with less economically privileged women.

While it has been established that construction sites are associated with HIV transmission, there are very few empirical studies which have determined the reasons for this. It is still not clearly understood what factors resulting from labour migration contribute to construction worker’s engagement in sexual behaviours and increased risk of HIV infection.

3.0 RESEARCH METHODS

Chapter three covers the research methods used in this study, describing the study design, geographical setting, study population, sampling, response rate, data collection, data analysis, pilot study, ethical considerations and limitations encountered.

3.1 STUDY DESIGN

A cross-sectional analytic study design was used, involving structured interviews with individual migrant construction workers. The study was quantitative, analysing the relationship between respondents' socio-demographic factors and sexual behavioural patterns. A standardised questionnaire was used which consisted of mostly closed questions.

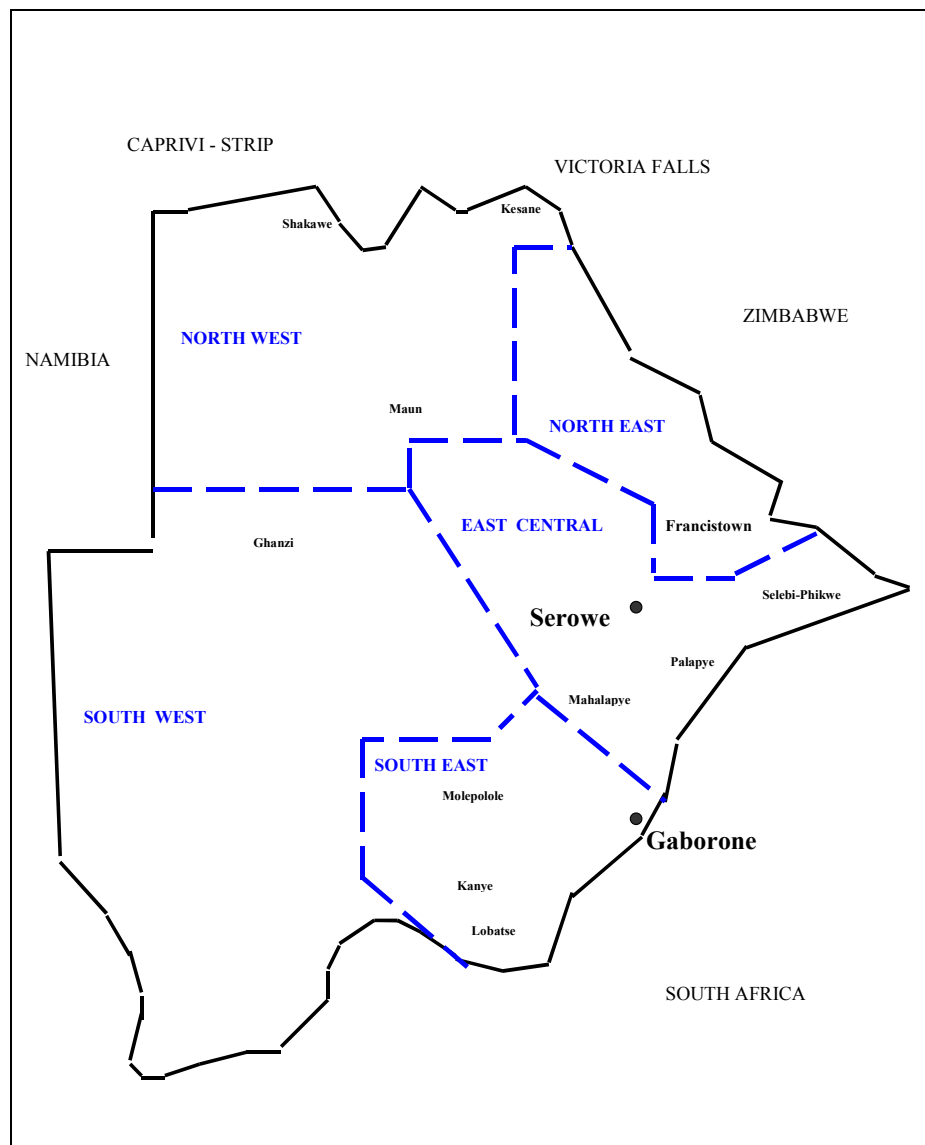
3.2 GEOGRAPHICAL SETTING

The research was carried out in Botswana, in two distinct settings - the urban city of Gaborone and rural village of Serowe. Gaborone, the capital city of Botswana, has a population of approximately 250,000 people. It is the centre of government as well as most businesses and industry. The vast majority of construction projects take place here. Gaborone is located in the South-East of Botswana just fifteen kilometres from the border with South Africa. HIV/AIDS is widespread with prevalence rates estimated at 44.8% of pregnant women (NACA, 2003a).

Serowe, the largest village in Botswana, has a population of approximately 90,000 people. It is one of the oldest and most prominent villages, home to the country's first president. Compared to Gaborone, however, Serowe has little industry and limited opportunities for employment. The majority of young people migrate to the larger towns and cities for work. Serowe lies in the more populated East of Botswana, 314 km north of Gaborone.

The HIV prevalence rate here is 43.3% among pregnant women surveyed in 2003 (NACA, 2003a). The majority of people residing in both locations were ethnic Batswana speaking Setswana as their main language and English as their second language.

Figure 3.1 Regional map of Botswana.



3.3 STUDY POPULATION

The study population consisted of migrant workers in the construction industry encompassing all skilled and semi-skilled workers as well as certain management and supervisory staff. Skilled and semi-skilled workers had a specific trade, the most common

being electricians, plumbers, carpenters, bricklayers, plasterers, steel fixers, welders, and machine operators. These workers were placed by the company at different construction sites on a temporary basis according to where their skills were needed most. As buildings were completed and their skills were needed elsewhere, employees were transferred to new sites, often hundreds of kilometres away. Such frequent movement between locations with limited opportunities for leave resulted in many employees having little time to spend with their partner and family.

The management and supervisory staff at each site included the project manager, site manager, site engineers, foremen responsible for each building section, charge-hands who supervised skilled workers and gangers who supervised the labourers (unskilled workers). In addition, at larger sites there were a number of other professionals in junior management including the quantity surveyors, store manager, and health & safety officer. Only those in senior management were provided accommodation for their families, most foremen and charge-hands had to migrate regularly to visit their partner, as did skilled and unskilled workers.

The study population was selected from the employees of one of the largest established construction companies in Botswana. Logistically, using one company was more feasible when it came to attaining the necessary authorisation and co-operation from managers across the different sites and departments. The company approached, 'Murray and Roberts Botswana', had over twenty years experience working in different regions of the country. The aim was to carry out a census of every migrant worker employed by the company at each construction site. Given the current economic recession and business cutbacks, there were four construction sites operated by 'Murray & Roberts Botswana' at the time of this study.

As of January 2004, 'Murray & Roberts Botswana' employed a total of 753 workers. Out of these, the study population consisted of 324 migrant workers from the four construction sites. Two of these study sites were in Gaborone, where a mill (51 migrant workers) and university building (35 migrant workers) were being constructed. The third site was in Serowe, where a hospital was under construction with 111 migrant workers. The fourth site was in Francistown, where a shopping mall was being built, employing 127 migrant workers, in addition to the unskilled labourers recruited locally. This fourth site, however, was later removed from the study due to urgent deadlines, which meant that the company was reluctant to release workers for interviews. As a result, 197 construction workers were approached, of which 171 consented to be interviewed at the three study sites, two in Gaborone and one in Serowe.

3.3.1 ELIGIBILITY CRITERIA

Although these three study sites had a total of 434 employees, only 197 were eligible to be included in the study population. Five criteria were used to decide which workers were eligible.

The first criterion was that only workers directly involved in construction were eligible. Administration, auxiliary staff and those involved in other types of work were not considered. The Second criteria decided that only direct employees of 'Murray & Roberts' company were eligible (not any sub-contracted companies), in order to ensure that migration patterns, provision of leave, accommodation, working hours etc would be similar.

The third criteria selected employees who worked away from home on an ongoing basis, migrating between different construction sites. This included skilled, semi-skilled and supervisory staff who were often placed at building sites far from home and transferred

from time to time between locations. The fourth criteria focussed on workers who had to migrate regularly to see their partner and family, due to the limited housing at the work site, which could not accommodate their spouses. These were the skilled / semi-skilled workers and junior management who were provided individual accommodation by the company for themselves only.

The fifth criteria ensured that only male construction workers were eligible for the study. Given that women comprised only ten to fifteen percent of the workforce, and were rarely employed as migrant skilled workers, it would have been difficult to include them in sufficient numbers to be able to explore the impact of migration on women's sexual behaviour. A sixth criterion was added which excluded workers from being interviewed if they had already been encountered at previous study sites.

3.4 SAMPLE

Given the relatively small number of eligible workers, a census was deemed more appropriate than a random sample. A study population was necessary that was large enough to carry out bivariate and multivariate analysis. Using a census provided for the inclusion of all the eligible workers available at each study site within the limited available time. It would have been difficult to locate people using a sampling frame given the frequent changes in staff as employees were continually transferred across the country.

3.5 RESPONSE RATE

Given the difficulty of carrying out interviews in Francistown, and the refusal of a total of twenty-six workers to be interviewed, the sample size was reduced to 171 respondents. This was out of a reduced study population of 197 migrant construction workers, resulting in a response rate of 86.8 % (see table 3.1).

Table 3.1 Study population & sample size.

Building Sites	Total employees	Study Population	Sample Size	Response Rate
Bokomo Mill - Gaborone	107	51	45	88.2 %
University of Botswana - Gaborone	90	35	30	85.7 %
Sekgomo Hospital - Serowe	237	111	96	86.5 %
Shopping Mall - Francistown	319	Unable to interview any	Unable to interview any	Unable to interview any
Total	753	197	171	86.8 %

3.6 DATA COLLECTION

Data collection was conducted through standardised interviews using a structured questionnaire. Each interview was conducted by the researcher. An interpreter was required for 68% of interviews where language barriers were encountered.

Data collection was carried out from February to May 2004 during the company's working hours at the three study sites in Gaborone and Serowe. In most cases, the interviews were conducted at the site offices, although at times interviews took place in some of the partially constructed buildings, as this was the only private space available. Measures were taken in every instance to ensure that these interviews were conducted in private and confidentiality was assured.

The first stage of data collection involved approaching the company's senior management for their authorisation to carry out these interviews. Approval was then sought from the managers of each construction site, as a day's work was lost for every fifteen workers interviewed. The managers of all the sites apart from Francistown granted permission for the interviews to take place. A suitable location for interviews was identified at each site.

Managers identified when workers would be available to be interviewed depending on the progress of construction work. At each site efforts were taken to ensure that the research was explained to workers and their supervisors during staff meetings prior to the commencement of data collection. This was done in order to obtain support of the workers and supervisors.

At the beginning of each interview the respondent was informed of the purpose of this research and nature of the interview. The information sheet (see Appendix 2) was read out to the participant in their preferred language. Consent to participate in the research was then requested (see Appendix 3). Participants were assured that their confidentiality would be protected, and advised of their right to refuse to answer any question or partake in the study without any repercussions. Informed verbal consent was obtained from the subject before the interview could start.

3.6.1 SURVEY INSTRUMENT

The questionnaire consisted of 69 questions, which usually took twenty-five minutes to complete (see Appendix 1). There were seven sections, corresponding to the study's first seven objectives, which investigated respondents': (i) socio-demographics, (ii) migration patterns, (iii) living conditions, (iv) alcohol consumption, (v) gender attitudes, (vi) awareness of HIV/AIDS and (vii) sexual risk behaviour.

This questionnaire involved a wider selection of topics than those covered in the KAP studies (studies of respondent's knowledge, attitudes, and behaviour) and so had to be designed afresh from various surveys on migration and HIV/AIDS. Unlike other questionnaires this study asked only four questions about respondents' HIV/AIDS knowledge. Given the widespread awareness of HIV/AIDS in Botswana (UNDP, 2002; NACA, 2003a) through the media and schools, it was felt that migration would have only

a limited effect upon respondents' level of awareness.

Most of the questions were closed-ended. The response categories were expanded after the pilot study. In many cases a category was also provided for 'other' responses that may not have been previously envisaged. The response categories were coded to facilitate data entry. Four open-ended questions were added to explore the participants' perceptions and viewpoints.

The questionnaires were mainly administered in English, one of the two official languages of the country. However, 68% of respondents were more comfortable using Setswana so interpreters were used.

3.7 DATA ANALYSIS

Initially, a descriptive analysis was carried out to describe construction workers': (i) socio-demographic characteristics, (ii) migration patterns, (iii) living conditions, (iv) alcohol consumption, (v) gender attitudes, (vi) awareness of HIV/AIDS and (vii) sexual behavioural patterns. Since most variables were categorical, these were presented in the form of frequency tables and bar charts. The central tendency and variance for continuous data such as respondent's age and years of schooling were calculated resulting in values for the mean and standard deviation.

Bivariate analyses were carried out to determine whether there were associations between respondents' socio-demographic characteristics, alcohol consumption, gender attitudes, and sexual behaviour patterns (which may place them at a greater risk of HIV infection). A Pearson chi-square test was used for variables with categorical values, while a Fisher Exact test was used for variables with small frequencies. An independent two-tailed t-test was used for continuous variables. Seven forms of sexual risk behaviour were identified.

These included: (i) having multiple partners, (ii) having casual girlfriends, (iii) transactional sex, (iv) sex with commercial sex workers, (v) one-night sex, (vi) sex with men, and (vii) unprotected sex. A 95% confidence interval was used to determine statistical significance. Therefore, a P-value of < 0.05 was considered to be significant.

A multivariate analysis was then used in order to calculate the strength of associations while at the same time controlling for confounding variables. Stepwise logistic regression models were built to determine factors associated with having multiple partners, casual girlfriends, transactional sex and unprotected sex. It was not possible to build models exploring one-night sex, sex with commercial sex workers and sex with men, as these practices occurred rarely in the study population. Data analysis was carried out using two statistical software packages: SPSS version 12.0 and STATA version 8.0.

3.8 PILOT STUDY

A pilot survey was carried out at the beginning. The pilot study involved interviews with ten local Batswana, including six construction workers at a building site in Gaborone and four local professionals involved in HIV/AIDS. The construction workers interviewed included labourers and women who were excluded from the study population. The purpose of this pilot study was to determine whether questions were understandable and to estimate the average time taken to complete the questionnaire. The pilot study was also used to check if the pre-coded response categories were appropriate and whether more responses needed to be added.

The results from this pilot study led to changes of several questions in order to make the wording easier for local Batswana to understand. New response categories were added to some questions concerning participant's language group, trade, social activities etc. The time taken to complete these pilot interviews was observed to range from twenty to thirty

minutes. Certain questions were found to be too sensitive and thus had to be either removed or reworded. For this reason one of the original questions concerning what form of sex respondents engaged in was removed. Given the illegal nature of homosexuality and strong cultural disapproval within Botswana, one of the original questions asking “have you had sex with someone of the same sex as you?” was found to be too imposing. As a result a more indirect question was tried, asking “Do some construction workers when away from home have sex with men?” From the pilot study it was also observed that the structure of this questionnaire was too direct with many personal questions occurring near the beginning of the interview. Changes were made so that direct questions concerning respondents' use of condoms were found at the end of the questionnaire following introductory questions about respondents' background and family.

The pilot study also revealed that a large proportion of respondents were reluctant to sign the consent form because they were suspicious that their answers would be seen by management and result in workplace discrimination or dismissal. As a result the consent form was read to participants and verbal consent was obtained.

3.9 ETHICAL CONSIDERATIONS

This research was approved by the Committee for Research on Human Subjects (Medical) of the University of the Witwatersrand. The clearance certificate of protocol number M040217 can be found under Appendix 5. Permission was obtained from the managing director of Murray and Roberts Construction Company in Botswana (Appendix 4.) as well as from each site manager to carry out this study within the company.

Before the commencement of each interview, an information sheet (Appendix 2.) was read out to each participant explaining the nature and purpose of the interview. Each respondent was informed that he had the option of refusing to participate and was not

required to answer any questions he did not feel comfortable with. Participants were also informed that the questionnaires were anonymous and that their answers were strictly confidential. They were told that their employment situation within the company would not be affected by whether they choose to participate or by the responses they gave. Each participant was asked if he would give his consent verbally following this explanation.

A unique number was used on each questionnaire. Neither the respondents' name nor any other particular details that would identify the individual were inscribed on the questionnaires in order to ensure confidentiality.

3.10 LIMITATIONS OF THE STUDY

- The cross-sectional design of this study whereby respondent's sexual behaviour and migration patterns were measured at the same point in time made it difficult to establish a temporal relationship. It was difficult to ascertain whether respondent's migration patterns, sexual attitudes etc. preceded and so caused their sexual risk behaviour. In an association, for example between respondents' perception of HIV risk and engagement in transactional sex, it could be difficult to determine whether the respondents' low perception of HIV risk caused them to engage in transactional sex or resulted from their engagement in transactional sex.
- The absence of a control group of non-migrant workers meant that the study was unable to determine whether its findings were unique to migrant workers. The study could not identify differences between migrant and non-migrants' sexual behaviours and contributing factors. Rather, it could only establish for migrant workers whether certain factors contributed to their engagement in sexual risk behaviours.
- There were limitations in accessing all the workers at construction sites given the

restrictions of project deadlines and continual movements of workers. This led to a sampling bias whereby the Francistown site could not be included due to their restrictive deadlines. It also led to a lower response rate amongst the managerial and supervisory staff who proved to be far less accessible.

- An interpreter was used for 68% of interviews. This led to potential errors being generated through the translation process. The different locations involved led to different interpreters being recruited for each place. The need to use four different interpreters may have contributed to possible errors in the different ways respondent's answers may have been interpreted. Interpreters were trained to do a verbatim translation of the individual items in the questionnaire.
- The reliance of this study upon self-reported behaviour increased the likelihood of measurement error occurring. Due to the sensitive nature of this study, participants were less likely to report engaging in what may be socially unacceptable behaviour such as sexual encounters with men or commercial sex workers. As a result, there was likely to be an under-reporting of alcohol consumption, sexual risk behaviours and the potential of over-reporting respondent's condom use. Although the interviews were carried out in a neutral unbiased fashion with assurances of confidentiality, there was still a substantial risk of biased self-reporting to the more sensitive personal issues.
- The problem of recall bias could potentially occur through differences between respondent's recollection of events and what actually happened, due to the effect of time lag. While efforts were made to minimise this through focussing on events which took place recently, there were still some questions which needed to cover longer periods of time in the past. Questions of this nature with the potential for recall bias involved asking, for example, about having extra girlfriends over the last five years.

As a result of recall bias there was a greater likelihood of events, which took place in the past suffering from under-reporting.

- Within the questionnaire the validity of self-reported behaviour has not been measured through the use of repeat questions with different formats. This was clearly a missed opportunity for assessing the accuracy of self-reported behaviour.

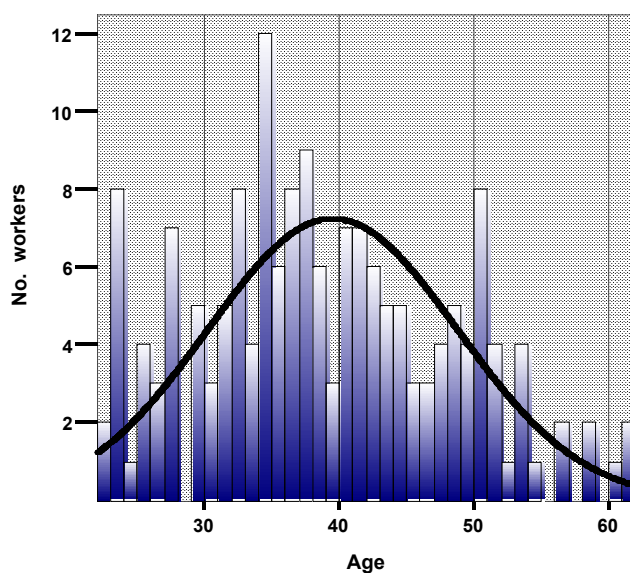
4.0 RESULTS

Chapter four outlines the results of this survey. Firstly, a description is provided of the sample covering respondents' (i) socio-demographics; (ii) migration patterns; (iii) living conditions; (iv) alcohol consumption; (v) gender attitudes; (vi) awareness of HIV/AIDS; (vii) sexual risk behaviours, and (viii) company's response (section 4.1 - 4.8). This is followed by a bivariate analysis of the contributing factors associated with workers' sexual risk behaviours (section 4.9 – 4.14). Finally, a multivariate logistic regression was used to examine which of these factors contributed significantly to workers' engagement in sexual risk behaviours (section 4.15 – 4.19). The final results of the logistic regression are presented in section 4.20.

4.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

4.1.1 Age distribution

Fig 4.1 Age distribution of workers



The majority, 168 of the 171 workers, were able to report their age. Of these, 25 workers (14.9 %) were under 30 years of age, 66 workers (39.3 %) were 30 – 39 years old, 48

workers (28.6 %) were 40 – 49 years old, and 29 workers (17.3%) were 50 years and older. The mean age was 39.5 years with a standard deviation of 9.3 years. The median age was 38 years. The age range was 22 to 62 years. Figure 4.1 shows a histogram illustrating the age distribution of workers with a normal frequency curve.

4.1.2 Place of birth

Most of the 171 respondents, 167 (97.7 %), were born in Botswana. Only four respondents (2.3 %) originated from outside the country. Of these, three came from Zimbabwe and one from England. To summarise the results, Botswana's 22 health districts were grouped into five regions. Figure 4.2 shows the distribution of workers across the five regions of Botswana. The vast majority, 157 (94.0%) of the 167 respondents, originated in the Eastern part of Botswana, compared to only 10 (6.0%), who came from the Western part.

The Northeast was the most common region where 67 workers (38.3%) were born. The second most common region was the Southeast including Gaborone, the capital city, where 56 workers (33.5%) originated. Another 37 workers (22.2%) came from the Central East region, which included the construction site in Serowe.

It was found that most workers identified their place of birth as their home village. In the case of 156 (91.2%) of the 171 workers, their relatives and extended families still lived in the locality near their place of birth.

4.1.3 Home language

Respondents were asked about their first language. A total of 12 languages were spoken by respondents, four foreign and eight local languages from within Botswana. Setswana, the country's official language, was the most prevalent, spoken by 114 (66.7%) workers. The second most common language was Kalanga, spoken by 46 (26.9%) workers. Five other local languages, Kgalagadi, Mbukushu, Birwa, Tswapong, and Subiya, were spoken by six

workers. Despite the multitude of languages, all Batswana workers spoke Setswana fluently, the main language at the workplace. The four foreign languages of Zulu, Ndebele, Shona and English were spoken by 3.6% of workers. Table 4.1 shows the distribution of languages spoken by both senior staff and skilled workers. This table reveals how Setswana was spoken by a much smaller proportion of senior staff (51.6%) than skilled workers (70.0%). Nearly all foreign languages were spoken by senior staff.

Fig. 4.2 Location of workers' place of birth across Botswana

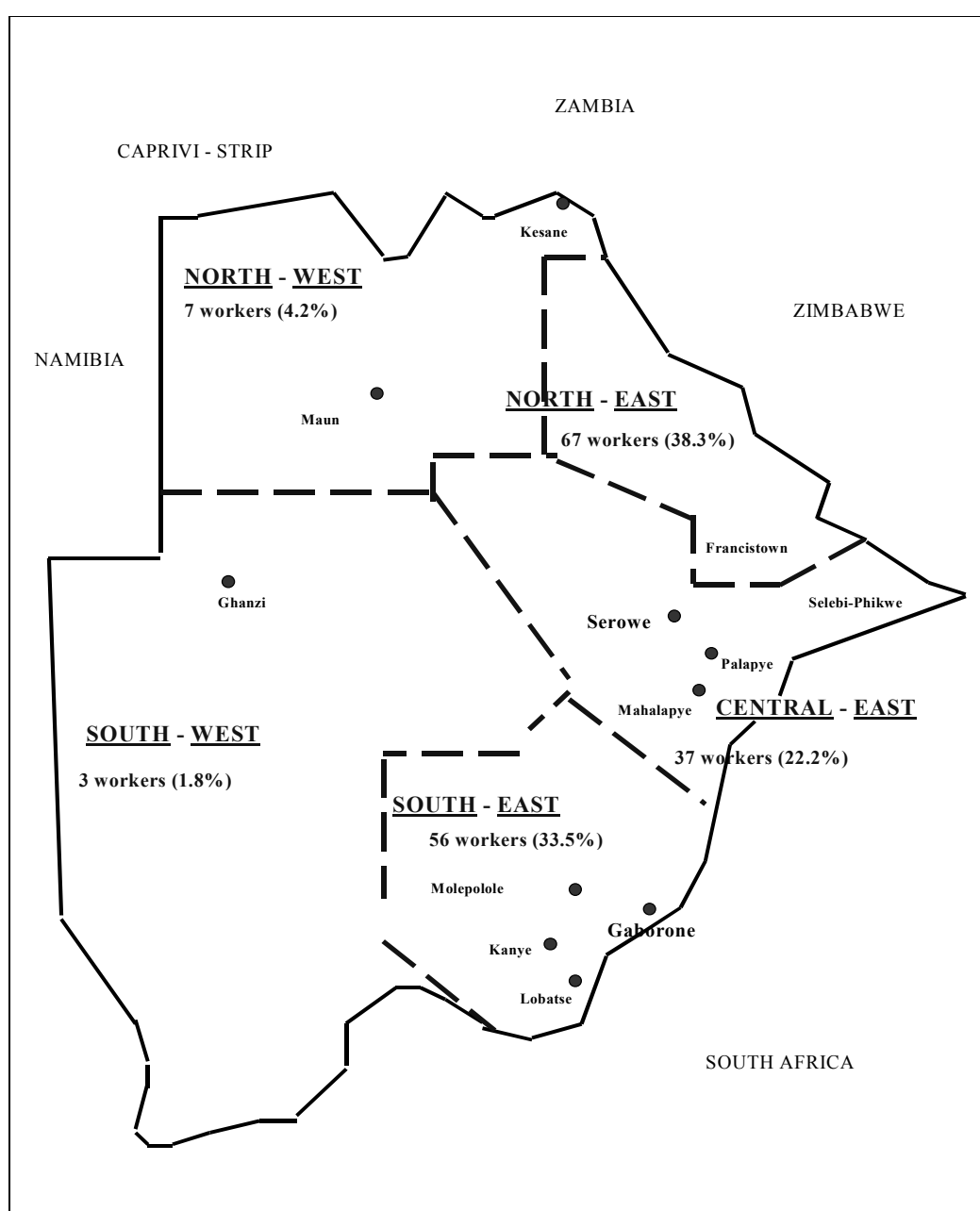


Table 4.1 Distribution of worker's first language according to their employment position

		EMPLOYMENT POSITION					
		Senior		Skilled		Total	
HOME LANGUAGE	Setswana	16	51.6%	98	70.0%	114	66.7%
	Kalanga	9	29.0%	37	26.4%	46	26.9%
	kgalagadi	0	.0%	1	.7%	1	.6%
	Mbukushu	0	.0%	1	.7%	1	.6%
	Birwa	0	.0%	1	.7%	1	.6%
	Tswapong	1	3.2%	0	.0%	1	.6%
	Subiya	0	.0%	1	.7%	1	.6%
	English	1	3.2%	0	.0%	1	.6%
	Zulu	1	3.2%	0	.0%	1	.6%
	Shona	2	6.5%	0	.0%	2	1.1%
	Ndebele	1	3.2%	1	.7%	2	1.1%
	Total	31	100.0%	140	100.0%	171	100.0%

4.1.4 Education and training

The vast majority, 139 (81.8%) of the 170 respondents, had attended school. Only 31 workers (18.2%) never received an education. While 99 (58.2%) of the 170 respondents completed their primary school education and nine (6.5%) completed secondary school, only three workers (1.8%) completed further education to degree or diploma level. The median level of schooling achieved was standard seven, the last year of primary school. Figure 4.3 shows the percentage distribution of schooling completed by construction workers.

A comparison between senior staff and skilled workers revealed a significant difference in the level of schooling completed. The mean number of years completed by senior staff, 7.87 years (95% CI: 7.45 to 8.29) was significantly higher than the mean number of years completed by skilled workers, 6.61 years (95% CI : 6.36 to 6.86). An independent two-tailed t-test resulted in a significance of $p = 0.017$ ($t = 2.42$).

When examining the influence of age upon education, it is evident that younger workers

have generally received more schooling than older workers. A total of 92% of workers in their twenties attended secondary school compared to 6.8% of workers in their fifties and sixties. Only 8.0% of workers in their twenties have never been to school compared to 27.6% of workers in their fifties and sixties. Table 4.2 shows the distribution of worker's level of schooling according to their employment position and age group. A 2-tailed t-test used to compare educational levels between workers above and below the median age of 38 years showed a significant difference, with a significance of $p=0.001$ ($t= -3.35$). The mean number of school years completed by workers under 38, 7.65 years (95% CI: 7.01 – 8.29), was significantly higher than the mean number of school years completed by workers of 38 years and older, 6.22 years (95% CI: 5.65 – 6.79)

In terms of training, only 61 (35.7%) of the 171 respondents have taken further vocational training. Of these, 44 (72.1%) workers have undergone vocational training for more than one year.

Figure 4.3 Percentage distribution of schooling completed by workers

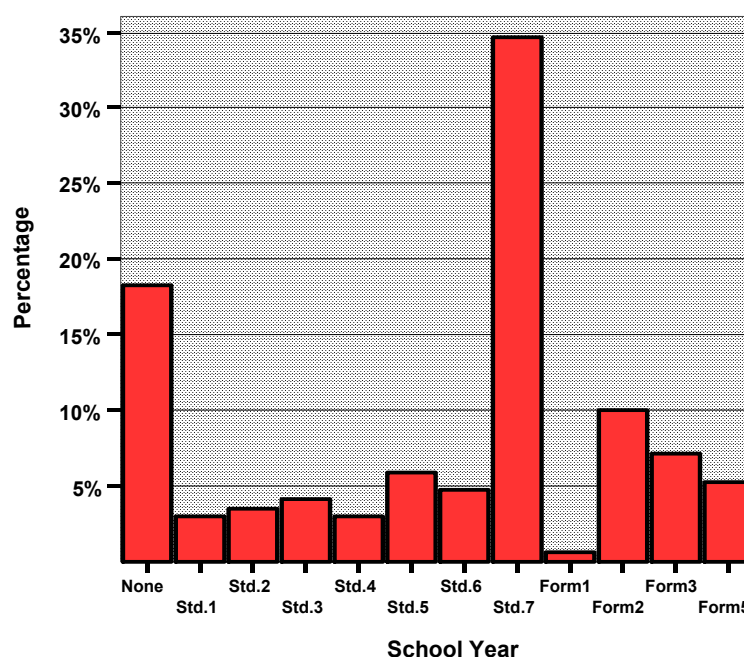


Table 4.2 Workers' level of schooling according to employment position & age group

		EMPLOYMENT GROUP		AGE GROUP			
		Senior	skilled	20 - 29	30 - 39	40 - 49	50s & 60s
SCHOOL LEVEL ACHIEVED	None	.0%	22.3%	8.0%	13.6%	25.0%	27.6%
	Std.1	.0%	3.6%	.0%	1.5%	2.1%	10.3%
	Std.2	3.2%	3.6%	.0%	4.5%	4.2%	.0%
	Std.3	.0%	5.0%	.0%	6.1%	4.2%	3.4%
	Std.4	.0%	3.6%	.0%	3.0%	4.2%	3.4%
	Std.5	.0%	7.2%	.0%	9.1%	6.3%	3.4%
	Std.6	6.5%	4.3%	.0%	6.1%	8.3%	.0%
	Std.7	64.5%	28.1%	.0%	39.4%	39.6%	44.8%
	Form1	.0%	.7%	4.0%	.0%	.0%	.0%
	Form2	6.5%	10.8%	44.0%	9.1%	.0%	.0%
	Form3	.0%	8.6%	28.0%	3.0%	4.2%	3.4%
	Form4	.0%	.0%	.0%	.0%	.0%	.0%
	Form5	19.4%	2.2%	16.0%	4.5%	2.1%	3.4%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

4.1.5 Religious commitment

Religious commitment was measured by the range of religious activities respondents reported to be involved in within their social life. Fifty-seven (33.3%) of the 171 respondents reported that going to church was one of their main social activities. Church attendance was found to be significantly associated with not consuming alcohol resulting in a Pearson chi-square value of $p < 0.001$. Of the 57 workers who reported that they drank alcohol, the vast majority, 53 workers (93.0%), did not attend church.

4.1.6 Marital status

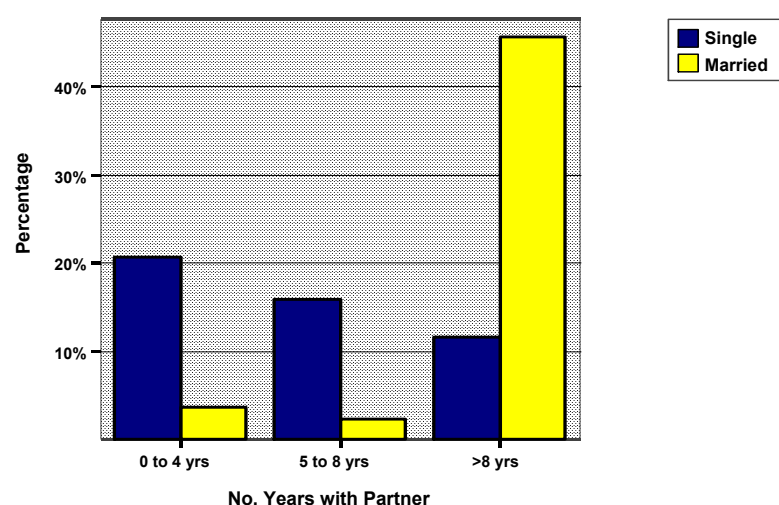
Being married was the most common status involving 85 (49.7%) of the 171 respondents. A further 76 workers (44.4%) were single and had never married, most of whom were in relationships with long-term partners (97.4%). A further 10 men had been widowed, separated or divorced from their wives (these men will be counted as currently 'single' non-married men). Five of these men currently had partners.

When examining the duration of workers' relationships, it was found that the majority, 94

workers (55.0%), had been with their wife or long-term partner for over eight years. A further 30 workers (17.5%) had been with their partner for five to eight years and 40 workers (23.4%) had been with their current partner for less than five years. The mean duration of relationships was five to eight years, while the median was over eight years.

Figure 4.4 shows the duration of workers' relationships according to their marital status. The bar chart illustrates how the majority of single men have been with their partner for less than eight years, whereas most married men have been with their partner for more than eight years. Married men were found to have significantly longer relationships than single men, with in a Pearson chi-square value of $p < 0.001$.

Fig 4.4 Duration of workers' relationships according to their marital status

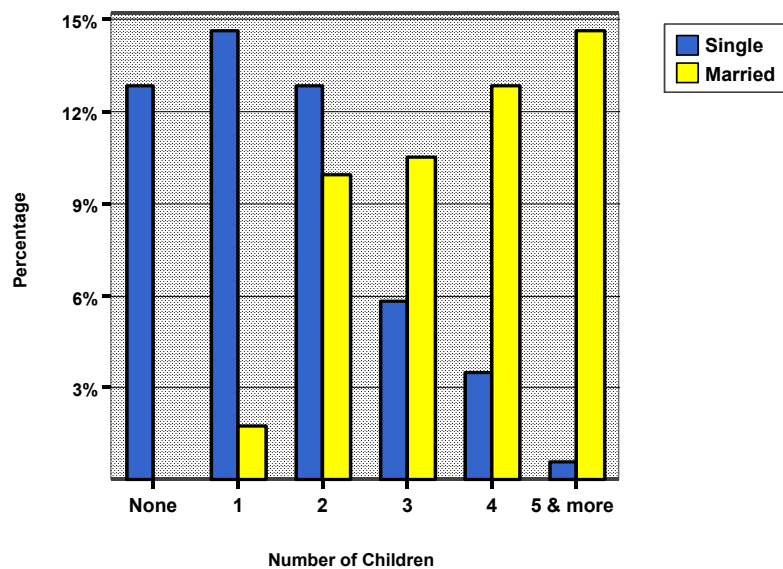


4.1.7 Children

The number of children belonging to each worker ranged from zero to thirteen. Of the 171 respondents, 22 workers (12.9%) had no children, while 28 (16.4%) had one child and 39 (22.8%) had two children. 28 workers (16.4%) had three children, while a further 28 (16.4%) had four children. Twenty-six workers (15.2%) had between five and 13 children. The median number of offspring was two children.

The mothers to these children were reported to be workers' wives in the case of 80 workers (47.1%), and respondent's long-term partners in 38 (22.4%) cases. Only 14 workers (8.2%) had children from different partners. Figure 4.5 shows the number of children workers have had according to their marital status. This bar chart indicates that most single, unmarried men have had fewer than three children, whereas most married men had more than three children. Married men were found to have significantly more children than single men, with a chi-square p-value of < 0.001 .

Fig. 4.5 Percentage of workers with children according to their marital status

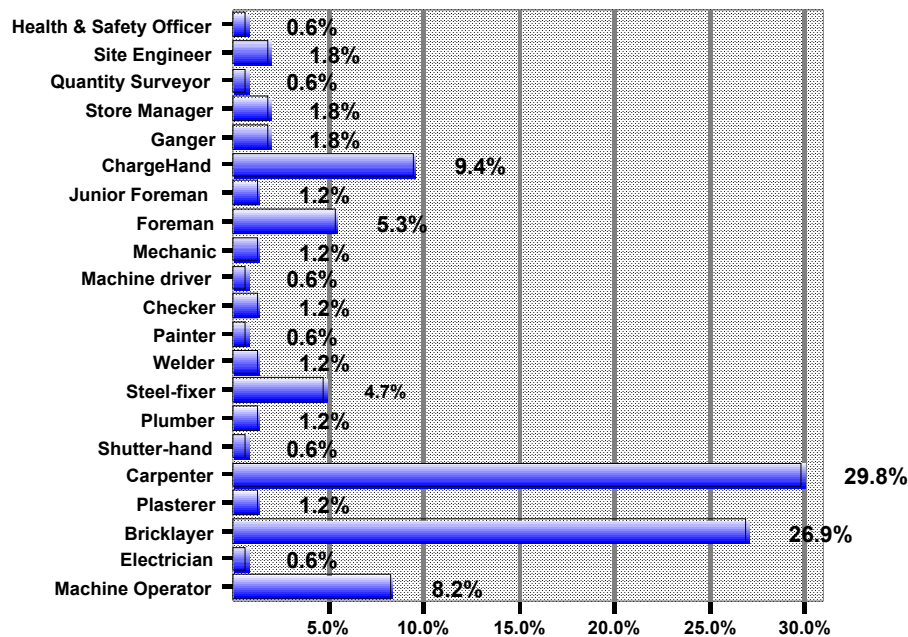


4.1.8 Nature of work and employment position.

Given that migrant construction workers eligible for the study were either skilled/semi-skilled or supervisory workers, unskilled labourers were not included. As a result, the types of work represented here are all skilled trades or supervisory positions. Only 31 (18.1%) of the 171 respondents worked in supervisory/management roles. The majority, 104 respondents (81.9%), were skilled & semi-skilled workers. The two most common trades or specialisms were carpentry, 51 workers (29.8%), and bricklaying, 46 workers (26.9%). Amongst supervisory and management staff, the most common position was that

of charge-hand, involving 16 workers (9.4%). Figure 4.6 is a bar chart showing the percentage of respondents involved in each type of work. The first eight are managerial / supervisory roles, followed by the various ‘trades’ carried out by skilled workers.

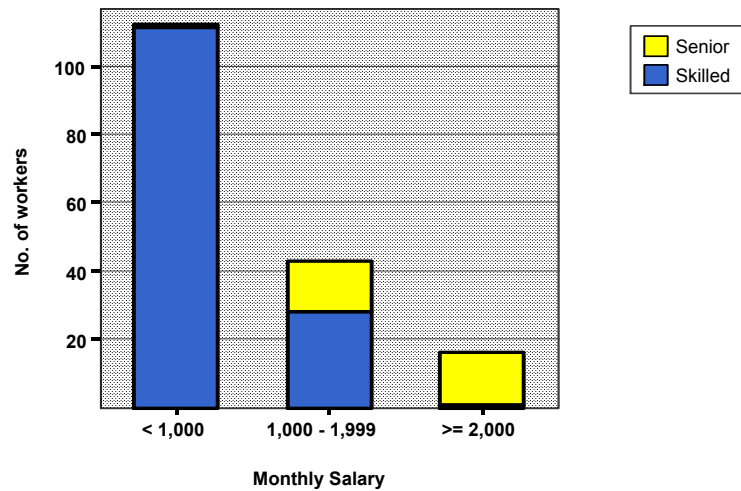
Fig. 4.6 Percentage of respondents in different types of work



4.1.9 Salary distribution

Respondent's monthly income was recorded in 500 Pula intervals. Monthly salaries varied from under 500 Pula (750 Rand) to over 3,000 Pula (4,500 Rand). The mean and median salaries fell between 500 and 999 Pula (750 to 1,499 Rand). 110 workers, 64.3% of the 171 respondents, reported salaries in this category. Figure 4.7 shows the distribution of monthly salaries for both skilled and senior staff. As this stacked histogram indicates, skilled workers earn significantly less income than senior staff, with a Pearson chi-square value of $p < 0.001$.

Fig. 4.7 Distribution of workers' monthly salary according to their employment position



4.2 MIGRATION PATTERNS

This section examines the three migration patterns observed to be taking place amongst migrant construction workers: - (i) regular migration between the workplace and their long-term partner; (ii) migration between the workplace and their home village; (iii) migration across construction sites.

4.2.1 Migration from workplace to partner

The distance over which workers needed to travel to visit their main partner varied greatly between zero km and 1,100 km. The mean distance of all respondents was 257.25 km with a large standard deviation of 255.17 km. The median distance was similar to the mean distance, at 225.00 km, indicating that 50% of workers had to migrate over 225 km to visit their main partner. The most common (mode) distance was 300 – 399 km. Figure 4.8, a histogram, shows the distribution of distances between workers and their main partner. Of the 163 respondents with a wife / long-term partner, only 44 (27.0%), currently stayed in the same location as their partner and so did not have to migrate periodically. The majority, 39 (88.6%) of these 44 workers, lived with their main partner on a daily basis. 64% of these partners had migrated from their homes to live near the workplace.

Fig. 4.8 Distribution of distances between workers and their main partner

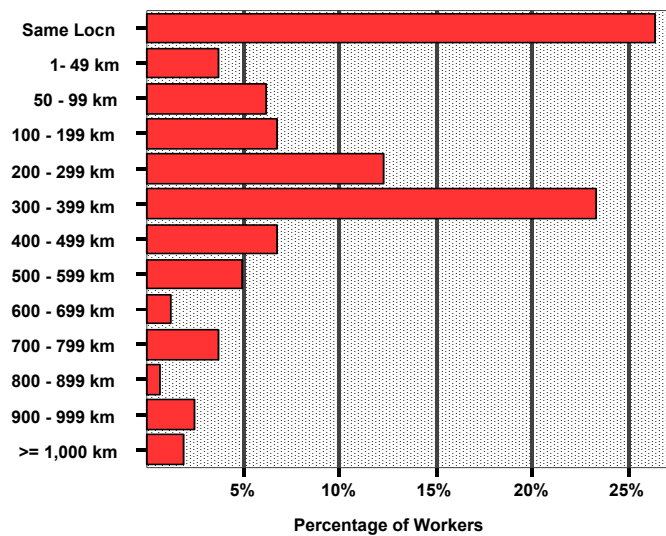


Table 4.3 shows the distribution of distances between workers and their main partner at both work locations, for all the respondents including those who stayed with their partner. There was a significant difference between the distance workers stationed in Gaborone migrated compared to those in Serowe. Whereas 65.3% of Gaborone's workers were less than 100km away from their partners, only 13.2% of Serowe's workers were less than 100km away. The mean distance Serowe's workers had to travel to visit their partners, 336.23 km (95% CI: 309.08 km to 363.38 km), was significantly further than Gaborone's workers, 157.43 km (95% CI: 132.31 km to 182.55 km), according to a two-tailed t-test with a significance of $p < 0.001$ ($t = -4.73$).

Table 4.3 Distance between workers and their main partner according to work location

		Work Location		
		Gaborone	Serowe	Total
Distance between Main Partner and Workplace	<100	65.3%	13.2%	36.2%
	100 - 299	4.2%	29.7%	18.4%
	300 - 499	18.1%	40.7%	30.7%
	500+	12.5%	16.5%	14.7%
	Total	100.0%	100.0%	100.0%

When examining the frequency with which workers visited their main partner, figure 4.9 shows that the majority, 82 workers, (50.0%), visited their partners once a month. The mean and median frequency of workers visiting their partners was also once a month.

18.4% of workers visited their partner more frequently during the weekends in addition to 25.4% of workers who stayed with their partner on a daily basis. 5.5% of workers visited their partner less than once a month. The frequency differed greatly, though, according to the worker's location.

Fig. 4.9 Percentage distribution of the frequency with which workers visit their main partner

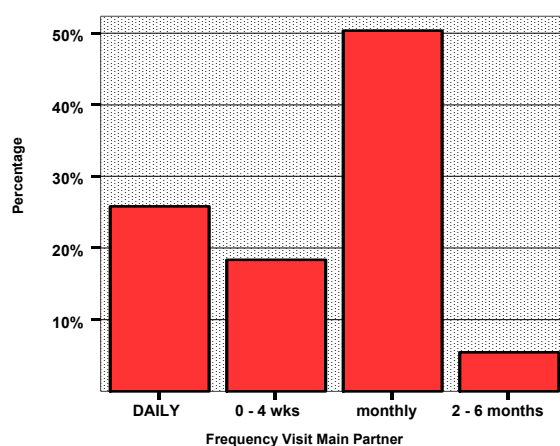


Table 4.4 shows the frequency with which workers visited their main partner, according to their work location. Significantly more workers in Gaborone visited their partners on a daily basis (50.0%) compared to workers in Serowe (6.6%), with a chi-square value of $p < 0.001$. The majority of Serowe's workers, 62.2%, visited their partner on a monthly basis compared to 34.7% of Gaborone's workers.

Table 4.4 Frequency workers visit main partner according to work location

		Work Location		
		Gaborone	Serowe	Total
Frequency visit main Partner	2 - 6 months	4.2%	6.6%	5.5%
	monthly	34.7%	62.6%	50.3%
	0 - 4 wks	11.1%	24.2%	18.4%
	DAILY	50.0%	6.6%	25.8%
	Total	100.0%	100.0%	100.0%

The distance between workers and their main partner influenced how frequently they were able to visit them. Table 4.5 shows the frequency with which workers visited their main partner according to the distances which separated them. As can be seen from this table,

the frequency with which workers visited their main partner was influenced directly by whether they lived more or less than 100 km away. Of workers whose partners lived less than 100 km away, 71.2% were able to see them on a daily basis, which was not possible for workers whose partners were more than 100km away. However it must be noted that the vast majority of those who saw their partner on a daily basis were actually staying with their partner most of the time (37 out of the 41 workers). When these respondents were removed from the group it was found that the majority living less than 100km away actually saw their partner on a weekly basis. There was still a clear difference though between these workers and the majority with partners more than 100 km away who visited them on a monthly basis. Workers placed over 500 km away from their partners were also unable to visit them on a weekly basis and usually visited their partners on a monthly basis (78.3%) or once every two to six months (21.7%).

Table 4.5 Frequency workers visit main partner according to distance from the workplace

		Distance of main Partner from workplace			
		<100	100 - 299	300 - 499	500+
FREQUENCY visit main Partner	2 - 6 months	1.7%	3.3%	4.0%	21.7%
	monthly	10.2%	70.0%	72.0%	78.3%
	0 - 4 wks	16.9%	26.7%	24.0%	.0%
	DAILY	71.2%	.0%	.0%	.0%
	Total	100.0%	100.0%	100.0%	100.0%

Workers were asked whether they would like to see their partner more often. Of the 164 respondents, 90 (54.9%) would like to visit their partner more often, whereas 24 (14.6%) reported that they did not want more frequent visits. Fifty workers (30.5%) reported that there was ‘no need’ given that they already saw their partner on a daily basis. Table 4.6, outlines two of the most common difficulties which prevented workers from visiting their partners more often. Of the 110 responses, the most common difficulty reported by 49 workers (44.5%) was transport costs, followed by the problem of having limited time available (29.1%).

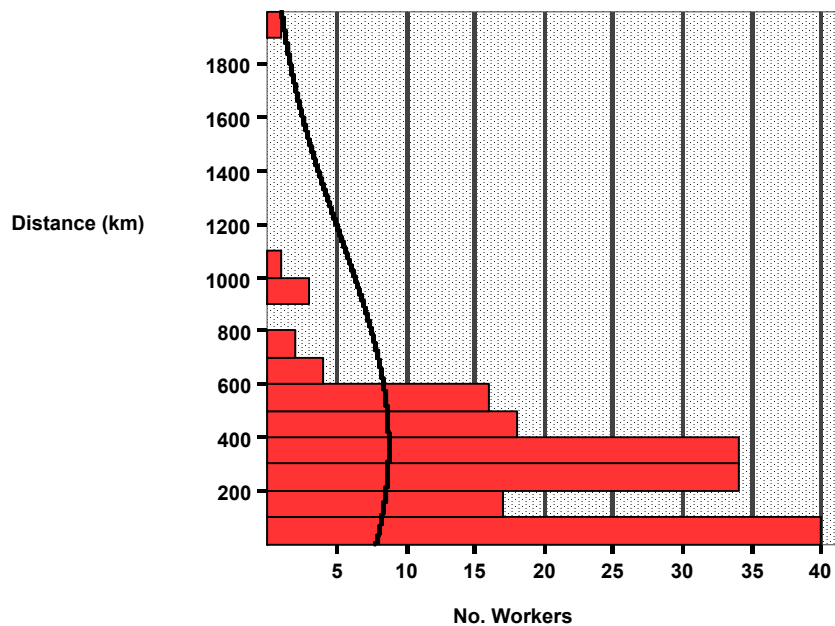
Table 4.6 Difficulties workers experienced visiting their main partner

Difficulty	No.	Percent
Limited time available	32	29.1%
Long Distance	23	20.9%
Transport Cost	49	44.5%
No Accom here Partner	2	1.8%
Other	4	3.6%
Total Responses	110	100.0%

4.2.2 Migration from workplace to home village

Figure 4.10 shows a histogram of the distances workers had to migrate to visit their home village. Of the 171 respondents, the majority, 163 workers (95.3%), were not currently staying at their home village. The largest number, 40 workers (23.4 %), lived within 100 km of their home village followed by 33 workers (19.3%) who lived 200 – 299 km from home. The mean distance to their home village was 365.07 km with a large standard deviation of 782.23 km. 50% of workers had to migrate over 290km, the median distance, to visit their home village.

Fig. 4.10 Frequency distribution of distances between workers and their home village



4.2.3 Migration across construction sites

Over the last twelve months, construction workers have been sent to between one and four different locations. Out of 170 respondents, 82 (48.2%) worked in one location, 56 (32.9%) in two locations, 26 (15.3%) worked in three locations and six (3.5%) had to migrate across four locations in the last year. The median number was two work locations in the last year. Over the last three years, construction workers had been sent to a range of one to eight different locations. The median and the mode number of locations were two, which accounted for 48 (29.8%) workers. Of the 161 respondents, 36 (22.4%) remained in one location, while 34 (21.1%) worked at three locations, and 30 (18.6%) were sent to four locations. Only 10 workers (6.2%) were placed at five locations, two (1.2%) at six locations and one worker (0.6%) at eight different locations over the last three years.

The number of construction sites (which may have been at one and the same location), workers had been sent to over the last three years ranged from two to eight sites. Both the mode and median number of construction sites was three sites. Of the 162 respondents, no worker remained at one construction site, while 26 workers (16.0%) were sent to two sites and 70 workers (43.2%) were placed at three sites. 49 workers (30.2%) were placed at four sites, while 13 workers (8.0%) were placed at five sites and only four workers (2.4%) were placed at more than five sites.

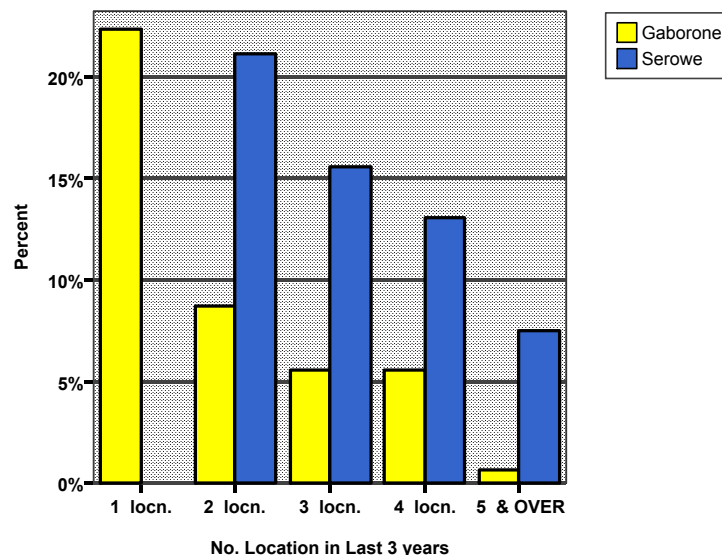
Table 4.7 No. of construction sites respondents worked at according to the no. of locations.

		NUMBER OF LOCATIONS IN LAST 3 YEARS					Total
		1 locn.	2 locn.	3 locn.	4 locn.	Over 4 locn.	
NO. OF SITES IN LAST 3 YEARS	1 site	0	0	0	0	0	0
	2 sites	7	18	0	0	0	25
	3 sites	19	24	26	1	0	70
	4 sites	9	6	7	27	0	49
	5 sites	1	0	1	1	10	13
	6 sites	0	0	0	1	1	2
	7 sites	0	0	0	0	1	1
	8 sites	0	0	0	0	1	1
	Total	36	48	34	30	13	161

Table 4.7 shows the number of construction sites respondents worked at over the last three years, according to the number of locations they were sent to during this period of time. The table shows how in the majority of cases, workers moved between construction sites in the same locality. Under the column for one location, seven respondents (19.4%) worked at two different sites, while 19 (52.8%) worked at three sites and nine (25.0%) worked at four sites within the last three years.

The number of locations covered by workers over the last three years was significantly greater amongst those currently working in Serowe than in Gaborone. The median number of locations covered by Serowe's workers was three locations whereas the median number of locations covered by Gaborone's workers was one location. Figure 4.11 shows the percentage of workers placed at different locations over the last three years according to their current workplace.

Fig. 4.11 Percentage of workers placed at different locations according to their current workplace



The mode number of locations over the last three years for workers in Gaborone was one location, whereas for those in Serowe it was two locations. On the other hand, a comparison of the number of construction sites covered shows no significant difference

between workers in Gaborone or Serowe. The mean and the median number of construction sites for both locations was found to be three sites accounting for 35 workers (50.7%) in Gaborone and 35 workers (37.6%) in Serowe.

4.3 LIVING CONDITIONS

In terms of living conditions, accommodation for workers was provided by the company at the construction site, known as ‘on-site accommodation’, or had to be arranged by workers in the surrounding locality, known as ‘off-site accommodation’. Of the 171 respondents, the majority, 122 (71.3%), currently lived in off-site accommodation. Only 49 workers (28.7%) lived in on-site accommodation and these were all located in Serowe. A comparison of the two locations in Table 4.8 showed that significantly more workers lived off-site in Gaborone (100.0%) than in Serowe (49.0%) with a chi-squared value of $p < 0.001$.

Table 4.8 Nature of worker’s accommodation according to their work location

		WORK LOCATION					
		Gaborone		Serowe		Total	
On or Off - Site Accommodation?	on-site	0	.0%	49	51.0%	49	28.7%
	off-site	75	100.0%	47	49.0%	122	71.3%
	Total	75	100.0%	96	100.0%	171	100.0%
Type of Accommodation?	Part of Room	1	1.3%	1	1.0%	2	1.2%
	Room	62	82.7%	80	83.3%	142	83.0%
	Part of House	3	4.0%	3	3.1%	6	3.5%
	My Own Home	9	12.0%	5	5.2%	14	8.2%
	Other	0	.0%	7	7.3%	7	4.1%
	Total	75	100.0%	96	100.0%	171	100.0%
Share Accommodation with Who ?	No-one	26	34.7%	74	77.1%	100	58.5%
	Workers	1	1.3%	8	8.3%	9	5.3%
	Long-t PARTNER	24	32.0%	5	5.2%	29	17.0%
	Temp. Girlfriend	3	4.0%	0	.0%	3	1.8%
	My Children	4	5.3%	0	.0%	4	2.3%
	My Family	10	13.3%	2	2.1%	12	7.0%
	Relatives	6	8.0%	5	5.2%	11	6.4%
	Friends	1	1.3%	2	2.1%	3	1.8%
	Total	75	100.0%	96	100.0%	171	100.0%

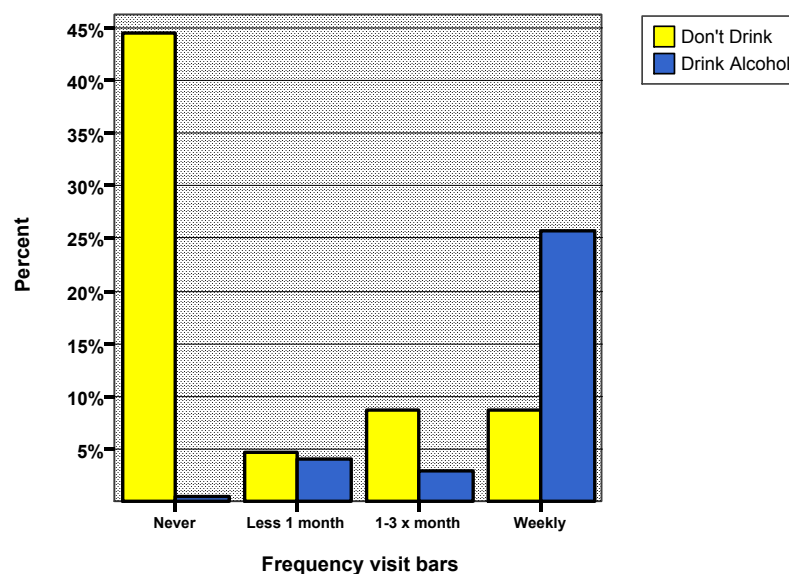
The most common type of accommodation, whether on-site or off-site, were individual rooms which 142 workers (83.0%) stayed in by themselves. The second most common form of accommodation in the case of 14 workers (8.2%) was their own home, which they could return to after work.

The majority of respondents, 100 workers (58.5%), did not share their accommodation with anyone. 29 workers (17.0%) currently shared accommodation with their long-term partner, while 3 workers (1.8%) shared with their casual girlfriend. A further 27 workers (15.7%) shared accommodation with their family, children, or relatives. Only nine workers (5.3%) reported sharing their accommodation with other workers.

4.4 ALCOHOL CONSUMPTION

Only 57 workers (33.3%) reported drinking alcohol. The majority, 114 workers (66.7%), reported that they never consumed alcohol. When questioned about going to bars, 77 workers (45%) reported going to bars while the majority, 94 workers (55.0%), reported never visiting bars.

Fig. 4.12 Frequency workers visit bars according to whether they drunk alcohol



As figure 4.12 shows, some workers who do not drink alcohol nevertheless visit bars. According to table 4.9, of the 114 workers who don't drink alcohol, eight (7.0%) visit bars less than once a month, 15 (13.2%) visit one to three times a month, and a further 15 workers (13.2%) visit once a week (13.2%). In total 38 workers, (33.4%), of those who don't drink alcohol visit bars. Nevertheless it was found that workers who drink alcohol visit bars significantly more frequently than those who did not drink alcohol (Pearson chi-square $p < 0.001$). Of those workers who did go to bars, the majority, 59 (62.8%), visited on a weekly basis. The median frequency of worker's visits to a bar was also on a weekly basis. When questioned about the amount of alcohol they drink, the largest group, 18 workers (30.5%), reported drinking five to nine beers a week, followed by 17 workers (28.8%) who consumed over 20 beers a week (or equivalent level of alcohol). The mean and median number of beers drunk was 10 to 14 beers a week.

Table 4.9 Nature of workers' alcohol consumption according to whether they drink alcohol

		DRINK ALCOHOL ?					
		NO		YES		TOTAL	
Frequency visit Bars	Never	76	66.7%	1	1.8%	77	45.0%
	< 1 month	8	7.0%	7	12.3%	15	8.8%
	1-3 x month	15	13.2%	5	8.8%	20	11.7%
	Weekly	15	13.2%	44	77.2%	59	34.5%
	Total	114	100.0%	57	100.0%	171	100.0%
No. beers per week (or equivalent)	1-4	0	.0%	8	14.0%	8	13.6%
	5 - 9	1	50.0%	17	29.8%	18	30.5%
	10 - 14	0	.0%	7	12.3%	7	11.9%
	15 - 19	1	50.0%	8	14.0%	9	15.3%
	> 20	0	.0%	17	29.8%	17	28.8%
	Total	2	100.0%	57	100.0%	59	100.0%
Frequency drunk (over 5 Beers or Equivalent)	never	109	95.6%	0	.0%	109	63.7%
	< 1x month	3	2.6%	9	15.8%	12	7.0%
	1-3 x month	0	.0%	11	19.3%	11	6.4%
	1-3 x weekly	2	1.8%	33	57.9%	35	20.5%
	4-7 x weekly	0	.0%	4	7.0%	4	2.3%
	Total	114	100.0%	57	100.0%	171	100.0%

Sixty-two respondents (36.2%) reported having been drunk / intoxicated in the past. Of these, the majority, 35 workers (56.5%), said they were usually drunk one to three times weekly. However, a discrepancy in the results arose with two respondents reporting that they did not drink alcohol while at the same time stating that they have been drunk one to three times weekly.

When examining the differences in alcohol consumption between work locations it was found that there was little difference in the level of drinking between respondents currently working in Gaborone and Serowe.

4.5 GENDER ATTITUDES

Seven questions were asked about worker's attitudes to gender and sexual relationships. Table 4.10 outlines the worker's response to each of these questions. Three of the questions tackled the issue of engaging in sexual activity while working away from one's partner. Participants were first asked if they had experienced feelings of loneliness when working away from their main partner. Of the 126 responses, the majority, 98 participants (77.8%), reported experiencing loneliness when separated from their partner. Participants were asked if they believed in the cultural myth that "your blood stops flowing without frequent (or regular) sex". Of the 163 responses, the vast majority, 141 (86.5%), did not believe in this myth. Participants were asked "what do you think is the most time you could spend away from your partner before feeling tempted to see another woman ?". Of the 164 responses, the largest group (mode) of 55 respondents (33.5%) reported that they could stay as long as two to three months away from their partner. The second largest group, 49 workers (29.9%) reported being able to stay over three months, while 46 workers (28.0%) said one month was the longest. Fourteen workers (8.6%) reported that the longest period of time is less than a month.

Table 4.10 Worker's attitudes to gender and sexual relationships.

I often feel Lonely when away from my partner.	Agree	98	77.8%
	Disagree	28	22.2%
	Total	126	100.0%
Your blood stops flowing without frequent (regular) sex.	Agree	22	13.5%
	Disagree	141	86.5%
	Total	163	100.0%
What do you think is the most time you could spend away from your partner before feeling tempted to see another woman ?	Less than a month	14	8.6%
	1 month	46	28.0%
	2 - 3 months	55	33.5%
	over 3 months	49	29.9%
	Total	164	100.0%
One woman is enough to satisfy me as a man.	Agree	140	84.3%
	Disagree	26	15.7%
	Total	166	100.0%
A man is like a bull - he cannot be fenced into one kraal.	Agree	47	27.5%
	Disagree	124	72.5%
	Total	171	100.0%
Women are often interested in me because of my income.	Agree	108	65.1%
	Disagree	58	34.9%
	Total	166	100.0%

The second set of questions tackled the issue of whether men felt they needed to be with more than one woman sexually. Of the 166 respondents, the majority, 140 (84.3%), agreed that “one woman is enough to satisfy me as a man”. 26 workers (15.7%) felt they needed more than one woman to satisfy them sexually. Participants were asked if they believed in the traditional view that “a man is like a bull, he cannot be fenced into one kraal”. Of the 171 respondents, the majority, 124 (72.5%) disagreed with this attitude that men needed to be able to roam like a bull and have sex with different women. In terms of the social environment, when workers were asked if “women are often interested in me because of

my income”, the majority, 108 (65.1%) of the 166 respondents reported that they felt this was the case.

4.6 HIV/AIDS AWARENESS

4.6.1 Awareness of HIV infection and protection

Five questions were asked about worker’s awareness and attitudes to HIV/AIDS. Table 4.11 outlines the distribution of workers’ responses to these questions.

Participants were asked whether they thought that HIV/AIDS is a problem for other people such as prostitutes or homosexuals, rather than myself. Of the 168 responses, 23 (13.7%) agreed with the statement that HIV was a problem for others, not themselves. The majority, 145 respondents (86.3%), though, disagreed with the statement citing that HIV was a problem for everyone including themselves.

Secondly, participants were asked if they had ever met or seen People Living with HIV/AIDS (PLWHA). Of the 169 responses, the majority, 98 (58.0%), had seen or met PLWHAs. Over the last two years, 48 workers (28.6%), had seen or met more than five PLWHAs. The mean number of PLWHAs respondents had seen or met with was three to five people.

In terms of HIV prevention, 74 workers (43.8%) cited being faithful to one partner as the best form of protection. Using condoms was the second most common form of protection accounting for 72 (42.6%) of the 169 respondents. Only 16 workers (9.5%) reported abstinence as the best form of protection. A further four workers (2.4%) cited regular HIV tests and 2 workers (1.2%) mentioned traditional medicine.

Table 4.11 Worker's attitudes & awareness of HIV/AIDS

HIV is mostly a problem for homosexuals or prostitutes - it does'nt affect me	Agree	23	13.7%
	Disagree	145	86.3%
	Total	168	100.0%
.			
Have you ever met or seen PLWHA ?	YES	98	58.0%
	No	71	42.0%
	Total	169	100.0%
.			
Number of PLWHA you have seen over the last 2 years	1 to 2	21	24.4%
	3 to 5	17	19.8%
	over 5	48	55.8%
	Total	86	100.0%
.			
There is more risk of catching HIV if you have many sexual partners	Agree	156	96.3%
	Disagree	6	3.7%
	Total	162	100.0%
.			
What do you think is the best way to protect yourself from HIV ?	Abstain	16	9.5%
	Faithfulness	74	43.8%
	Use condoms	72	42.6%
	Test regularly	4	2.4%
	Traditional medicine	2	1.2%
	Nothing (fate)	1	.6%
	Total	169	100.0%
.			

4.6.2 Perception of HIV risk

When asked about their perceived risk of HIV infection, 76 workers (44.7%) felt that yes they could be at great risk of HIV. A further 53 (31.2%) of the 170 respondents reported that they could possibly be at risk, while 41 (24.1%) felt that they were definitely not at risk.

Table 4.12 summarises the different reasons given for whether workers perceived themselves to be at great risk, possible risk, or no risk of HIV infection. Of those who perceived themselves to be at no risk, the main reason given was faithfulness to their partner (48.8%). The second most common reason given for not being at risk was that they had tested for HIV and knew their status (22.0%). A further 17.1% of workers explained

that they were not at risk because they had used condoms on every or most occasions of sexual intercourse. Only one worker (2.4%) reported abstinence as the main reason for not being at risk.

Of those workers who perceived themselves to be at risk of HIV infection (either at great risk or possible risk), the most common reasons given were: (i) the belief that HIV/AIDS was so widespread and infectious that they could easily become infected (14.7%); (ii) that they can't trust their partner and think they could have become infected through her (13.2%); (iii) they had never taken an HIV test and so do not know their HIV status (13.2%); (iv) they have been sexually active in the past and have had multiple partners (8.5%).

Table 4.12 Reasons given for worker's perceived risk of HIV infection

REASONS GIVEN.	PRECEIVED RISK OF HIV INFECTION			
	Yes	Possibly	No	Total
Sickness in the past	5	3	0	8
Tested for HIV	4	2	9	15
Never tested for HIV	5	12	0	17
Abstained from sex	0	0	1	1
Sexually active past & multiple partners	6	5	0	11
Faithfull to Partner	0	1	20	21
Cant trust woman	9	8	0	17
Not used condoms in past	2	6	0	8
Occassionaly use condoms	6	3	0	9
Often use condoms	1	1	3	5
Always use condoms	0	0	4	4
Not trust condoms	6	1	0	7
Share areas with sick workers	2	4	0	6
Previous contact wth blood	7	0	0	7
HIV widesread & infectious.	16	3	0	19
No knowledge of HIV infection & prevention	5	3	0	8
Other	2	1	4	7
Total	76	53	41	170

In terms of condom use, (i) 6.2% of respondents felt at risk because they have not used condoms in the past; (ii) 7.0% felt at risk because they had only used condoms occasionally; and (iii) 5.4% felt at risk because they did not believe condoms could effectively protect them from HIV/AIDS.

4.6.3 HIV testing

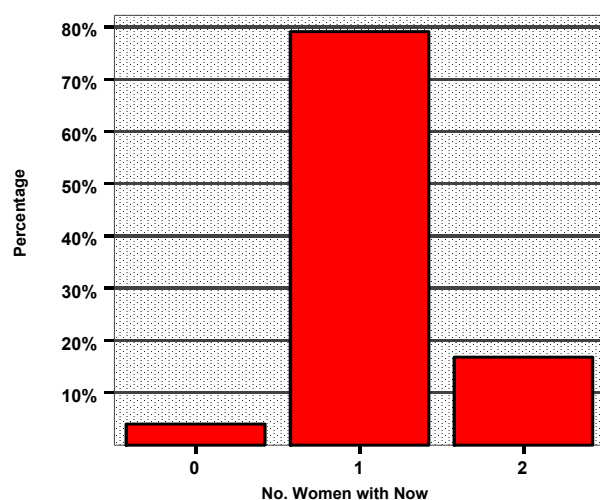
The majority, 106 (71.9%) respondents, have never tested for HIV and so did not know their status. Only 43 (28.9%) of the 149 respondents had ever taken an HIV test.

4.7 SEXUAL RISK BEHAVIOUR

4.7.1 Sex with multiple partners

Respondents' sexual relations with multiple concurrent partners were measured in three different ways. Workers were asked how many sexual partners they have at present. Of the 171 respondents, 29 (17.0%) reported having two current partners, while the majority, 135 workers (78.9%) have one sexual partner, and seven workers (4.1%) currently have no sexual partner. The bar chart, figure 4.13, shows the percentage distribution of respondents according to the number of partners they currently have.

Fig. 4.13 Percentage distribution of respondents according to current no. of partners



The second and third indicators of multiple partners inquired as to whether respondents have had an extra girlfriend in addition to their long-term partner in the last year and over the last five years. In the past year, 40 workers (23.4%) reported having one or more extra girlfriends. The majority, 36 of these workers, had one extra girlfriend in the last year, while one worker had two girlfriends, two workers had three girlfriends and one worker had more than 5 extra girlfriends.

During the last five years, , 73 (57.0%) of the 128 responses reported having had extra girlfriends. Of these the majority, 37 workers, reported meeting their last girlfriend in the local neighbourhood, while 14 workers first met their last girlfriend at the construction site. Only six workers met their last girlfriend at the bar.

Respondents were working in a variety of different locations when they had casual girlfriends. The cities of Gaborone (33.3%) and Francistown (12.5%) were common locations, as well as Serowe (18.1%). A further 26 workers (36.1%) had casual girlfriends when they were working in remote rural villages, including: Gumare, Seronga, Orapa, Kasane, Jwaneng, Bobonong, Tsabong, Palapye and Tsau.

A large proportion, 40%, of these relationships with casual girlfriends lasted less than six months. The mean duration was six to twelve months. Table 4.13 summarises the nature of workers' relationships with their casual girlfriends.

4.7.2 Transactional sex

Transactional sex, when defined as the provision of money or material gifts to one's sexual partner, was found to be involved in the majority of respondents' sexual relationships with casual girlfriends. 49 workers (67.1%) reported providing some form of material support in the form of food, accommodation, clothing or money to their casual girlfriend over the

last five years. Financial provision was the most common form of support, accounting for 44 respondents, 60.3% of relationships with casual girlfriends.

Table 4.13 Nature of respondents' relationships with casual girlfriends

Have you had an extra girlfriend in the last 1 year?	Yes	40	23.4%
	No	131	76.6%
	Total	171	100.0%
Number of extra girlfriends in the last 1 year	None	131	76.6%
	1 extra g/friend	36	21.1%
	2 extra g/friend	1	.6%
	3 extra g/friend	2	1.2%
	4 extra g/friend	0	.0%
	5 extra g/friend	0	.0%
	>5 extra g/friend	1	.6%
	Total	171	100.0%
Have you had an extra girlfriend in the last 5 yrs?	Yes	73	57.0%
	No	55	43.0%
	Total	128	100.0%
Where did you first meet your last girlfriend ?	Bars	6	10.5%
	Work place	14	24.6%
	Neighbourhood	37	64.9%
	Total	57	100.0%
How long was the relationship with your last girlfriend ?	< 6 months	28	40.0%
	6 months - 1 yr	13	18.6%
	1 - 3 yrs	21	30.0%
	over 3 yrs	8	11.4%
	Total	70	100.0%
Did you provide any money for your last girlfriend ?	Yes	44	68.8%
	No	20	31.3%
	Total	64	100.0%

4.7.3 Sex with commercial sex workers

Forty-two respondents reported that they had been approached by a CSW in the past six months. Of these, 27 respondents (65.9%), were working in Gaborone and 14 (34.1%) in Serowe. Seventeen of the 42 workers (44.7%) were approached in bars, while ten (26.3%) were approached in their neighbourhood, and six (5.9%) near the construction site.

Of the 42 workers approached by CSWs, 26 workers (61.9%), reported being approached on a few occasions, while 15 workers (35.7%) have been approached on a frequently

basis. The vast majority of workers, 38 (92.7%), refused sex when approached by a CSW. Only three workers (1.8%) reported having sex with CSWs, two workers on one to five occasions and one worker on over ten occasions.

4.7.4 One-night-sex

Over the last year, the majority, 136 (90.7%) of 150 respondents, reported that they have never had a one-night sexual encounter. Only 14 respondents (9.3%) reported having one-night sexual encounters.

4.7.5 Men having sex with men (MSM)

The difficulty of asking respondents directly about homosexuality became evident in the pilot study. As a result, participants were asked indirectly if “some construction workers when away from their partner have sex with men”. The majority, 143 (90.5%) of 158 respondents, reported that construction workers do not have sex with men. 15 workers (9.5%) reported that they were aware of some cases where construction workers have sex with men. This suggests the possibility of MSM while at the same time it was not feasible to measure actual prevalence.

4.7.6 Unprotected sex and condom use

In general, only 53 (31.9%) of the 166 responses reported using condoms on every occasion and so could be defined as practising ‘safe sex’. The majority, 112 respondents (68.1%), engaged in unprotected sex, only using condoms occasionally (34.3%) or never at all (33.7%). With their long term partner (including wives), only 52 respondents (31.7%) reported using condoms every time, while 33 (20.1%) used condoms occasionally and 79 (48.2%) never used condoms. With their last casual girlfriend, a far larger number of workers, 49 (65.3%) used condoms every time, while 12 (16.0%) used condoms occasionally and 14 (18.7%) never used condoms. Significantly more workers engaged in

unprotected sex with their long-term partner, 112 (68.3%), than with their casual girlfriend, 26 (34.7%). Table 4.14 shows the frequency of respondents' condom use with their long-term partner and casual girlfriend.

Table 4.14 Frequency of condom use with long-term partner and casual girlfriend

Frequency of Condom use	Long- term Partner	Casual Girlfriend	Generally
Every time	53 (32.1%)	49 (65.3%)	53 (31.9%)
Occasionally	33 (20.0%)	12 (16.0%)	57 (34.3%)
Never	79 (47.9%)	14 (18.7%)	56 (33.7%)
Total	112 (100%)	75 (100%)	166 (100%)

Reasons given for respondents' use of condoms differed between whether they were used with long-term partners or casual girlfriends. Table 4.15 lists the reported reasons for condom use with partners while table 4.16 lists the reasons for condom use with girlfriends.

Table 4.15 Reasons for condom use with long-term partner

Reasons for condom use with partner	Unprotected sex		Consistant condom use		Total	
Trust Partner	46	49.5%	0	.0%	46	32.9%
Want Children	4	4.3%	0	.0%	4	2.9%
Not like Condoms	7	7.5%	0	.0%	7	5.0%
Disbelieve Condoms	2	2.2%	0	.0%	2	1.4%
Not trust Partner	1	1.1%	15	31.9%	16	11.4%
Contraception	9	9.7%	9	19.1%	18	12.9%
Prevent HIV/STDs	4	4.3%	20	42.6%	24	17.1%
Know HIV neg	4	4.3%	0	.0%	4	2.9%
Not interested	2	2.2%	0	.0%	2	1.4%
Skin rashes from condom	2	2.2%	0	.0%	2	1.4%
Condoms not always available	2	2.2%	0	.0%	2	1.4%
No need to use	3	3.2%	0	.0%	3	2.1%
Other	7	7.5%	3	6.4%	10	7.1%
Total	93	100.0%	47	100.0%	140	100.0%

Respondent's trust in their long-term partner was the main reason why 46 workers (49.5%) engaged in unprotected sex with their partner. Other reasons for not using condoms on every occasion included: a personal dislike of using condoms (7.5%) and knowing one's HIV negative status (4.3%). The need for contraception (9.7%) and to prevent STDs and HIV/AIDS (4.3%) were given as reasons for using condoms occasionally, which still led to unprotected sex. The main reasons respondents gave for using condoms regularly was to prevent STDs and HIV/AIDS (42.6%), a lack of trust in their partner (31.9%), and for contraception purposes (19.1%).

In the case of sexual encounters with casual girlfriends, most of the reasons were given for using condoms every time. The majority of respondents (55.3%) used condoms regularly because they didn't trust their girlfriend, whereas with their long-term partner, a sense of trust was the main reason for not using condoms. Prevention of STDs and HIV/AIDS (31.9%) was another major reason for condom use, as was the need for contraception (8.5%).

Table 4.16 Reasons for condom use with casual girlfriend

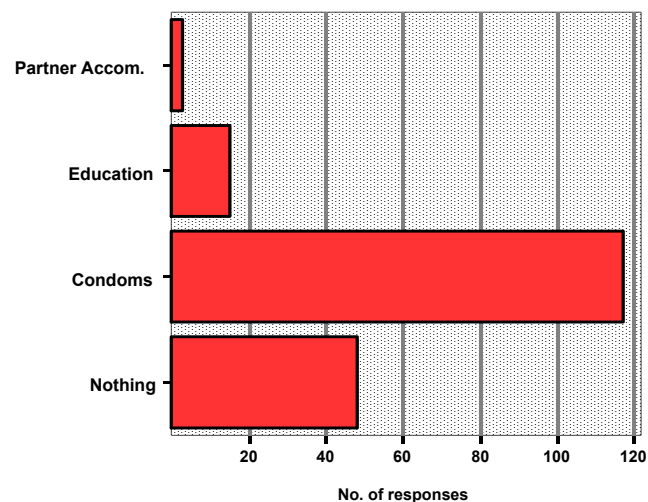
Reasons for condom use with girlfriend	Unprotected sex		Consistent condom use		Total	
Trust girlfriend	3	13.0%	0	.0%	3	4.3%
Dont like condoms	5	21.7%	0	.0%	5	7.1%
Not believe condoms work	2	8.7%	0	.0%	2	2.9%
Not trust girlfriend	1	4.3%	26	55.3%	27	38.6%
Contraception	2	8.7%	4	8.5%	6	8.6%
Prevent HIV/STDs	4	17.4%	15	31.9%	19	27.1%
Not know HIV status	0	.0%	2	4.3%	2	2.9%
Condoms not available	3	13.0%	0	.0%	3	4.3%
Other	3	13.0%	0	.0%	3	4.3%
Total	23	100.0%	47	100.0%	70	100.0%

4.8 COMPANY'S RESPONSE TO HIV/AIDS

4.8.1 Current Response

Towards the end of the interviews, respondents were briefly asked what they thought the company was doing in response to HIV/AIDS (see figure 4.14). Of the 183 responses (which included multiple answers from respondents), the majority, 117 responses (63.93%), mentioned that the company has provided condoms, though only occasionally. Only 15 responses (8.20%) indicated that M&R provided HIV/AIDS education. Three responses (1.64%) explained that for those in senior management, the company provided accommodation for their wife / partner to stay with them at the workplace. Just over a quarter of responses, 48 (26.23%), though, stated that the company has not engaged in any activities to prevent the spread of HIV/AIDS.

Fig. 4.14 Workers' perception of company response to HIV/AIDS



4.8.2 Suggestions for future intervention

Respondents were questioned as to what they thought M&R could do to help workers prevent HIV infection in the future (see table 4.17). Of the 208 responses (which included multiple answers from respondents), the most common request with 52 responses (25.0%)

was for more education on HIV/AIDS. Another 33 responses (15.9%) asked for condoms to be made more available and provided on a regular basis. A further 32 responses (15.3%) wanted accommodation to be provided for their partner to stay with them at the workplace. Several other recommendations were made including: opportunities for HIV testing (13 responses); individual rooms for workers so that they don't have to share with colleagues who invite local girlfriends to stay over (11 responses); more frequent leave to visit their partner (3 responses); the placement of workers at sites closer to their partner (9 responses); provision of transport to help workers visit their partner (8 responses); more leisure activities so that workers resort less to alcohol consumption and sexual activity for recreation (5 responses).

Table 4.17 Workers' suggestions for company's future response to HIV/AIDS

Recommendations	No. of Responses	Percentage
Provide Condoms Regular	33	15.9%
More Education	52	25.0%
Provide Accommodation for partner	32	15.3%
Reduce distance from partner	9	4.3%
Opportunity for HIV test	13	6.3%
Nothing	27	13.0%
Transport provision	8	3.8%
More frequent leave to visit partner	3	1.4%
Not share rooms	11	5.3%
Social activities	5	2.4%
Other	15	7.2%
Total	208	100%

Respondents were asked in more detail about their views on the possible implementation of (i) HIV/AIDS education; (ii) onsite accommodation for their long-term partner to visit; and (iii) more frequent leave to visit their partner. In terms of providing HIV education, the vast majority, 97.7%, felt that this would help to prevent HIV infection. Concerning the provision of on-site accommodation for the partner to visit, the majority, 85.6%, also thought that it would help reduce HIV infection. A further 4.4% were unsure and 10.0%

argued that it would not be effective in preventing HIV infection.

When questioned about the provision of extra leave for workers to visit their main partner during the month (which would have to be offset with extra overtime) the majority, 85.6% supported the measure, while 15.5% were unsure and 10.0% opposed it. The main objections raised were: (i) the problem of expensive transport costs, which could prevent some workers from using this leave to visit their partner; and (ii) the question as to whether some employees may simply use this additional leave to spend time with their local girlfriend instead of visiting their long-term partner back home.

4.9 FACTORS ASSOCIATED WITH CURRENTLY HAVING MULTIPLE PARTNERS

A bivariate analysis of factors associated with the sexual risk behaviour of having multiple partners identified that respondents' migration patterns, living conditions, alcohol consumption, and gender attitudes were significantly associated (table 4.18).

In terms of migration patterns, workers who lived separately from their main partner and had to migrate regularly to see them were significantly more likely to have multiple partners than those who were currently staying together with their main partner ($p=0.017$).

In terms of living conditions, workers in on-site accommodation (accommodation provided by the company at the construction site) were significantly more likely to have multiple partners ($p=0.014$) compared to those in off-site accommodation (in the nearby town/village).

In terms of alcohol consumption, workers who consumed ten beers or more (or an equivalent level of alcohol) per week were significantly more likely to have multiple partners compared to those who consumed less than ten beers per week ($p=0.036$).

Two gender attitudes were significantly associated with currently having multiple partners, “one woman is enough to satisfy me as a man”, and secondly, “women are often interested in me because of my income”. Workers who disagreed with the attitude that “one woman is enough to satisfy me as a man” were significantly more likely to have multiple partners ($p<0.001$). Workers who agreed with the attitude that “women are often interested in me because of my income” were significantly more likely to have multiple partners ($p=0.016$).

Table 4.18 Contributing factors associated with currently having multiple partners

Contributing Factors		Having Multiple Partners No. / total (%)	No Multiple Partner No. / total (%)	P
<u>MIGRATION</u>				
Separated from	Yes	27 /125 (21.6%)	98 /125 (78.4%)	0.017^s
Main partner	No	2 / 39 (5.1%)	37 / 39 (94.9%)	
<u>LIVING CONDITIONS</u>				
Location of	On - Site	14 / 49 (28.6%)	35 / 49 (71.4%)	0.014^s
accommodation	Off - Site	15 /122 (12.3%)	107 /122 (87.7%)	
<u>ALCOHOL</u>				
No. beers (or equiv.)	10 beers & over	10 / 33 (30.3%)	23 / 33 (69.7%)	0.036^s
drunk per week	Under 10 beers	19 /138 (13.8%)	119 /138 (86.2%)	
<u>GENDER ATTITUDE</u>				
Women interested in me	Agree	24 /108 (22.2%)	84 /108 (77.8%)	0.016^s
because of my income.	Disagree	4 / 58 (6.9%)	54 / 58 (93.1%)	
One woman is enough	Disagree	12 / 26 (46.2%)	14 / 26 (53.8%)	<0.001^s
to satisfy me as a man	Agree	17 /140 (12.1%)	123 /140 (87.9%)	

Pearson Test

^s Fischer Exact Test

+ T-test

4.10 FACTORS ASSOCIATED WITH HAVING AN EXTRA GIRLFRIEND IN THE LAST YEAR

In a bivariate analysis, socio-demographic factors, migration patterns, living conditions, alcohol consumption and gender attitudes were significantly associated with having had an extra girlfriend in the last year (table 4.19).

Five socio-demographic factors were significantly associated with having had an extra girlfriend in the last year: (i) respondent's age ($p=0.004$); (ii) marital status ($p=0.046$); (iii) number of years respondents have been with their main partner ($p=0.001$); (iv) number of children ($p=0.001$); and (v) employment position ($p=0.035$). Older workers were less likely to have had an extra girlfriend than younger workers, with a 6% decrease in risk ($O/R=0.94$; 95% CI: 0.91 to 0.99) for each year of age. Unmarried workers were significantly more likely to have had an extra girlfriend in the last year than married workers. Workers who had been with their main partner for less than five years were significantly more likely to have had an extra girlfriend. Workers with less than two children were significantly more likely to have had an extra girlfriend. Supervisory staff were significantly more likely to have had a girlfriend than skilled or semi-skilled workers.

Three migration factors were significantly associated with having had an extra girlfriend in the last year: (i) the distance between workers and their main partner ($p=0.009$); (ii) the whether workers lived separately from their main partner ($p=0.002$); and (iii) the frequency with which workers visited their main partner ($p=0.001$). Workers staying 100km or more away from their main partner were significantly more likely to have had an extra girlfriend in the last year. Workers who lived separately from their main partner were significantly more likely to have had an extra girlfriend than those who currently stayed with their main partner. Workers who visited their main partner once a month (or less frequently) were significantly more likely to have had an extra girlfriend than those who visited their partner on a daily or weekly basis.

In terms of living conditions, workers who lived in on-site accommodation were significantly more likely to have had an extra girlfriend compared to those who lived off-

Table 4.19 Contributing factors associated with having an extra girlfriend in the last year.

Contributing Factors		Extra Girlfriend		No extra girlfriend		P
		No./ total (%)		No./ total (%)		
<u>SOCIO-DEMOGRAPHIC</u>						
Age	Mean	36.0	(n=38)	40.5	(n=130)	0.004⁺
Marital status	Single	26 / 86	(30.2 %)	60 / 86	(69.8 %)	0.046^s
	Married	14 / 85	(16.4 %)	71 / 85	(83.5 %)	
No. years with main Partner	0-4 yrs	17 / 40	(42.5 %)	23 / 40	(57.5 %)	0.001[#]
	5yrs and over	21 / 124	(16.9 %)	103 / 124	(83.1 %)	
No. of children	0 – 1 children	20 / 50	(40.0 %)	30 / 50	(60.0 %)	0.001^s
	Over 1 child	20 / 121	(16.5 %)	101 / 121	(83.5 %)	
Employment position	Supervisor	12 / 31	(38.7 %)	19 / 31	(61.3 %)	0.035^s
	Skilled	28 / 140	(20.0 %)	112 / 140	(80.0 %)	
<u>MIGRATION</u>						
Distance from main Partner	100km and Over	31 / 104	(29.8 %)	73 / 104	(70.2 %)	0.009[#]
	Under 100km	7 / 59	(11.9 %)	52 / 59	(88.1 %)	
Separated from main partner	Yes	36 / 125	(28.8 %)	89 / 125	(71.2 %)	0.002[#]
	No	2 / 39	(5.1 %)	37 / 39	(94.9 %)	
Frequency worker visits main partner	Every month/s	30 / 91	(33.0 %)	61 / 91	(67.0 %)	0.001^s
	Daily / weekly	8 / 72	(11.1 %)	64 / 72	(88.9 %)	
<u>LIVING CONDITIONS</u>						
Location of accommodation	On-Site	17 / 49	(34.7 %)	32 / 49	(65.3 %)	0.044^s
	Off-Site	23 / 122	(18.9 %)	99 / 122	(81.1 %)	
Shared accommodation	No	29 / 100	(29.0 %)	71 / 100	(71.0 %)	0.045^s
	Yes	11 / 71	(15.5 %)	60 / 71	(84.5 %)	
<u>ALCOHOL</u>						
No. beers (or equiv.) drunk per week	10 beers & over	13 / 31	(41.9 %)	20 / 31	(64.5 %)	0.022^s
	Under 10 beers	27 / 138	(19.6 %)	111 / 138	(80.4 %)	
<u>GENDER ATTITUDE</u>						
One woman is enough to satisfy me as a man	Disagree	14 / 26	(53.8 %)	12 / 26	(46.2 %)	<0.001[#]
	Agree	26 / 140	(18.6 %)	114 / 140	(81.4 %)	
Women interested in me because of my income.	Agree	33 / 108	(30.6 %)	75 / 108	(69.4 %)	0.004^s
	Disagree	6 / 58	(10.3 %)	52 / 58	(89.7 %)	

Pearson Test

^s Fischer Exact Test⁺ T-test

site in the local town/village (p=0.044). Respondents who did not share their room with other people were significantly more likely to have had an extra girlfriend in the last year (p=0.045).

In terms of alcohol consumption, workers who reported consuming ten or more beers per week were significantly more likely ($p=0.022$) to have had an extra girlfriend than those consuming less than ten beers (or equivalent level of alcohol). In terms of gender attitudes, respondents who did not believe that “one woman is enough to satisfy me as a man” were significantly more likely to have had an extra girlfriend in the last year ($p<0.001$). Respondents who believed that “women are often interested in me because of my income” were significantly more likely to have had an extra girlfriend in the last year ($p=0.004$).

4.11 FACTORS ASSOCIATED WITH HAVING AN EXTRA GIRLFRIEND IN THE LAST FIVE YEARS

A bivariate analysis of the sexual risk behaviour of having had an extra girlfriend in the last five years revealed that socio-demographic factors and gender attitudes were significantly associated (table 4.20).

Four socio-demographic factors were significantly associated with having had an extra girlfriend in the last five years: (i) respondent’s age ($p=0.043$); (ii) work place location ($p=0.014$); (iii) monthly salary ($p=0.041$); and (iv) number of children ($p=0.024$). Older workers were significantly less likely than younger workers to have had an extra girlfriend in the last five years, with a four percent decrease in risk (CI: 0.92 to 1.00) for each year of age. Workers based in Gaborone were significantly more likely to have had an extra girlfriend in the last five years than workers based in Serowe . Workers earning a monthly salary of 1,000 Pula (1,500 Rand) or more were significantly more likely to have had an extra girlfriend in the last five years than those earning less than 1,000 Pula a month. Workers with less than two children were significantly more likely to have had an extra girlfriend in the last five years.

Three gender attitudes were significantly associated with having had an extra girlfriend in

Table 4.20 Contributing factors associated with having extra girlfriend in the last 5 years

Contributing Factors		Extra Girlfriend	No extra girlfriend	P
		No./ total (%)	No./ total (%)	
<u>SOCIO-DEMOGRAPHIC</u>				
Age	Mean	38.3 (n=71)	41.7 (n=55)	0.043⁺
Workplace	Gaborone	25 /33 (75.8%)	8 /33 (24.2%)	0.014^s
	Serowe	48 /95 (50.5%)	47 /95 (49.5%)	
Monthly salary	P 1,000 & over	32 /46 (69.6%)	14 /46 (30.4%)	0.041^s
	Under P 1,000	41 /82 (50.0%)	41 /82 (50.0%)	
No. of children	0 – 1 children	30 /42 (71.4%)	12 /42 (28.6%)	0.024^s
	Over 1 child	43 /86 (50.0%)	43 /86 (50.0%)	
<u>GENDER ATTITUDE</u>				
One woman is enough to satisfy me as a man	Disagree	17 /19 (89.5%)	2 /19 (10.5%)	0.002[#]
	Agree	56 /109 (51.4%)	53 /109 (48.6%)	
Man is like a bull	Agree	27 /38 (71.1%)	11 /38 (28.9%)	0.050^s
	Disagree	46 /90 (51.1%)	44 /90 (48.9%)	
Blood stops flowing without frequent sex	Agree	15 /19 (78.9%)	4 /19 (21.1%)	0.043^s
	Disagree	54 /103 (52.4%)	49 /103 (47.6%)	

Pearson Test

^s Fischer Exact Test⁺ T-test

the last five years: (i) “one woman is enough to satisfy me as a man” (p=0.002); (ii) “a man is like a bull, he cannot be fenced into one kraal” (p=0.050); and (iii) “your blood stops flowing without frequent (or regular) sex” (p=0.043). Respondents who believed that “one woman is enough to satisfy me as a man” were significantly more likely to have had an extra girlfriend in the last five years. Respondents who believed that “a man is like a bull, he cannot be fenced into one kraal” were significantly more likely to have had an extra girlfriend in the last five years. Respondents who believed that “your blood stops flowing without frequent (or regular) sex” were significantly more likely to have had an extra girlfriend in the last five years.

4.12 FACTORS ASSOCIATED WITH HAVING TRANSACTIONAL SEX

In a bivariate analysis, significant factors associated with having transactional sex were

socio-demographics, migration patterns, alcohol consumption, and gender attitudes (table 4.21).

In terms of socio-demographics, workers who had less than two children were significantly more likely to have had transactional sex in the last five years ($p=0.007$). Workers based in the rural village of Serowe were significantly more likely to have had transactional sex, compared to those in the city of Gaborone ($p=0.004$).

Four migration factors were significantly associated with having had transactional sex in the last five years: (i) the frequency with which workers visited their main partner ($p=0.002$); (ii) the distance between workers and their main partner ($p=0.026$); (iii) whether workers lived separately from their main partner ($p=0.005$); and (iv) the number of locations workers were transferred to in the last year ($p=0.005$). Workers who visited their main partner every month (or less frequently) were significantly more likely to have had transactional sex than those who saw their partner on a daily or weekly basis. Workers staying 100km or more away from their main partner were significantly more likely to have had transactional sex. Workers who lived separately from their main partner were significantly more likely to have had transactional sex than those who currently stayed with their main partner. Workers who were stationed in more than one location in the last year were significantly more likely to have had transactional sex.

In terms of alcohol consumption, workers who reported consuming ten or more beers per week were significantly ($p=0.005$) more likely to have had transactional sex compared to those consuming less than ten beers (or equivalent level of alcohol). Workers who visited local bars on a weekly basis were significantly more likely to have had transactional sex compared to those who went less frequently ($p=0.013$).

In terms of gender, respondents who agreed with the attitude, “your blood stops flowing

without frequent (or regular) sex”, were significantly more likely to have had transactional sex ($p=0.019$).

Table 4.21 Contributing Factors associated with having transactional sex

Contributing Factors		Having Transactional Sex		No Transactional Sex		P
		No./ total (%)		No./ total (%)		
<u>SOCIO-DEMOGRAPHIC</u>						
No. of children	O – 1 child	20 /50	(40.0%)	30 /50	(60.0%)	0.007^s
	Over 1 child	24 /121	(19.8%)	97 /121	(80.2%)	
Location of Workplace	Serowe	33 /96	(34.4%)	63 /96	(65.6%)	0.004^s
	Gaborone	11 /75	(14.7%)	64 /75	(85.3%)	
<u>MIGRATION</u>						
Frequency worker visits main partner	Every month	34 /91	(37.4%)	57 /91	(62.6%)	0.002^s
	Daily / weekly	8 /72	(11.1%)	64 /72	(88.9%)	
Distance from main partner	100 km & over	34 /104	(32.7%)	70 /104	(67.3%)	0.026[#]
	Under 100km	8 /59	(13.6%)	51 /59	(86.4%)	
Separated from main partner	Yes	40 /125	(32.0%)	85 /125	(68.0%)	0.005[#]
	No	2 /39	(5.1%)	37 /39	(94.9%)	
No. of locations in last year	Over 1 location	31 /88	(35.2%)	57 /88	(64.8%)	0.005^s
	1 location	13 /82	(15.9%)	69 /82	(84.1%)	
<u>ALCOHOL</u>						
No. beers (or equiv.) drunk per week	10 beers & over	15 /33	(45.5%)	18 /33	(54.5%)	0.005^s
	Under 10 beers	29 /138	(21.0%)	109 /138	(79.0%)	
Frequency worker visits bars/shebeens	Every week	22 /59	(37.3%)	37 /59	(62.7%)	0.013^s
	Less than weekly	22 /112	(19.6%)	90 /112	(80.4%)	
<u>GENDER ATTITUDE</u>						
Blood stops flowing without frequent sex	Agree	11 /22	(50.0%)	11 /22	(50.0%)	0.019^s
	Disagree	30 /141	(21.3%)	111 /141	(78.7%)	

[#] Pearson Test

^s Fischer Exact Test

⁺ T-test

4.13 FACTORS ASSOCIATED WITH HAVING UNPROTECTED SEX WITH MAIN PARTNER

In a bivariate analysis, respondents’ socio-demographic factors and sexual behaviours were significantly associated with having unprotected sex with their main partner (table 4.22). In terms of socio-demographics, workers with over three children were significantly

more likely to have unprotected sex with their main partner ($p=0.012$). Respondents who engaged in unprotected sex with their casual girlfriend over the last five years were significantly more likely to have had unprotected sex with their main partner ($p<0.001$).

Table 4.22 Contributing factors associated with having unprotected sex with main partner

Contributing Factors		Unprotected Sex	Protected Sex	P
		No./ total (%)	No./ total (%)	
<u>SOCIO-DEMOGRAPHIC</u>				
No. of children	Over 3 children	44 /54 (81.5%)	10 /54 (18.5%)	0.012^s
	0 – 3 children	66 /108 (61.1%)	42 /108 (38.9%)	
<u>SEXUAL BEHAVIOUR</u>				
Unprotected sex with	Yes	24 /25 (96.0%)	1 /25 (4.0%)	<0.001[#]
girlfriend	No	22 /41 (53.7%)	19 /41 (46.3%)	

[#] Pearson Test

^s Fischer Exact Test

⁺ T-test

4.14 FACTORS ASSOCIATED WITH HAVING UNPROTECTED SEX WITH CASUAL GIRLFRIEND

In a bivariate analysis, the only significant association identified for respondents having unprotected sex with their casual girlfriend was the occurrence of unprotected sex with their main partner. (table 4.23). Respondents who engaged in unprotected sex with their main partner were significantly ($p<0.001$) more likely to have unprotected sex with their casual girlfriend.

Table 4.23 Contributing factors associated with having unprotected sex with girlfriend

Contributing Factors		Unprotected Sex No./ total (%)	Protected Sex No./ total (%)	P
<u>SEXUAL BEHAVIOUR</u>				
Unprotected sex with main partner	Yes	24 /46 (52.2%)	22 /46 (47.8%)	<0.001[#]
	No	1 /20 (5.0%)	19 /20 (95.0%)	

[#] Pearson Test

^s Fischer Exact Test

⁺ T-test

4.15 MULTIVARIATE FACTORS ASSOCIATED WITH CURRENTLY HAVING MULTIPLE PARTNERS

A logistic regression model was built to address factors associated with having multiple partners. Three factors contributed significantly to currently having multiple partners: (i) the number of children respondents had; (ii) type of accommodation; and (iii) gender attitudes to having multiple partners (table 4.24). Respondents with less than two children were 2.91 times (95% CI: 1.13 to 7.49) more likely to have multiple partners ($p=0.027$). Respondents living in on-site accommodation were 3.00 times (95% CI: 1.16 to 7.75) more likely to have multiple partners ($p=0.023$). Respondents who did not believe that “one woman is enough to satisfy me as a man” were 6.21 times (95% CI: 2.27 to 16.99) more likely to have multiple partners ($p<0.001$).

Table 4.24 Multivariate factors associated with having multiple partners

Variables		Odds Ratio	95% CI	p-Value
<u>SOCIO-DEMOGRAPHIC</u>				
No. of children	0 – 1 children	2.91	1.13 to 7.49	0.027
	Over 1 child	Referent		
<u>LIVING CONDITIONS</u>				
Location of accommodation	On-Site	3.00	1.16 to 7.75	0.023
	Off-Site	Referent		
<u>GENDER ATTITUDE</u>				
One woman is enough to satisfy me as a man	Disagree	6.21	2.27 to 16.99	< 0.001
	Agree	Referent		

4.16 MULTIVARIATE FACTORS ASSOCIATED WITH HAVING AN EXTRA GIRLFRIEND IN THE LAST YEAR

A logistic regression model was built to address factors associated with having had an extra girlfriend in the last year. Five factors contributed significantly to having an extra girlfriend in the last year: (i) the number of children; (ii) respondent’s employment position; (iii) frequency with which workers visited their main partner; (iv) the gender

attitude that ‘one woman is enough’; and (v) the attitude that “women are often interested in me because of my income” (table 4.25). Respondents with less than two children were 5.07 times (95% CI: 1.99 to 12.92) more likely to have had an extra girlfriend in the last year ($p=0.001$). Respondents in a supervisory position were 3.38 times (95% CI: 1.22 to 9.37) more likely to have had an extra girlfriend compared to skilled & semi-skilled workers ($p=0.019$).

Table 4.25 Multivariate factors associated with having extra girlfriend in the last year.

Variables		Odds Ratio	95% CI	p -Value
<u>SOCIO-DEMOGRAPHIC</u>				
No. of children	0 – 1 children	5.07	1.99 to 12.92	0.001
	Over 1 child	Referent		
Employment position	Supervisor	3.38	1.22 to 9.37	0.019
	Skilled	Referent		
<u>MIGRATION</u>				
Frequency worker visits main partner	Every day	3.74	1.40 to 9.98	0.009
	Daily/weekly	Referent		
<u>GENDER ATTITUDE</u>				
One woman is enough to satisfy me as a man	Disagree	6.06	2.15 to 17.13	0.014
	Agree	Referent		
Women interested in me because of my income	Agree	3.86	1.31 to 11.34	0.001
	Disagree	Referent		

Respondents who visited their partner every month or less frequently were 3.74 times (95% CI: 1.40 to 9.98) more likely to have had an extra girlfriend compared to those who visited on a daily/weekly basis ($p=0.009$). Respondents who did not believe that “one woman is enough to satisfy me as a man” were 6.06 times (95% CI: 2.15 to 17.13) more likely to have had an extra girlfriend in the last year ($p=0.014$). Respondents who believed that “women are often interested in me because of my income” were 3.86 times (95% CI: 1.31 to 11.34) more likely to have had an extra girlfriend in the last year ($p=0.001$).

4.17 MULTIVARIATE FACTORS ASSOCIATED WITH HAVING AN EXTRA GIRLFRIEND IN THE LAST FIVE YEARS

A logistic regression model was built to address factors associated with having had an extra girlfriend in the last five years. Five factors contributed significantly to having had an extra girlfriend in the last five years: (i) respondent's age; (ii) monthly salary; (iii) workplace; (iv) number of locations in the last year; and (v) the gender attitude that "one woman is enough to satisfy me as a man" (table 4.26).

Older workers were less likely to have had an extra girlfriend with a 5% decrease (95% CI: 0.91 to 1.00) in risk with each year of age ($p=0.031$). Respondents with a monthly salary of 1,000 Pula and over (1,500 Rand) were 3.15 times (95% CI: 1.27 to 7.77) more likely to have had an extra girlfriend in the last five years ($p=0.013$). Respondents who worked in Gaborone were 8.39 times (95% CI: 2.56 to 27.46) more likely to have had an extra girlfriend in the last five years compared to those working in Serowe ($p<0.001$).

Table 4.26 Multivariate factors associated with having extra girlfriend in the last 5 years

Variables		Odds Ratio	95% CI	p-Value
<u>SOCIO-DEMOGRAPHIC</u>				
Age	Mean	0.95	0.91 to 1.00	0.031
Monthly Salary	P 1,000 & over	3.15	1.27 to 7.77	0.013
	Under P 1,000	Referent		
Workplace	Gaborone	8.39	2.56 to 27.46	< 0.001
	Serowe	Referent		
<u>MIGRATION</u>				
No. of locations in last year	Over 1 location	4.42	1.56 to 12.52	0.005
	1 location	Referent		
<u>GENDER ATTITUDE</u>				
One woman is enough to satisfy me as a man	Disagree	9.05	1.52 to 53.84	0.015
	Agree	Referent		

Respondents who have worked in more than one location in the last year were 4.42 times (95% CI: 1.56 to 12.52) more likely to have had an extra girlfriend ($p=0.005$). Respondents who did not believe that “one woman is enough to satisfy me as a man” were 9.05 times (95% CI: 1.52 to 53.84) more likely to have had an extra girlfriend in the last five years ($p=0.015$).

Respondents who have worked in more than one location in the last year were 4.42 times (95% CI: 1.56 to 12.52) more likely to have had an extra girlfriend ($p=0.005$). Respondents who did not believe that “one woman is enough to satisfy me as a man” were 9.05 times (95% CI: 1.52 to 53.84) more likely to have had an extra girlfriend in the last five years ($p=0.015$).

4.18 MULTIVARIATE FACTORS ASSOCIATED WITH HAVING TRANSACTIONAL SEX

A logistic regression model was built to address contributing factors associated with having had transactional sex. Five factors contributed significantly to having had transactional sex in the last five years: (i) number of children; (ii) respondents' level of education; (iii) frequency of visits to main partner; (iv) number of locations respondents were transferred to in the last year; and (vi) response to the gender attitude that “one woman is enough to satisfy me as a man” (table 4.27).

Workers with less than two children were 4.09 times (95% CI: 1.60 to 10.45) more likely to have had transactional sex ($p=0.003$). Respondents who did not complete their primary school education were 11.70 times (95% CI: 2.38 to 57.59) more likely to have had transactional sex ($p=0.002$). Respondents who visited their main partner every month or less were 4.57 times (95% CI: 1.80 to 11.62) more likely to have had transactional sex compared to those who visited on a daily or weekly basis ($p=0.001$). Workers placed in

more than one location in the last year were 3.01 times (95% CI: 1.26 to 7.17) more likely to have had transactional sex ($p=0.013$). Respondents who disagreed with the gender attitude that “one woman is enough to satisfy me as a man” were 3.35 times more likely (95% CI: 1.11 to 10.05) to have had transactional sex ($p=0.031$). In addition, the frequency with which workers visited local bars was marginally associated, at 90% significance, with having transactional sex ($p=0.007$).

Table 4.27 Multivariate factors associated with having transactional sex

Variables		Odds Ratio	95% CI	p Value
<u>SOCIO-DEMOGRAPHIC</u>				
Age	Mean	0.95	0.91 to 1.00	0.031
Monthly Salary	P 1,000 & over	3.15	1.27 to 7.77	0.013
	Under P 1,000	Referent		
Workplace	Gaborone	8.39	2.56 to 27.46	< 0.001
	Serowe	Referent		
<u>MIGRATION</u>				
No. of locations in last year	Over 1 location	4.42	1.56 to 12.52	0.005
	1 location	Referent		
<u>GENDER ATTITUDE</u>				
One woman is enough to satisfy me as a man	Disagree	9.05	1.52 to 53.84	0.015
	Agree	Referent		

4.19 MULTIVARIATE FACTORS ASSOCIATED WITH HAVING UNPROTECTED SEX

Logistic regression models were built to address factors associated with respondents having unprotected sex with their main partner and casual girlfriend. There were no factors significantly associated with respondents having unprotected sex with their main partner. One factor was significantly associated with respondents having unprotected sex with their casual girlfriend (table 4.28). Respondents who had unprotected sex with their

main partner were 19.44 times (95% CI: 2.43 to 155.41) more likely to have unprotected sex with their casual girlfriend (p=0.005).

Table 4.28 Multivariate factors associated with having unprotected sex with girlfriend

Variables		Odds Ratio	95% CI	p-Value
SEXUAL BEHAVIOUR				
Unprotected sex with	Yes	19.44	2.43 to 155.41	0.005
partner	No	Referent		

4.20 SUMMARY OF MULTIVARIATE FACTORS

Table 4.29 provides a summary of the odds ratios for the 12 multivariate factors which contributed significantly to respondents' engagement in sexual risk behaviours. Of these, ten factors, involving migration patterns, living conditions, gender attitudes, and socio-demographic factors contributed to respondents' current engagement with multiple partners and previous engagement with extra girlfriends.

Concerning migratory factors, the frequency with which workers visited their main partner, and the number of locations they have worked at, contributed significantly to having extra girlfriends during the last year and last five years. In terms of living conditions, on-site accommodation was found to have significantly contributed towards currently having multiple partners. Two gender attitudes significantly contributed to these sexual risk behaviours, the attitude that "women are often interested in me because of my income" and that "one woman is enough to satisfy me as a man".

In terms of socio-demographics, the respondents' age, number of children, employment position, monthly salary, and workplace location were major contributing factors. It is important to note that respondents' level of alcohol consumption, awareness of

HIV/AIDS, and perception of risk did not significantly contribute to their engagement in multiple partners or casual girlfriends.

Table 4.29 Summary of odds ratios for multivariate factors

Variables	Multiple Partners	Extra Girlfriend		Transactional sex (for financial support)	Unprotected sex	
		last year	last 5 yrs		Partner	G/friend
SOCIO-DEMOGRAPHIC						
Age (Older)			0.95			
No. of children (under two)	2.91	5.07		4.09		
Employment Position (Supervisory)		3.38				
Monthly Salary (P 1,000 & over)			3.15			
Workplace (Gaborone)			8.39			
Finished secondary school (No)				11.70		
MIGRATION						
Frequency visit partner (Monthly / less)		3.74		4.57		
No. Locns. In last year (over 1)			4.42	3.01		
LIVING CONDITIONS						
Type of accommodation ? (On-site)	3.00					
GENDER ATTITUDE						
Women interested in me (Agree)		3.86				
One woman is enough (Disagree)	6.21	6.06	9.05	3.35		
SEXUAL BEHAVIOUR						
Unprotected sex (with girlfriend)						
(with partner)						19.44

Similar migration patterns, gender attitudes and socio-demographic factors were found to have significantly contributed towards having transactional sex during the last five years, as shown in table 4.29. In terms of unprotected sex, the study was unable to identify any factors which have significantly contributed to workers' engagement in unprotected sex with their main partner. In terms of unprotected sex with casual girlfriends, respondent's engagement in unprotected sex with their main partner was the only factor which was found to have contributed significantly.

5.0 DISCUSSION

Chapter five discusses the descriptive, bivariate and multivariate results presented in chapter four, comparing them with findings from other relevant studies. Each of the study's objectives are considered, involving workers' (i) socio-demographics, (ii) migration patterns, (iii) living conditions, (iv) alcohol consumption, (v) gender attitudes, (vi) HIV/AIDS awareness, and (vii) sexual risk behaviours. Following this, the extent to which factors contributed to respondent's engagement in sexual risk behaviours are examined.

5.1 SOCIO-DEMOGRAPHIC FACTORS

5.1.1 AGE DISTRIBUTION

Respondents in this study were notably older than in Botswana generally with a mean age of 39.5 years compared to 31.6 years nationally (NACA, 2003b). Given the association in this study of age with marriage ($p < 0.001$) and children ($p < 0.001$), it is likely that respondents' older age distribution resulted in a larger proportion being married or having children. In addition, given the association of respondents' younger age with having an extra girlfriend ($p = 0.031$), it is possible that the study populations' older age distribution could have led to a lower prevalence of casual girlfriends. This is based on the assumption that older men are more likely to be married or have a cohabiting partner.

5.1.2 PLACE OF BIRTH

Most construction workers in this study (94.0%) originated from the Eastern part of Botswana where the majority of people live, compared to the Western region which has just 4.3% of the nation's population. Such a large concentration of people in the East is a consequence of higher rainfall, fertile soils, as well as the more developed infrastructure

and mineral deposits (Bainame, Letamo & Majelantle, 2002). In the data analysis it was found that respondents' place of birth, ethnic / tribal background and local language had no influence upon their sexual risk behaviours.

The limited number of foreign workers (2.3%) in this study was unusual, given the large number of immigrants working in skilled professions across Botswana (Oucho, Campbell & Mukamaambo, 2000). Employment of foreign workers, though, has been tightly regulated by the government to ensure that immigrants do not take positions which could be filled by locally qualified people (Keboyakgosi, et al., 2003). Consequently, foreigners were only found in supervisory and management positions. As a result, this study focussed predominantly on the sexual behaviours and HIV risk of Botswana workers (97.7%).

5.1.3 EDUCATIONAL LEVEL AND TRAINING

The educational level of construction workers was quite low with only 6.5% of respondents having completed secondary school, compared to 38% of mobile workers in the study by Hope (2000). A national survey of 2,126 households (UNDP, 2002) reported that 57.9% of men received some form of secondary / higher education, compared to only 23% in this study. Keboyakgosi, et al. (2003) explained that given the limited income and difficult working conditions in construction work, companies have often found it difficult to recruit more educated employees. The low levels of education, however, were found in a multivariate analysis to have significantly contributed to respondents' engagement in transactional sex (O/R=11.70).

Most of the skills these workers had acquired were learnt through informal training within the company over several years. Only 35.7% of workers had ever received any form of vocational training. This situation is common in the construction industry and was the case in Port Elizabeth, South Africa, where only 31% of workers were qualified in a

construction trade, even though most of them had worked the greater part of their lives in construction (Smallwood, et al., 2002). In the South African case, as in this study, the majority of those who had been to secondary and further education worked in supervisory and management positions.

5.1.4 MARRIAGE AND PARTNERS

Given that homosexuality and polygamy are both illegal in Botswana, it was not surprising that not one of the respondents reported having had a male partner or several wives. The majority of construction workers in this study were either currently married (49.7%), or in long-term relationships of over five years (26.3%). This was a higher proportion than in national surveys where only 29.4% of men (aged 15 – 49 years) were married / cohabiting. Nearly two-thirds of men in Botswana had reportedly never married or cohabited (UNDP, 2002). Government surveys noted that the number of female-headed households in Botswana has been continually rising, while the number of ever married women declined sharply from 61.4% in 1971 to 50.5% in 1991 (Government of Botswana, 1997).

The high prevalence of marriage and long-term relationships in this study may be a result of respondents' older age distribution or more traditional rural background. However, the majority of these workers (57.0%) were also involved in extra relationships with casual girlfriends during the last five years. No significant relationship was found to exist between respondents' marital situation (or long-term partner) and whether they had extra girlfriends.

5.1.5 EMPLOYMENT AND SALARY

Monthly salaries were typical for supervisory / managerial staff in Botswana, but notably low for skilled & semi-skilled workers - at an average of 500 to 1,000 Pula. This was also

observed in a national study (Kaboyakgosi, et al., 2003), which identified the construction sector as the second lowest payer of workers' salaries (after the agricultural sector). Kaboyakgosi, et al. (2003) explained how construction companies, often operating within limited profit margins and subjected to frequent economic cycles of growth and decline, were less able to support more substantial salaries. With intense competition for building contracts, limited finance was available to pay higher salaries for skilled and semi-skilled workers. In contrast, the national mining corporation, Debswana, with a monopoly over diamond reserves and large profit margins was able to pay much higher salaries for its skilled workers. As a result, workers in this study reported that they could not afford to visit their long-term partners frequently, citing transport costs as one of the major constraints. However, no association was found between workers' salary and the frequency with which they visited their partner. In fact it was the well-paid workers (over 1,000 Pula monthly), who could afford to see their partner more frequently, who in the multivariate analysis were more likely to have an extra girlfriend during the last five years (O/R=3.15).

5.2 MIGRATION PATTERNS

5.2.1 MIGRATION TO PARTNERS

In this study, migration distances between workers and their main partner were particularly large (mean of 257 km) as a result of the country's size, which covers approximately 1,200 km from north to south, and east to west. Such large distances meant that half the workers (50.3%) could only visit their partners on a monthly basis and 5.5% less than monthly. A similar situation occurred in another study of Batswana migrant workers (Hope, 2000) where only 37% could visit their partner every month and 27% every one to two months.

A major determinant of distances between workers and their partners was whether the construction sites were in urban areas (Gaborone) or rural areas (Serowe). In rural sites such as Serowe, migration distances to one's partner were much longer (mean = 336.2 km). Most employees were provided on-site accommodation in shared rooms - which made it difficult for partners to visit. In urban locations such as Gaborone, migration distances to one's partner were significantly less (mean distance = 157.4 km). Workers were not provided accommodation and usually rented rooms where their partner could stay. The urban environment was far more attractive for their partners to live in, with relatively good facilities and better opportunities of employment. It was also easier for partners to stay in Gaborone since workers were more likely to be transferred between construction sites within the city and so stay there for extended periods of time.

Migration distances of over 100 km significantly reduced the frequency with which workers visited their partners, preventing them from being able to travel home every evening. Given that the majority of respondents worked overtime during weekends, they had little time available to visit their partner from week to week. As a result, most respondents working further than 100 km away visited their partners during the four-day holiday provided at the end of each month. Workers cited the difficulties of long distances and limited time available as some of the main problems they experienced trying to visit their partners frequently. However, the largest difficulty was transport costs. At 50 Pula return fare for a 300km to 400 km trip, this could already cost as much as seven percent of their monthly salary for the lowest paid workers.

A number of studies have reported how large migration distances and limited time with one's partner contributed to HIV infection. Amongst truck drivers in South India, HIV sero-positivity increased dramatically with the number of trips drivers made every month

away from their partner & families (Manjunath, et al., 2002). In East Africa, a study by Bwayo, et al. (1994) of long-distance drivers found that HIV infection correlated with travel outside Kenya, extended periods of time away from home, and consequently less frequent visits to one's partner. In the military, long periods of time abroad away from partners have led to higher rates of STI and HIV infection. When the Nigerian military served overseas as peacekeepers, HIV prevalence rates increased from 7% amongst soldiers one year away from their partner to 16% amongst those three years away (UNAIDS, 1998).

In this study, large migration distances resulting in limited visits to one's partner contributed to workers' engagement in sexual risk behaviours and increased susceptibility to HIV infection. In a bivariate analysis, workers over 100km from their main partner were 3.15 times more likely to have an extra girlfriend in the last year. In the multivariate results, respondents who only saw their partner on a monthly basis (or less often) were 3.74 times more likely to have had an extra girlfriend in the last year than those who visited more frequently.

5.2.2 MIGRATION TO HOME VILLAGE

Migration of workers to their home village, though not as frequent as to their main partner, formed an important part of workers' migratory patterns. The home village was not only the place where respondents originated, but also where most of their relatives still lived (91.2%), in 38.4% of cases where their partners came from, and in half the cases (51.7%), where their children were staying. Periodic migration to the home village involved visiting not only their extended family but also their partner's relatives and in some cases their own children. Studies indicated that while there has been much urbanisation in Botswana, most of those living in towns still have strong rural roots to which they frequently return.

As a result, there is a constant movement of family members between the cattle post, fields, and towns (UNDP, 2000; NACA, 2002a). In this study, the average distance workers travelled to visit their family home was much larger (365.1 km) than the distance to their regular partner (257.3 km), reflecting the fact that a large number of partners have moved to stay at the workplace. However, in this form of migration, workers' distance from their home village was not found to be associated with their engagement in sexual risk behaviours.

5.2.3 MIGRATION BETWEEN CONSTRUCTION SITES

Amongst migrant labour in Botswana and Southern Africa, two different patterns of migration have come to light. The most common pattern is a form of circular or oscillating migration between the workplace and long-term partner (Lurie, 2004b) which occurs amongst mine workers and seasonal farm workers. In addition to this circular migration, a second pattern involves the periodic movement from workplace to workplace. This is often the situation for military personnel, truck drivers, and construction workers, as their services are needed at different construction sites.

This second pattern of migration has been identified by numerous studies to have a far greater impact on workers' personal life and relationships, placing them at greater risk of HIV infection. In Kwa-Zulu Natal, South Africa, the risk of HIV infection was found to be significantly higher amongst people who had lived in more than four places compared to one location due to the social disruption caused by repeated relocation (Lurie, Williams & Zuma, et al., 2003a; Lurie, 2004a)

Construction work is often characterised by relatively short-term work at various locations, thus leading to a nomadic, often isolated lifestyle for skilled workers (Simon-Meyer, et al., 2000). In Brazil, it was not only the separation from their home and families

which affected workers, but also the need to continually travel from one job to the next which led to the disruption of their personal lives (Hughes, 2000). This was found to be the case in this study of migrant construction workers whereby those who were transferred across locations during the last year were significantly more likely to have an extra girlfriend compared to those who remained in one location.

The extent of migration between locations depended on whether respondents were working in urban (Gaborone) or rural (Serowe) sites. Construction workers in urban locations such as Gaborone were more likely to remain in the same location and move between construction sites within the city. These workers had a much more stable situation, remaining for several years in the same accommodation and social environment. Workers in rural locations like Serowe were transferred more frequently between locations - with 19 percent of respondents placed at four or more locations during the last three years (compared to seven percent of Gaborone workers). Due to the larger distances between construction sites, workers in rural areas were required to move to new locations more often and thus experienced greater disruption to their personal lives.

5.3 LIVING CONDITIONS

There was a clear difference in living conditions between urban (Gaborone) and rural (Serowe) construction sites. In urban locations such as Gaborone, the company did not provide housing and every worker had to rent their own accommodation, usually a single room with basic amenities in the poorer slum area of the city. In this situation, though, the accommodation was usually private with enough room for their long-term partner to visit or stay for some time. In rural areas, given the lack of accommodation available, the company provided on-site hostel accommodation for workers who were usually required to share their rooms. This prevented wives and their long-term partners from visiting the

workers. Furthermore, in cases where male workers lived closely together, as in the case of agricultural camps for migrant labourers, it has been found that macho-masculine behaviour develops which encourages the display of sexual prowess (Decosas, Kane & Anarfi, 1995b).

This study though, did not find an association between ‘masculine’ gender attitudes and whether workers lived in on-site accommodation. The prevalence of gender attitudes amongst certain men may have been influenced more by traditional culture than working within the construction environment. Workers in on-site accommodation, however, saw their partner less frequently because of the difficulty for partners to stay at the construction site. During numerous interviews it was observed that respondents in on-site accommodation mentioned how workers they shared rooms with brought girlfriends back to their rooms at night. Workers described frequent situations in which local women informally visited the construction camps - where there was evidently a concentration of men, separated from their partner for long periods of time. Site managers interviewed described how, when hostels were being disassembled for removal, several workers’ girlfriends were often found still staying within the hostel rooms. As a result the multivariate analysis found that onsite accommodation was associated with having multiple partners.

5.4 ALCOHOL CONSUMPTION

Alcohol consumption has been identified as a major predictor for HIV infection through its association with sexual risk behaviours (Graves, et al., 1995; UNAIDS, 1999a; Mbulaiteye, et al., 2000; Santelli, Robin & Brener, et al., 2001; Kington, et al., 2002; Bryceson, et al., 2003; NARCONON, 2004). Research points to three possible explanations for this association. In the first place, bars, the main venues of alcohol

consumption, have served as social settings for meeting sexual partners and initiating commercial / transactional sex (Santelli, et al., 2001). Secondly, alcohol consumption could be simply a 'marker' of people who have been regularly engaging in sexual risk behaviour (NARCONON, 2004). Thirdly, it has been argued that alcohol contributes directly to engagement in sexual risk behaviour through the way in which it acts as a depressant on the central nervous system, affecting people's judgement and diminishing personal control (UNAIDS, 1999a; Mbulaiteye, et al., 2000; Foremann, 2002). Certainly a number of studies of migrant workers found that when away from their partner for long periods with limited recreational facilities available, many were known to engage in heavy drinking which would often result in casual or commercial sex (Campbell, 1997; Parry, Whiteside & Smart, 2000; Foremann, 2002; Whiteside & Smart 2003).

Contrary to the high levels of alcohol consumption amongst most groups of migrant workers (Campbell, et al., 1999; Foremann, 2002), alcohol consumption in this study accounted for only 33.3% of respondents. One explanation points to the possibility of respondents' under-reporting of alcohol consumption, either due to social proscription or concern of their employer becoming aware (despite assurances of confidentiality). Certainly, a number of discrepancies appeared in people's reporting - with a higher proportion of respondents reporting drunkenness (36.3%) than alcohol consumption (33.3%). This raised questions as to the validity of this data.

In order to resolve the problem of under-reporting, respondents were asked why they consumed / did not consume alcohol. A number of participants reported that while in the past they had drunk excessively, during their later years they had decided to abstain from alcohol. However no association was found between respondents' age and their consumption of alcohol. A more likely reason involved the fact that 33.9% of respondents

attended church regularly, which in Botswana strictly forbids alcohol. Of the workers who regularly attended church (57 out of 171 workers), 91.4% did not consume alcohol.

Of those who did drink alcohol though, it is interesting to note that the majority (64.9%) reported being drunk/intoxicated on a weekly basis (drinking more than five beers or equivalent). There were high levels of alcohol consumption amongst those who drank, with 56.1% consuming ten or more beers per week (or equivalent). This suggested that construction workers in this study were clearly demarcated between the majority who did not drink alcohol and a large minority who drank heavily on a weekly basis - thus placing themselves at risk of HIV infection through their engagement in sexual risk behaviours. Indeed the bivariate results showed an association between drinking ten or more beers (or equivalent) and having multiple / casual partners.

The majority of drinking amongst migrant construction workers was carried out socially in bars rather than alone. Since bars were some of the few places to socialise, play pool, and watch TV, it was not surprising that a larger proportion of workers went to the bars (55.0%) than actually consumed alcohol (33.3%). Again a clear demarcation arose between those who went to bars and those who did not, with the majority of those who attended bars doing so on a weekly basis (57%) and becoming intoxicated several times a week (63%). Unlike a number of studies of migrant labour which found that going to bars and drinking alcohol was a result of limited opportunities for leisure in rural areas (Campbell, 1997; Parry, et al., 2000; Foremann, 2002), no association was found in this study between going to bars and being in rural locations or on-site accommodation. It is interesting to note that in the multivariate results it was the frequency with which workers visited bars rather than the amount they drank which contributed to worker's engagement in transactional sex.

5.5 GENDER ATTITUDES

In Batswana culture, two traditional proverbs have been used to explain men's attitude to women and sexual relationships.

The first, "monna poo ga a agelwe lesaka", which translated states that "a man is like a bull, he cannot be fenced into one kraal", argued that men are naturally promiscuous and so cannot be 'tied', or forced to stay with one woman (Talbot, Kenyon & Moeti, et al., 2002:314; Naidoo, 2003:18). In traditional culture, this understanding has also been phrased as "monna phafano o a hapaanelwa", which translated means that "a man is like an alcohol calabash, he must be shared"; and "monna selepe o tsamaya a rema", meaning "a man is an axe, he goes around cutting" (Maundeni, 2001:75). MacDonald (1996) explained how traditionally, polygamy was commonplace and up to the 1940s over ten percent of Batswana men were still polygamists. As polygamy slowly disappeared, this proverb has been used to explain a man's need for casual girlfriends in addition to his wife. In the Ngwato tribe, MacDonald (1996) explained how this practice became known as "go ja mmogo"- "to eat together", whereby married men took another woman as a concubine, 'nasty', for whom he provided meals and clothing.

Both Naidoo (2003) and MacDonald (1996) argued how this attitude of needing more than one sexual partner was commonplace. However, in this study, most workers (72.5%) disagreed with the proverb, as did the majority of respondents in a study by Talbot, et al. (2002). In a bivariate analysis, respondents who agreed with this proverb were more likely to have had an extra girlfriend in the last five years. However, in the multivariate analysis this proverb was not significant and it was workers' response to another attitude "one woman is enough to satisfy me as a man" which contributed to having multiple partners.

A second traditional proverb, "your blood stops flowing without frequent (or regular) sex"

was based on the traditional belief that regular/frequent sex was essential for men's health, which occurred not only in Botswana but also amongst the South African population (Campbell, 1997). Not having sex frequently / regularly was considered so life threatening that the very source of ongoing life, a man's blood, would stop flowing. According to the advice of several Botswana HIV/AIDS workers, this proverb was well known. Indeed the vast majority of workers recognised the proverb and understood its meaning. Yet only 13.5% of respondents agreed with its message. The response to this proverb was not associated with being involved in sexual risk behaviours. Widespread availability of modern health care and western education in Botswana have probably led to a decline in the acceptance of such traditional proverbs. The fact that most respondents disagreed with this proverb suggested that they felt it was possible to refrain from sex when away from their long-term partner. When questioned on this issue, most respondents (91.4%) mentioned a month or longer, while 29.9% claimed to be able to refrain from sex for over three months of separation from their main partner. This differed from the findings of a study in South Africa (Jochelson et al., 1991) where the majority of miners felt that they could not refrain from sex when away from their partner over long periods and thus engaged in having multiple partners.

In this study however, given that 94.5% visited their partners on at least a monthly basis and 91.4% stated that they could refrain from sex for a month or more, one would assume that very few workers would resort to having an extra girlfriend. Yet a significant proportion of workers had an extra girlfriend during the last year (23.4%) and last five years (57.0%). One explanation could be that respondents were exaggerating the length of time they were able to refrain from sex while separated from their partner. A more likely explanation though, is that workers chose to engage in sexual contact with casual girlfriends for reasons other than their perceived need for sexual contact. The majority of

respondents (77.8%) reported feeling lonely when separated from their long-term partner, and a further 65.1% reported that they experience women being ‘interested’ in them because of their income. As a result, the reasons for having extra girlfriends were probably more due to feelings of loneliness or respondents’ experience of women being ‘interested’ in them. Certainly workers who agreed that women were ‘interested’ in them were significantly more likely to have multiple partners.

5.6 HIV/AIDS AWARENESS

Only three questions were asked about HIV/AIDS awareness given the widespread coverage of HIV/AIDS in Botswana’s schools and mass media (UNICEF, 2001). As expected, respondents in this study showed very high levels of HIV awareness with 86.3% of respondents reporting that HIV/AIDS is a problem for everyone including themselves, and 95.9% correctly identifying the best forms of HIV prevention. This was consistent with a number of other studies in Botswana which revealed high levels of HIV/AIDS awareness (Hope, 2000; UNICEF, 2001; UNDP, 2002). However, despite such high levels of awareness, studies investigating specific knowledge revealed glaring misconceptions. Only 30.6% of men in the UNDP (2002) study and 19% of men in the NACA (2003a) survey correctly answered all five knowledge questions.

Levels of HIV awareness amongst migrant workers outside Botswana varied greatly depending on the country. Amongst construction workers, in China, very little HIV/AIDS awareness was reported, whereas in Vietnam, as many as 68.3% of construction workers had accurate awareness of HIV prevention. (Liu, An & Shen, 2002; Nguyen Duc Thang, 2002). In India, a study of long-distance truck drivers revealed that only 42% had heard about HIV/AIDS (Singh, et al., 1994), whereas in the United States, more than 75% of migrant farm workers were familiar with HIV/AIDS (Fitzgerald, Chakraborty & Shah,

2003). In South Africa, a study of mineworkers by Campbell (1997) indicated that, as in Botswana, HIV/AIDS awareness was high but workers' in-depth knowledge was patchy and suffered from misconceptions.

A significant number of these studies have found that greater HIV awareness bears little impact upon migrant workers' sexual behaviours. A study by Singh, et al. (1994) of long-distance truck drivers in Delhi, India, found that while awareness of HIV/AIDS improved from 42% to 56% of drivers (1991 to 1992) there was little change in the proportion of drivers engaging in unprotected casual sex. Amongst miners in South Africa, Meekers (2000:22) noted that even though knowledge of HIV/AIDS had improved, there was little evidence of change in miners' behaviour. A study of teachers across South Africa (HSRC, 2004) found that HIV prevalence rates were similar to national levels even though HIV/AIDS awareness was very high amongst teachers. The report argued that "clearly knowledge is not sufficient to influence behaviour change" (HSRC, 2004:115).

5.6.1 PERCEPTION OF HIV RISK

Workers' perception of HIV risk (44.7%) was notably higher here than in another study of construction workers in Vietnam (Nguyen Duc Thang, 2002), where 14.3% considered themselves to be at risk. Since in both cases HIV/AIDS awareness was widespread and similar proportions of the workforce engaged in sexual risk behaviours, this difference in perception was possibly linked to the large proportion of respondents (51%) who had met or seen people living with HIV/AIDS (PLWHAs). However it is important to consider how the epidemic has progressed much further in Botswana, with a prevalence of 37.3% compared to Vietnam, with a prevalence of 0.4%. As a result, construction workers in Botswana have been far more exposed to the impact of HIV/AIDS. Furthermore, there is the difficulty in making comparisons between surveys conducted more than two years

apart. It is possible that in the two years since the Vietnam study, workers' perception of risk may have dramatically increased.

Compared to mineworkers, 44.7% of men in this study perceived themselves to be at great risk, whereas only 34.8% of miners in Welkom, South Africa (Meekers, 2000) and 20.3% of black miners across South Africa considered themselves likely to have contracted HIV (Ijsselmuiden, Padayachee & Mashaba, et al., 1990). Amongst truck drivers the perception of HIV risk was much lower among the construction workers in this study. Podhisita, Wawer & Pramualratana, et al. (1996) found that despite drivers' high level of HIV awareness and frequent engagement in sexual risk behaviours only 3% perceived themselves to be at risk while 62% claimed to be at no risk of HIV infection. Respondents' perception of risk was not associated with their engagement in sexual risk behaviours.

5.7 SEXUAL RISK BEHAVIOURS

5.7.1 MULTIPLE PARTNERS

Having multiple sexual partners has been identified by numerous studies as a major risk factor for HIV infection. In Nairobi, Kenya, a study of 980 PHC patients found that seropositivity was associated with having two or more sexual partners during the last year (Ndinya-Achola, et al., 1997), while in Harare, Zimbabwe, multiple partners were a major risk factor for HIV infection (Basset, et al., 1996). In South Africa, Evian (2002) argued that the driving force behind the country's dramatic rise in HIV prevalence has been the widespread and frequent occurrence of multi-partner sex.

In this study, respondents' involvement in multiple partners was explored in three ways. As a result: (i) 17% of respondents reported currently having multiple concurrent partners at the time of the interview; (ii) 23.4% of respondents have had an extra girlfriend in the

last year; (iii) 57% of respondents had an extra girlfriend during the last five years - in addition to their long-term partner.

In a similar study of migrant men across Botswana, just under 50% of single men had a live-in partner and a number of those who were married had set up “parallel families” in areas where they worked (Hope, 2000). A local study of TB patients reported that 44% of respondents had sexual contact with a person other than their regular sexual partner during periods of separation resulting from work (Talbot, et al., 2002). However, both these surveys had limited sample sizes (less than 300 people) and were therefore not representative of Botswana’s population. Of more interest were the results from two large nation-wide surveys in which 31.7% (NACA, 2003a) and 25.3% (UNDP, 2002) of men reported having two or more partners during the last year. These surveys, though, failed to measure the occurrence of multiple concurrent partners.

Amongst truck-drivers, a much larger proportion of workers had multiple partners compared to this study. In India, a number of studies (Singh, et al., 1994; Bryan, et al., 2000; Manjunath, et al., 2002) have been carried out indicating that some 58% to 96% of truck-drivers had multiple partners. In Bangladesh, 40% of drivers had visited three or more sexual partners during the last year (Gibney, et al., 2002) while in Thailand, 35% of respondents had sex with multiple partners in the last six months (Podhisita, et al., 1996). In South Africa, a study by Ramjee, et al. (2002) found that 70% of drivers had steady girlfriends in addition to their wife. Amongst migrant mine workers, though, the proportion of those who had multiple / casual partners varied greatly. While Jochelson, et al. (1991) reported that most workers engaged in multiple sexual encounters with different changing partners, Ijsselmuiden, et al. (1990) indicated that only 2.6% of the 429 surveyed miners had more than one partner. This may be related to the fact that there was less

availability of women near the mines, so workers unable to find a stable partner resorted to visiting CSWs (Campbell et al., 1999; Meekers, 2000).

In general, a smaller proportion of workers had multiple partners in this study compared to other studies of migrant workers. During the interviews, when asked about their colleagues, 89.6% of respondents mentioned that some of the migrant construction workers have extra girlfriends. Yet only 17% reported having multiple concurrent partners at the time of the study. This points to the likely problem of under-reporting which Lurie, et al. (2003a) experienced in his study of migration in Kwa-Zulu Natal, where only 11.8% reported having two or more current casual partners.

In the multivariate analysis, four groups of contributing factors were found to be associated with having multiple partners – gender attitudes, migration patterns, living conditions and socio-demographic factors.

5.7.1.1 Gender attitudes and multiple partners

Gender attitudes were strongly associated with having multiple partners, particularly the attitudes of (i) “one woman is enough to satisfy me as a man” and (ii) “women are often interested in me because of my income”. The fact that workers who disagreed with the statement “one woman is enough to satisfy me as a man” were significantly more likely to have multiple partners suggests that respondents did not passively engage in risk behaviours simply as a result of the difficult working environment. Instead we observe that respondent’s attitudes to women and sexual relationships played a determining role. This finding agrees with those in Mandeni Township, Kwa-Zulu Natal, where Hunter (2002) found that the development of masculine values (which placed a high value on men having multiple sexual partners) contributed to the dynamic of multiple concurrent partners.

The second gender attitude, “women are often interested in me because of my income” was more a perception than an attitude. Respondents who agreed with this statement were in the multivariate analysis 3.86 times more likely to have had an extra girlfriend in the last year. While there was no relation between this attitude and monthly income, there was an association with living in on-site accommodation - suggesting that workers mostly experienced the situation when living within the construction site.

5.7.1.2 Migration and multiple partners

Migration was strongly associated with having multiple partners, particularly migration across work locations which increased the likelihood of having an extra girlfriend in the last five years by 4.42 times. Significantly more workers who were transferred between work locations in the last year (exposed group) had an extra girlfriend compared to those who remained in one location (control group). It is important to note that it was the migration between locations rather than building sites which contributed to having multiple partners. Respondents who worked at several building sites in the same location experienced little change to their personal / social environment.

This was confirmed by a study in Brazil which reported how construction workers’ continual movement between building sites disrupted their personal lives and negatively affected opportunities for developing long-term relationships (Hughes, 2000). Truck drivers who moved between locations more frequently than other migrant workers were found to have frequent changes of sexual partners (Rao, et al., 1999; Gibney, et al., 2002). In a study of seasonal farm workers in South Africa, it was also found that workers’ migration between farms season after season discouraged the formation of stable relationships (IOM, 2004).

However there was a problem with this finding in terms of causality. Given that migration

between work locations was only measured for the last year, it was difficult to ascertain whether this contributed to having an extra girlfriend in the last five years. The study should have measured the number of work locations and having an extra girlfriend over the same period of time, possibly in the last three years. Therefore, while statistically there was found to be a multivariate association, in reality migration between workplaces cannot be accepted as a factor contributing to whether workers had an extra girlfriend in the last five years.

Migration between the workplace and one's long-term partner also contributed to having multiple partners. It was the lack of frequency with which workers could visit their main partner, rather than the distance separating them, which contributed to having multiple partners. This was probably because the frequency of visits determined the amount of time workers spent with their partner every month and so reduced the temptation to have an extra girlfriend. This finding was consistent with that of a study in Limpopo province, South Africa (IOM & CARE, 2003) where migrant workers who returned home up to three times a year reported more concurrent partners than men who returned home more often.

In this study, while the multivariate analysis did not identify an association (possibly due to its concurrence with other migration factors), the bivariate results found that living separate from one's partner increased the likelihood of having multiple partners. This was consistent with the findings from a number of other studies in the Philippines (Ahlburg, Jenson & Perez, 1997), Kenya (Brockerhoff et al., 1999) Zimbabwe (Basset et al., 1996) and Kwa-Zulu Natal (Lurie et al., 2003a).

5.7.1.3 Living conditions and multiple partners

Respondents living in onsite accommodation were 3.00 times more likely to currently

have multiple partners. The reason for this association, as discussed in section 5.3, was related to the fact that: (i) workers in on-site accommodation visited their partners less frequently as there was no opportunity for partners to visit them ($p=0.046$); (ii) significantly more workers reported women being ‘interested’ in them ($p=0.020$).

A number of studies of migrant labour have found that on-site accommodation contributed to having multiple partners. Amongst seasonal farm workers in the United States, a study found that large concentrations of men together in on-site hostels / camps contributed to having frequent contact with casual girlfriends and CSWs (IOM & UNAIDS, 2003). Amongst construction workers in South Africa it was observed that “labour camps are a breeding ground for the spread of HIV/AIDS and sexually transmitted diseases” (CIDB, 2003:1). A study by Johnson, et al. (2002) of miners in South Africa found that the odds ratio of HIV infection amongst non-hostel dwellers relative to hostel dwellers was 0.76 ($p=0.05$). Across South Africa, an MRC study (Taitz, 2000) found that workers who stayed in hostels or construction camps were at a much higher risk of being infected than those who stayed in rented houses or in their own homes.

5.7.1.4 Socio-demographic factors and multiple partners

In terms of socio-demographic factors, respondents’ age, number of children, employment position, monthly salary, and work location were all found to be significantly associated with having multiple / casual partners.

Younger respondents in this study were significantly more likely to have had an extra girlfriend in the last five years with a 5% decrease in risk for each additional year. This was consistent with the findings of a study in Thika, Kenya, where younger single men had significantly more partners than older married men (Ferguson, et al., 2004). In Amsterdam, Holland (Gras, van Bentham and Coutinho, 2001), young men were more

likely to engage in multiple sexual partners and in the Philippines, Ahlburg, et al. (1997) found that extra-marital activity declined with age.

Respondents with less than two children were significantly more likely to have multiple partners. This association, though, was not found in other studies. Having less than two children could be indicative of respondents' younger age and as a result associated with having multiple partners. On the other hand, having less than two children could indicate a shorter relationship with the respondents' main partner - which in a bivariate analysis was associated with having an extra girlfriend in the last year.

The association between respondents' workplace and having multiple partners was surprising in that workers in Gaborone were 8.39 times more likely than those in Serowe to have had an extra girlfriend in the last five years. The opposite situation was expected, that workers in Serowe, the rural location, would be more likely to have multiple partners - given that (i) they had to migrate over larger distances to visit their partner; (ii) they were less likely to see their partners on a daily/weekly basis; and (iii) they were more likely to be living in on-site accommodation. All three of these factors were associated with having multiple partners. There was a higher response rate in Serowe than Gaborone which accounted for this.

Respondents in a supervisory position and those on a high salary were more likely to have had an extra girlfriend. Given that respondent's employment position indicated their income level, it was likely that these two factors were inter-linked. The reason for this association with multiple partners may be related to the fact that respondent's with higher salaries (over 2,000 Pula a month) were more likely to experience women showing an 'interest' in them.

These findings point to a situation of transactional sex where, especially in rural areas,

women in a situation of poverty trying to support their families approach economically mobile men in the area for sex in exchange for financial support (SAFEC, 2003; NACA, 2003a). Certainly, in this study the majority (73.6%) of workers with an extra girlfriend in the last five years provided them with material support. Respondents holding senior positions with higher salaries would be financially more able to support an extra girlfriend near the workplace, whereas in several interviews respondents on lower salaries mentioned that they could not afford to have a casual girlfriend on their salary.

5.7.2 TRANSACTIONAL SEX

Transactional sex has been identified by a number of studies as one of the central factors contributing to the spread of HIV/AIDS in Southern Africa - through the way in which it facilitates multiple partner relationships (Wamoyi, et al., 2003; Dunkle, et al., 2004). Studies have reported how women may have several transactional relationships to help provide for all their needs with one man helping with the rent, another providing food, while another man provides transport to work (Illingworth, 2004). In the Democratic Republic of Congo, these extra sexual partners were known as 'pneus de rechange' or 'spare tyres', whom women occasionally sought out to help meet their economic needs (UNAIDS, 1999a). Certainly in construction work, transactional sex posed a greater risk of HIV infection given that the respondents' sexual partner was more likely to: (i) have other concurrent boyfriends to help make ends meet; and (ii) transfer from one temporary migrant worker to another as one leaves and another arrives in the area. In Botswana, the government's HIV surveillance (NACA, 2003a:51) found that construction and mining projects were a vehicle for the spread of HIV across the country through the way in which they were bringing a large number of economically buoyant young men into contact with young women who were less economically empowered.

Given its informal nature and similarity to casual relationships, transactional sex proved difficult to measure in this study. Two forms of measurement were used which led to different findings: (i) 68.8% of respondents with an extra girlfriend in the last five years (or 25.7% of total respondents) provided financial support; (ii) 76.6% of respondents with an extra girlfriend in the last five years (or 28.7% of total respondents) provided material support which may have included food, accommodation, money or clothing. The former measurement was used for data analysis given that financial provision was more likely to be linked to transactional sex compared to the provision of material support - which could be seen as part of providing support in the relationship. Yet it is still difficult to determine whether this financial support was in exchange for sexual contact or a natural part of the relationship since the study did not investigate whether these sexual relationships would have occurred without the provision of material support.

The proportion of people involved in transactional sex was significantly higher than in a national household survey (UNDP, 2002), in which only 2.2% of men were reported to have exchanged gifts or money for sex during the last year. Other studies in Botswana, though, indicated that transactional sex is a significant trend with eight to fifteen percent claiming to have had sex in exchange for gifts, money or favours (MacDonald, 1996). In South Africa, SAFEC (2003) reported that civil engineers and construction workers often attract women who offer sex for money in order to feed and clothe their families, perhaps because these workers often work away from home in impoverished rural areas where they are viewed as 'islands of wealth', and so are more likely to engage in transactional sex than the general population.

In the multivariate analysis, three groups of contributing factors were found to be associated with having transactional sex – socio-demographic factors, migration patterns,

and gender attitudes.

5.7.2.1 Socio-demographic factors and transactional sex

Limited educational background was a major predictor for having transactional sex (O/R =11.70). Yet most studies of transactional sex did not identify this factor. Only one regional study, in Soweto, South Africa, found that women who had post-secondary education were less likely to have transactional sex (Dunkle et al., 2004).

Respondents with less than two children were significantly more likely to have transactional sex (O/R=4.09) as they were to have multiple partners. As discussed in section 5.7.1.4, having less than two children could be indicative of a younger age or a shorter relationship with one's regular partner.

In terms of respondents' age, the majority of research (Evian, 2002; Illingworth, 2004; Germain, 2004) indicated that transactional sex mostly occurs between older men and younger women. Transactional sex has been identified as the central activity fuelling inter-generational sex, the main form of HIV transmission from older men (in their thirties, forties and fifties) to younger women (in their twenties and teenage years). This has been called the 'sugar daddy syndrome' by many researchers (UNDP, 2000; Evian, 2002; Illingworth, 2004; Luke, et al., 2002). Intergenerational and transactional sex are frequently intertwined, leading to cases where older men will help support the girl's families with essential needs (UNAIDS, 1999a). Yet in this study, older age was not associated with having transactional sex.

While it would have been expected that higher income would contribute to transactional sex, respondents' salaries in this study were not significantly associated with this risk behaviour. A study by Chatterji, et al. (2004) confirmed this, concluding that economic status did not influence young people's engagement in transactional sex.

5.7.2.2 Migration and transactional sex

Both patterns of migration, to one's partner and across work locations, were significantly associated with having transactional sex in the multivariate analysis. Respondents who visited their partner every month or less frequently were 4.57 times more likely to have transactional sex and respondents who worked in more than one location over the last year were 3.01 times more likely to have transactional sex. These findings were consistent with several studies, which found that separation from one's partner was one of the main contributing factors for engaging in transactional sex (Bond, et al., 1997; IOM & UNAIDS, 2003).

However, amongst migrant workers, especially truck drivers, studies observed how the majority of men tended to engage in commercial sex rather than transactional sex when away from their partner on long-distance journeys (Bwayo, et al., 1994; Rao, et al., 1999; Bryan, et al., 2000; Geysels, et al., 2001; Gibney, et al., 2002; Manjunath, et al., 2002; Ramjee, et al., 2002). The long distance separation from one's partner combined with the availability of CSWs at truck stops contributed to having sex with CSWs. Amongst mine workers, studies by Raditapole (1995) and Meekers (2000) also found that migrants engaged in commercial sex as a result of working for long periods away from their partners. Similar patterns were observed in the military: when overseas on peace-keeping duties in Cambodia, 45% of the Dutch navy and marines engaged in commercial sex - and as a result local sex industries expanded in response to this growing demand (UNAIDS, 1998).

There was however, a difficulty of causality with these two findings. Despite the statistical significance in a multivariate analysis, it is questionable whether the frequency of visits to one's partner and migration between work locations in the last year could have contributed

to respondents' engagement in transactional sex over the last five years. An error was made in the way these variables were measured. In order to ascertain whether migration to one's partner and between workplaces contributed to transactional sex they should have been measured over the same period of time, such as over the last three years.

5.7.3 COMMERCIAL SEX

Studies in Southwest Nigeria (Messersmith, et al., 2000) and Harare, Zimbabwe (Basset, et al., 1996) identified commercial sex as a significant risk factor for HIV and STD infection. Amongst migrant workers, studies of truck drivers in Bangladesh (Gibney, et al., 2002) and Kenya (Bwayo, et al., 1994) reported that the main risk factor for contracting HIV and STIs was sexual contact with CSWs.

While 15.2% of respondents in this study reported having transactional sex in the last year, only 1.8% had commercial sex during the previous six months. With such a small response level it was not possible to carry out further analysis of contributing factors. The findings of this study were significantly lower than other studies of migrant workers in which over two-thirds of truck drivers reported to have had sexual contact with CSWs in India (Bryan, et al., 2000; Manjunath, 2002). In Bangladesh, 54% of truck drivers visited CSWs (Gibney, et al., 2002), in Thailand, 87% had sex with CSWs (Podhisita, et al., 1996) and in South Africa, 61% of truck drivers had sexual encounters with CSWs (Bwayo, et al., 1994). Amongst migrant farm workers in the United States, Perez, et al. (1996) indicated that commercial sex workers frequently visited camps where migrant workers lived and as a result STDs were common. Within the military, sexual encounters with CSWs in Cambodia involved 60% of military personnel in the last six months (Manthey, et al., 2002), while in Tanzania, 55% of mine workers reported giving and receiving payment for sex during the previous year (Clift, Anemona & Watson-Jones,

2003). Part of the reason for the limited occurrence of commercial sex in this study could be related to the tendency in Botswana for transactional rather than commercial sex to occur.

5.7.4 MEN HAVING SEX WITH MEN (MSM)

Men who have sex with men (MSM) are particularly at risk of HIV infection given that male-to-male sexual contact carries a significantly higher risk of HIV infection (5 to 30 infections for every 1,000 exposures) than to male-to-female contact (0.33 to 2 infections for every 1,000 exposures) (Roux, 2003). In the United States, MSM accounted for 42% of total infections (Teeter, 2002), in Canada, for 75% of AIDS cases (Teeter, 2002) and in Australia, for more than 85% of men diagnosed with HIV (UNAIDS, 2004). In Latin America, Bautista, Sanchez & Montano (2004) argued that sex amongst men constituted an important route of HIV-1 transmission across the region with prevalence rates ranging from 11.0% in Peru to 20.6% in Bolivia at significantly higher rates than national levels. Across Asia, in Thailand (Carter, 2004) and India (Go, et al., 2004), MSM have also been found to be at greater risk of HIV - with infection rates significantly higher than national levels.

However, in Sub-Saharan Africa, where homosexuality is often illegal and denied by most governments and societies, there has been a lack of studies reporting MSM. In Botswana, the denial and disapproval of MSM made it difficult in this study to directly ask if workers ever had sex with another man. In the pilot study, workers did not approve of such a direct question and were reluctant to respond. The question was thus re-worded to ask -“do some construction workers when away from home have sex with men?” The results show that only 8.8% of 171 workers even acknowledged the occurrence of MSM. With such an indirect question it was impossible to measure how many workers actually engaged in

MSM apart from to ascertain that it was not a very prevalent form of sexual behaviour amongst the workforce. As a result no further analysis was carried out of factors contributing to men having sex with men.

Similar findings were reported by another Botswana study (Talbot, et al., 2002) in which not one of the male respondents reported having sex with men. Talbot, et al. (2002) concluded that this either (i) supported the widely held belief that MSM does not occur in Botswana; or (ii) that MSM is so stigmatised that its occurrence is not reported. There must be some occurrence of MSM in Botswana, however, given that there is a traditional Setswana word for anal sex between men, 'matanyola', and that studies have observed a number of boys working as male sex workers, in the city of Francistown, offering unprotected anal sex for 200 Pula (MacDonald, 1996)

5.7.5 UNPROTECTED SEX

It has been argued that “unprotected heterosexual sex is the single most important factor in the transmission of HIV world-wide” (Gender-health, 2004:1). Studies have indicated how consistent condom use can reduce the risk of HIV transmission by 87% (NIH, 2000). In a European longitudinal study of 256 discordant couples using condoms regularly (where one partner was HIV positive), not one of the sero-negative partners became infected with HIV, despite a total of approximately 15,000 cases of sexual intercourse (De Vincenzi, 1994:1). In this study, the level of condom use amongst construction workers was relatively high with 31.9% of respondents reporting regular condoms use and 34.3% reporting occasional use. This finding, however, was lower than that of other local studies, where consistent condom use accounted for 50% of mobile workers (Hope, 2000) and 47.6% of men attending VCT centres (NACA, 2003a). A number of other studies in Botswana, though reported much lower levels of condom use, with only 15.7% of young

people aged 15 to 24 using condoms (NACA, 2003c) and 22% of TB patients who used condoms during the last ten sexual encounters (Talbot, et al., 2001). However it is difficult to make such comparisons with local surveys from different years, given that they will reflect different stages in the progression of the HIV epidemic in Botswana.

Condom use was much lower amongst other migrant workers. In South Africa, only 24.3% of miners consistently used condoms, while 66.9% never used condoms (Ijsselmuiden, et al., 1990). This may partly be reflective of the low / inconsistent levels of condom use in South Africa (Williams, Taljaard & Campbell, 2003) where a nationwide study indicated that only 38% of male and 21% of female black adolescents had ever used condoms. Unprotected sex was observed mainly amongst long distance truck drivers with only 32% of drivers in East Africa having ever used condoms (Bwayo, et al., 1991b). Only one to two percent of married and unmarried drivers in South East India reported regularly using condoms (Bryan, et al., 2000), and only 11% of drivers interviewed across India used condoms with CSWs (Rao, et al., 1999).

5.7.5.1 Different levels of unprotected sex with long-term partner and casual girlfriend

A significantly proportion of workers in this study used condoms regularly with their casual girlfriend (65.3%) than with their long-term partner (31.7%). This was consistent with the findings of another survey in Botswana (UNDP, 2002) where 78% of men used a condom in their last sexual encounter with a non-marital partner compared to only 38% of men who used condoms with their wife.

In a study of 200 miners in Welkom, South Africa, only 25.5% used a condom with their wife, whereas 66.8% used condoms with their unmarried partner during their last sexual encounter (Meekers, 2000). A desk review of studies by the United Nations (2002) also

reported an association between condom use and having casual partners or extra-marital affairs. Condom use was rarely reported with lower risk behaviours such as long-term sexual relations. In Southwest Nigeria (Messersmith, et al., 2000), men's condom use was highest in commercial/transactional sex, inconsistent in casual relationships and lowest in marriage.

One explanation for this behaviour may be related to the perception of using condoms as being associated with unfaithfulness and illicit sexual activity. In Northwest Tanzania, a study by Ingall & Plummer (2003) found that condoms were associated with having had 'illicit sex'. To insist on using a condom with one's regular partner was perceived to be suggesting a lack of trust in their partner. As a result, condoms were rarely used in long-term relationships where partners trusted one another (Ingall, et al., 2003). Similarly, a study of men in Kwa-Zulu Natal, South Africa (Maharaj & Cleland, 2004), found that men were reluctant to use condoms in long-term relationships because of its association with promiscuity and admitting unfaithfulness.

A second reason for why condoms have been used less frequently within marriage is that "married Zambian women feel helpless in raising the subject of condom use with their husbands and are afraid of denying men sex because they fear reprisal" (Agha, 1998:10). This was confirmed by another study in Zambia (Gender Health, 2004) which found that "less than 11% of women believed that married women could ask their husbands to use condoms even if he had been unfaithful and was infected". On the other hand there are studies which argue that women involved in transactional sex are also in a weak position to negotiate the use of condoms due to their lack of power in an economically dependent relationship. They fear that suggesting condom use will potentially reduce the chances of receiving money and gifts (UNAIDS, 1999a; Gupta, 2002).

In this study, a large proportion of workers used condoms regularly in transactional sex (64.3%) as well as with their casual girlfriend. While condom use was much lower with long-term partners (31.7%), there was no significant difference in condom use between those who were married (28.6%) and those who were not married (35.8%) to their long-term-partner. When workers were questioned in this study as to their reasons for not using condoms with their long-term partner, the risk of being perceived as being unfaithful was not mentioned. Rather, it was respondents' trust in their long-term partner, which was the main reason for not using condoms.

5.7.5.2 Association of unprotected sex with long-term partner and casual girlfriend

While no significant factors contributed to respondents having unprotected sex with their main partner, one factor was found to have contributed to having unprotected sex with their casual girlfriend. Respondents who had unprotected sex with their main partner were significantly more likely to also have unprotected sex with their casual girlfriend.

This finding suggests that it is the man's long-term attitude towards condom use with his main partner which influences the likelihood that he will use condoms with a casual girlfriend. It appears that the negotiating power of women in these relationships has far less influence upon whether condoms are used.

5.7.5.3 HIV/AIDS awareness and unprotected sex

It is important to note that the study found no significant association between condom use and respondents' level of HIV/AIDS awareness. Neither was respondents' perception of risk, or contact with people living with HIV/AIDS associated with regular condom use. This is consistent with the findings of Zellner (2003) in the Ivory Coast, where data indicated that the accuracy of HIV/AIDS knowledge did not significantly predict condom use. Similarly, a study of 341 patients in San Francisco found that respondents' HIV/AIDS

knowledge, risk perception, and contact with people who are HIV positive where not associated with condom used. Rao, et al. (1999) reported that only 11% reported using condoms during encounters with CSWs despite adequate knowledge of HIV/AIDS. A similar problem was noted by Bwayo, et al. (1991b) in East Africa, where despite the fact that 76% of drivers reportedly had good awareness of HIV prevention, condom use was poor with only 32% of drivers ever having used condoms. He argues that knowledge alone was found to be insufficient to result in safer sexual behaviours (Bwayo, et al., 1991b:718).

However, a number of other studies have reported significant associations between HIV/AIDS awareness and higher levels of condom use. In Rakai, Uganda, a dramatic increase in condom use was associated with a higher perception of HIV risk (UN, 2002). Part of the reason for this discrepancy, though, may be that this study established which factor contributed to whether respondents had unprotected sex or used condoms consistently. Many of the above-mentioned studies examine the association with the general use of condoms which does not necessarily involve their consistent use on every occasion, and thus could not always be termed 'protected sex'. Barker (2003) explains that this gap between knowledge and behaviour suggests a continuing resistance to condom use, which is partly due to men's attitudes to gender and sexuality.

6.0 CONCLUSION

This study has successfully identified the sexual risk behaviours, migrant construction workers engaged in, and the factors, which contributed to these behaviours. The most common risk behaviour was having unprotected sex with multiple partners. Unprotected sex was practised by 68% of construction workers, with significantly more workers having unprotected sex with their long-term partner compared to their casual girlfriend. The practice of having multiple partners mostly involved respondents having a casual girlfriend near the workplace in addition to their long-term partner back home. In contrast to other studies of migrant workers, sexual encounters with CSWs were not common in Botswana, involving less than two percent of construction workers. Transactional sex proved to be far more widespread, occurring within some three-quarters of relationships between workers and their casual girlfriends.

Migration was identified as one of the primary contributors to workers' engagement in sexual risk behaviours. Separation of workers from their long-term partner over large distances and extended periods of time significantly contributed to having multiple partners and transactional sex. This situation was exacerbated by the accommodation provided at rural construction sites, which usually required workers to share rooms, thus making it difficult for their long-term partner to visit. Respondents staying in this form of accommodation were three times more likely to have had multiple partners. The movement of workers between different building locations also contributed significantly to having additional girlfriends and transactional sex. However there was a problem establishing the causation of this association given that migration between work locations, measured over the last year could not have contributed to having an extra girlfriend or transactional sex in the last five years.

In general though these findings demonstrated how construction workers in Botswana are affected by migration in a similar way to other groups of migrant labour across Southern Africa. The results indicated that, as Jochelson, et al. (1991) argued, it is the migratory environment, which leads to sexual risk behaviours rather than people's lack of HIV awareness. In fact, neither respondents' level of HIV/AIDS awareness, perception of risk, nor exposure to HIV testing were found to have any significant influence upon workers' sexual risk behaviours.

Dramatic reductions in HIV infection could according to these findings be achieved through changes in the employment conditions, to ensure better opportunities for migrant workers to see their partners regularly. In Botswana, where migratory work leads to movements of large sectors of the population, changes in employment practices are urgently needed to reduce the effect of migration upon worker's risk of HIV. Yet up to the present time, while many resources have been invested by the government and employers (including construction companies) into education and awareness campaigns, little action has been taken to deal with the working conditions of migrant labour. The increased risk of HIV infection resulting from work-related migration needs to be treated as an occupational hazard, where employers are held responsible for providing workers with opportunities to regularly meet their partner and family.

However, it is important to note that workers did not engage in these sexual risk behaviours solely as a result of the difficult migratory environment. Their gender attitudes played a major role, especially the attitude that a man needs more than one woman to satisfy him sexually - which was significantly associated with having multiple partners and transactional sex. To a certain extent, socio-demographic factors contributed to workers' engagement in sexual risk behaviours, particularly being of younger age, having

less than two children, earning a higher salary, having a senior employment position and being less educated. What is evident from these factors is that education is needed but in the form of behaviour change communication (BCC) which focuses on transforming gender attitudes and promoting condom use rather than just promoting HIV awareness.

While these findings concur with other studies of migrant labour, they are not based upon a large enough sample size, nor a large enough coverage of companies and locations, to be representative of migrant construction workers in Botswana. A much larger study across several companies and numerous locations is needed to fully determine the sexual behaviours and risk factors of migrant construction workers in Botswana.

This study has, however, highlighted the fact that within the construction industry a new approach is needed, taking into account what Campbell, et al. (1999) identified as ‘social factors’, which in this case, has been found to be the worker’s migratory environment. As Tawil, Verster & O’Reilly (1995) argued, there needs to be a shift away from health education, focussed solely on behavioural interventions, towards health promotion involving structural interventions to create the circumstances which will enable behaviour change to occur.

7.0 RECOMMENDATIONS

A number of recommendations have arisen from this study, including the need for more extensive research, improved working conditions, government legislation, and behaviour change communication.

7.1 RESEARCH

To develop these findings further, extensive research needs to be conducted, involving workers from different locations and construction companies. In this way a more representative study could be developed where potential bias towards certain companies or geographical locations could be minimised. The most effective type of study would incorporate a cohort or case-control design.

A cohort study would examine whether labour migration resulted in sexual risk behaviours, by comparing a group of migrant (exposed group) with non-migrant workers (non-exposed group). Unlike cross-sectional studies where exposure and effect are recorded simultaneously, a cohort study would determine whether workers' exposure to migration leads to sexual risk behaviours. This type of study would be useful for testing the multiple risk behaviours which result from workers' exposure to migration. However, due to the direction of effect, a cohort study would not be able to check for the effect of other exposures such as accommodation, alcohol intake, salary etc. Cohort studies can also be very expensive and time consuming to carry out, suffering from a loss of respondents during follow-up.

Measuring respondents' HIV status would make the study more effective in that it could determine which risk factors (gender attitudes, separation from partners, etc.) are associated with being HIV positive. Such a study would be feasible if confidentiality could

be assured and employees agreed to be tested. Saliva tests, which can be up to 85% accurate, could be used for carrying out the surveillance, with a minimum of cost, time, and interference to the respondents incurred. Further research is also needed to address other forms of migrant labour widespread in Botswana, particularly the military, police, tourism, teachers, and local government workers, where only limited research has been carried out.

7.2 INTERVENTION BY CONSTRUCTION COMPANIES

This study indicated that improved working conditions could significantly reduce the extent to which construction workers engage in sexual risk behaviours. As a result, construction companies need to implement changes in their working environment, including measures to:

- **Increase the frequency with which workers can visit their long-term partner.**

Currently, the only opportunity for workers to visit their long-term partner possibly hundreds of kilometres away is at month-end when the company provides a four-day break. More frequent home visits could be achieved with the provision of a second long-weekend break during the month. This extra leave could be recuperated through longer working hours during other times of the month. However, this would need the agreement of workers, unions and employers to be implemented. While most workers interviewed supported this intervention, questions were raised about the prohibitive transport costs and whether some employees would not use this additional leave to spend more time with their local girlfriend. For the company, though, this option could prove to be effective, when combined with subsidised travel, for reducing the extent of workers' engagement in sexual risk behaviours. This conclusion also reached by a household study in Limpopo, South Africa, which argued that "strategies to enable

more frequent contact between migrant men and their rural families, though enormously challenging, are urgently needed” (Kahn, 2003:16).

- **Provide accommodation for partners to visit workers at construction sites.** The company could offer workers separate rooms for their partner to be able to visit or stay with them at the construction site. In the context of mining, Lurie (1999) advocated for family housing given that at present only 2% of workers live with their families and most returned home only four times a year. Using a mathematical model with data from mine workers in South Africa, Gebrekristos & Lurie (2002) predicted that the development of family housing for mine workers would bring about a 41% reduction in HIV transmission, which he argued, far outweighed the costs associated with its provision. However, at construction sites where accommodation is temporary and workers are relocated on an ongoing basis, this intervention could prove to be unrealistic. A second option would be to provide additional accommodation which workers could request to use when their long-term partner visits. This approach has the advantage of incurring far less costs to the employer with only a few extra rooms needed for each construction site. When asked about this suggestion, 86% of workers felt that it would help to reduce worker’s risk of HIV.
- **Placement of workers at construction sites within 200 km of their partner.** This intervention would enable employees to see their partner more often and so could reduce sexual risk behaviours and workers’ subsequent risk of HIV infection. However, the shortage of skilled labour, and a high turnover of projects, could make it difficult from a logistics point of view for companies to implement this measure.
- **Reduce the frequency with which workers are transferred between building locations.** While this recommendation could effectively reduce workers’ risk of HIV, it

may also prove difficult to implement due to the shortage of skilled workers and rapid turnover of building projects.

These recommendations need to take into account the fact that construction companies work in a very competitive environment where profit margins are comparatively small and the pressure to keep labour costs low is central to the company's survival. Therefore, any proposals made need to be realistic and within the boundaries of what a company can financially afford on a long-term basis. In order for these proposals to have a realistic chance of being implemented, the costs they incur need to be outweighed by the potential benefits they may have in terms of reducing the impact of HIV/AIDS.

Further recommendations for recreational activities, education programmes and condom distribution are outlined below. While these recommendations were not directly proven to reduce risk behaviours in the study, they have been shown to promote overall behavioural change.

- **Provide recreational activities for workers at rural construction sites.** Observations during the study revealed few leisure opportunities available around construction sites besides alcohol and sex. Providing sport or leisure opportunities at large construction sites would involve limited costs to the company, yet could contribute significantly to a reduction in sexual risk behaviours.
- **Develop Behaviour Change Communication (BCC).** This model of preventative education would have far more impact upon behaviour change than the previous provision of HIV/AIDS information, which in this study bore no significant association with sexual risk behaviours. 29% of workers recommended more education when asked

about how the company should tackle HIV/AIDS. Further discussion on how BCC could be provided is given in section 7.5.

- **Improve availability of condoms at construction sites.** During the interviews respondents expressed concern that condoms were seldom available, despite the company's condom distribution policy. Workers had difficulties accessing condoms from clinics or shops given their long working hours, often in remote locations. 17% of workers suggested that condoms be made regularly available. Installing condom distributors for public access at construction sites would be a simple low-cost measure which could potentially reduce the overall incidence of unprotected sex. This was confirmed in South Africa, where it was found that difficulties experienced in obtaining condoms when needed reduced the likelihood that they would be used (Kelly, et al., 2003). In Zambia, condom use was significantly more likely amongst men who had easy access to condoms (Agha, 1998).

7.3 INTERVENTION BY OTHER EMPLOYERS OF MIGRANT LABOUR

Many of these recommendations would apply to other employers of migrant labour, given that the results of this study corroborate with those of other migrant studies. Organisations in Botswana with migrant workers involved in transport, mining, tourism, the military and local government would benefit from implementing some of these proposals. Particularly in the mining sector and the armed forces, with workers who often stay in remote locations, providing opportunities for long-term partners to visit them at the workplace would be recommended. Providing leave on a regular basis would also be effective for employees who are separated from their partners on a long term basis in work such as mining, tourism and local government. For large organisations and the government it

would be recommended that practices of recruitment and transfer of workers be geared to minimise the distances separating employees from their partner.

7.4 GOVERNMENT INTERVENTION

In order to ensure that these recommendations are implemented by employers, there needs to be government legislation which will ensure companies' compliance. While the International Labour organisation (ILO, 2003) and Southern African Development Community (SADC, 2003) have provided guidelines for HIV/AIDS in the workplace, they fail to deal with the working conditions which place migrant workers at risk of infection. Botswana has a national HIV/AIDS policy, but this like other international guidelines fails to outline measures for risk reduction in a migratory working environment such as construction work (Government of Botswana, 2003).

Legislation which would help reduce the vulnerability of migrant construction workers would require:

- **Provision of some form of accommodation for partners** to be able to visit workers stationed in remote rural locations.
- **HIV prevention sessions** at the workplace at least once a month. In addition, the implementation of a peer education programme at every workplace which employs migrant workers would be required.
- **The provision of condom dispensers** in public places for every workplace – at least one condom dispenser for every 400 employees.

These recommendations should be incorporated as part of the governments' occupational health programme. A monitoring system would be established to ensure that companies

are closely monitored for compliance, involving financial penalties for failure to implement these measures.

There are however a number of difficulties involved in enforcing such legislation and ensuring compliance. An alternative form of Government intervention could be the provision of a package of incentives for companies to facilitate the prevention of HIV. One such example would be the provision of tax relief to companies who provide accommodation for employees' partners when away from home.

7.5 BEHAVIOUR CHANGE COMMUNICATION

Behaviour change communication (BCC) is recommended as a form of prevention education because it has the potential for greater impact than the previous model which simply provided HIV/AIDS information. BCC focuses on the real-life situations which people find themselves in and teaches life-skills in matters involving relationships, sexuality, negotiating condom use, dealing with alcohol abuse etc. In this context the BCC programme would focus on the difficulties of separation from one's partner over extended periods of time and how to respond to this situation. In the process, this programme would try to transform workers' sexual values and gender attitudes, particularly the perceived 'need' for more than one woman, which was found to be associated with sexual risk behaviours. Several important aspects of this programme would include :-

- **Ongoing regular education sessions** as opposed to previous attempts to have the occasional one-off meetings at construction sites.
- **Small group education sessions** instead of large meetings. Small groups are more suited to BCC because they create opportunities for questions, discussion, sharing of personal experiences and mutual support, all of which are essential for achieving

behaviour change amongst the participants. Within small groups, a sense of trust and confidentiality needs to be developed to enable workers to talk about their sexual risk behaviours and face the consequences of these behaviours. People need to be sensitised to their personal risk of HIV. When a supportive environment is created, workers can help one another in their commitments to behaviour change. Ferguson, et al. (2004) found that the duration of membership in a self-help group was strongly associated with the exclusive use of condoms in members' relationships with casual partners and CSWs.

- **Development of a peer education programme** which has proven to be an effective mechanism for bringing about behaviour change in the workplace (Ferguson, et al., 2004). Peer educators would be selected from the workforce and trained to provide education and facilitate group discussions with fellow-workers during the lunch hour and after work.
- **The involvement of PLWHA in education sessions** and sharing of experiences. This was tried at one of the study sites and was found to have a dramatic impact upon the workforce.
- **Facilitation carried out by a local NGO** with experience in HIV prevention in the workplace and training of peer educators. This education needs to be integrated with other support services provided by the NGO, including HIV testing, individual counselling support, and the establishment of a support group for workers who have found themselves to be HIV positive.

APPENDIX 1. Migrant Construction Worker's Questionnaire

Interview No. =

Start time =

Location of Construction Site :-

	Section 1. Participant's background.	<i>I would just like to ask you a few questions about your background.</i>	
1.	What is your date of birth ?	Year	
2.	What is your place of birth ?	Village District □	If Botswana then go to Q.4
3.	(If not born in Botswana) How long have you been living in Botswana?	Years :-	
4.	Where have most of your parents and relatives been living in the last year?	Village District □	
5.	What is the main language you speak at home?	Setswana 1 Sekgalagadi 2 Sesarwa 3 Sembukushu 4 Seyei 5 SeKalanga 6 English 7 Other: 8	
6.	Have you ever been to school?	Yes 1 No 2	If No then go to Q.8
7.	What is the highest form or standard you have completed at school ?	Standard 1.....1 Form 1.. ...8 Standard 2.. ...2 Form 2.. ...9 Standard 3.. ...3 Form 3...10 Standard 4.. ...4 Form 4....11 Standard 5.. ...5 Form 5....12 Standard 6.. ...6 . Standard 7.. ...7 .	
8.	What further skills training have you had ?	Brigades Course level 'C' 1 Brigades Course level 'B' 2 Brigades Course level 'NCC' 3 Vocational Training Course.... 4 CITF 3 month certificate.... 5 Diploma Degree.... 6 No training 7 Other 8	
	Section 2. Work situation	<i>I would just like to ask a few questions about the work you do and where you live.</i>	
9.	What's your trade ?	Electrician 1 Bricklayer 2 Plasterer 3 Shutter-hand 4 Carpenter 5 Plumber 6 Steel work 7 Machine Operator 8 Charge-hand 9 Other - 10	

10.	What was your last salary at month-end ?	1 – 500 pula 1 500 – 1,000 pula 2 1,000 – 1,499 pula 3 1,500 – 1,999 pula 4 2,000 – 2,499 pula 5 2,500 – 2,999 pula 6 over 3,000 pula 7
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<i>Where have you been working ?</i>	1st Site (Present site)	2nd Site (Previous site)	3rd Site	4th Site	5th Site
11. Name of Site ?	Site :-	Site :-	Site :-	Site :-	Site :-
12. Location ?	Location :-	Location :-	Location :-	Location :-	Location :-
13. How long there ?	Years Months _ _	Years Months _ _	Years Months _ _	Years Months _ _	Years Months _ _
14. On-site or off-site ?	on-site 1 off-site 2	on-site 1 off-site 2	on-site 1 off-site 2	on-site 1 off-site 2	on-site 1 off-site 2
15. Type of accomm- -odation ?	Rent my own room 1 Share rented room 2 Rent my own house 3 Own a Plot 4 On-site Hostel 5 On-site Camp 6 Other..... 7	Rent my own room 1 Share rented room 2 Rent my own house 3 Own a Plot 4 On-site Hostel 5 On-site Camp 6 Other..... 7	Rent my own room 1 Share rented room 2 Rent my own house 3 Own a Plot 4 On-site Hostel 5 On-site Camp 6 Other..... 7	Rent my own room 1 Share rented room 2 Rent my own house 3 Own a Plot 4 On-site Hostel 5 On-site Camp 6 Other..... 7	Rent my own room 1 Share rented room 2 Rent my own house 3 Own a Plot 4 On-site Hostel 5 On-site Camp 6 Other..... 7
16. Who do you share accom- -modation with?	No-one 1 Casual girlfriend 2 Long-term partner 3 My family 4 Children 5 Workers 6 Friends/ Relatives 7 Other..... 8	No-one 1 Casual girlfriend 2 Long-term partner 3 My family 4 Children 5 Workers 6 Friends/ Relatives 7 Other..... 8	No-one 1 Casual girlfriend 2 Long-term partner 3 My family 4 Children 5 Workers 6 Friends/ Relatives 7 Other..... 8	No-one 1 Casual girlfriend 2 Long-term partner 3 My family 4 Children 5 Workers 6 Friends/ Relatives 7 Other..... 8	No-one 1 Casual girlfriend 2 Long-term partner 3 My family 4 Children 5 Workers 6 Friends/ Relatives 7 Other..... 8

	Section 3. Social life					<i>I would just like to ask you a few questions about what you do in the evenings and weekends.</i>	
17.	What do you do in the evenings and weekends?	1st mention Nothing to do 1 Go to Church 2 Play sports (eg football) 3 Go to bars 4 Visit friends / relatives 5 Shopping 6 Watch TV 7 Other - 8	2nd mention Nothing to do 1 Go to Church 2 Play sports (eg football) 3 Go to bars 4 Visit friends / relatives 5 Shopping 6 Watch TV 7 Other - 8	3rd mention Nothing to do 1 Go to Church 2 Play sports (eg football) 3 Go to bars 4 Visit friends / relatives 5 Shopping 6 Watch TV 7 Other - 8			

18.	How often a week do you go to bars ?	4 –7 times a week 1 1 –3 times a week 2 1 - 3 times a month 3 Less than once a month 4	
19.	How much alcohol do you drink in a night / week ?	 beers (cans) a night beers (cans) a week	
20.	How often do you drink 5 or more beers a night ?	4 –7 times a week 1 1 –3 times a week 2 1 -3 times a month 3 Less than once a month 4	
21a	(If not drinking) Why have you chosen not to drink ?	.....	Skip if person drinks alcohol
21b	When did you stop drinking regularly ?	.....	
Section 4. Partner & children		<i>I would just like to ask you a few questions about your wife / long-term partner and family.</i>	
		1st Partner	2nd Partner
22.	Do you have a wife or long term partner ? (over 6 months duration)	Wife 1 Long-term Partner 2 Neither 3	Wife 1 Long-term Partner 2 Neither 3
23.	Where does your partner live now ?	Village	Village
24.	Where is she from ?	Village	Village
25.	How long have you been together ?	Years & Months.....	Years & Months.....
26.	How often do you see her ?	every day 1 every weekend 2 twice a month 3 once a month 4 once every two months 5 once every three months 6 less than once every 3 months 7	every day 1 every weekend 2 twice a month 3 once a month 4 once every two months 5 once every three months 6 less than once every 3 months 7
27.	Would you like to see your partner more often?	Yes 1 No 2	Yes 1 No 2
28.	What difficulties prevent you from seeing her more often?	There is not enough leave from work 1 Long distances make it difficult to visit 2 I can't afford the transport costs 3 I have another partner here 4 I have another partner elsewhere 5 Other - 6	There is not enough leave from work 1 Long distances make it difficult to visit 2 I can't afford the transport costs 3 I have another partner here 4 I have another partner elsewhere 5 Other - 6
29.	How many children do you have of your own ?	No. of Children :	

		1 st child	2 nd child	3 rd child	4 th child	5 th child	6 th child	
30.	Where are they living ?	.....	.....	.....	.....	.....	.....	
31.	Who are they living with ?	Me 1 Relatives 2 Partner/Wife 3 Girlfriend 4 Ex-partner 5	Me 1 Relatives 2 Partner/Wife 3 Girlfriend 4 Ex-partner 5	Me 1 Relatives 2 Partner/Wife 3 Girlfriend 4 Ex-partner 5	Me 1 Relatives 2 Partner/Wife 3 Girlfriend 4 Ex-partner 5	Me 1 Relatives 2 Partner/Wife 3 Girlfriend 4 Ex-partner 5	Me 1 Relatives 2 Partner/Wife 3 Girlfriend 4 Ex-partner 5	
32.	Who is their mother ?	Wife 1 Partner 2 Girlfriend 3 Ex - Partner 4	Wife 1 Partner 2 Girlfriend 3 Ex - Partner 4	Wife 1 Partner 2 Girlfriend 3 Ex - Partner 4	Wife 1 Partner 2 Girlfriend 3 Ex - Partner 4	Wife 1 Partner 2 Girlfriend 3 Ex - Partner 4	Wife 1 Partner 2 Girlfriend 3 Ex - Partner 4	
	Section 5. Personal situation			<i>I would just like to ask you a few questions about your personal relationships and attitudes.</i>				
	<i>For each of the following tell me whether you agree or disagree...</i>			Agree	Disagree	Don't Know	Other	
33.	I often feel lonely when away from my partner			1	2	3		
34.	Women are often interested in me because of my income			1	2	3		
35.	(Setswana saying) "A man is like a bull, he cannot be fenced into one kraal"			1	2	3		
36.	One woman is enough to satisfy me as a man			1	2	3		
37.	Some of the migrant construction workers have casual girlfriends			1	2	3		
38.	Some construction workers when away from their partners have sex with men			1	2	3		
39.	(Setswana saying) "Your blood stops flowing without frequent (regular) sex"			1	2	3		
40.	What do you think is the most time you could spend away from your partner before feeling tempted to see another woman.			1 – 2 weeks 1 3 – 4 weeks 2 1 month 3 2 - 3 months 4 over 3 months 5				
41.	Who does your cooking and washes your clothes most of the time ?			only me 1 my work colleagues 2 casual girlfriend 3 friends / relatives 4 paid worker 5 Other : 6				
42.	In the last 5 years (especially when away from your partner), have you ever had a girlfriend ?			Yes 1 No 2				If no then goto Q.49
43.	When did you last have a 'girlfriend' ?			No. of Years ago =				

	<i>I am going to ask you about your most recent / last girlfriend.</i>	Girlfriend (A.) <i>[most recent]</i>	Girlfriend (B.)	Girlfriend (C.)
44.	Where did the relationship happen ?	Village: □	Village: □	Village: □
45.	When were you together ?	Years Ago _____	Years Ago _____	Years Ago _____
46.	How long was the relationship ?	Years ____ months ____	Years ____ months ____	Years ____ months ____
47.	How did you provide for your Girlfriend ?	Accommodation 1 Food 2 Money 3 Clothes 4 No provision 5 Other 6	Accommodation 1 Food 2 Money 3 Clothes 4 No provision 5 Other 6	Accommodation 1 Food 2 Money 3 Clothes 4 No provision 5 Other 6
48.	Where did you first meet?	.....	.....	.....
49.	Have you ever been approached by women offering sex in exchange for money (or material support) in the last 6 months?	Never 1 Few times 2 Often 3 Always 4 If Never then goto Q. 51		
50.	Where has this mostly happened ?	At the bars 1 Next to the building site 2 At the hostels 3 Other - 4		
51.	How did you respond ?	Always refused 1 Accepted 1-5 times 2 Accepted 6 – 10 times 3 Accepted over 10 times 4		
52.	Have you ever spent the night with a woman you didn't really know in the last year ?	Never 1 Few times 2 Often 3 Always 4		
<u>Section 6.</u> HIV/AIDS		<i>I would just like to ask you a few questions about your views on HIV/AIDS and how to prevent it.</i>		
53.	HIV/AIDS is mostly a problem for homosexuals or prostitutes – it doesn't affect me	Agree 1 Disagree 2 Don't know 3 Other 4		
54.	There is more risk of catching HIV if you have many partners	Agree 1 Disagree 2 Don't know 3 Other 4		
55.	What do you think is the best way to protect yourself from HIV?	Abstain 1 Faithful 2 Condoms 3 Other 4		
56.	What do you think is the 2 nd best way to protect yourself from HIV ?	Abstain 1 Faithful 2 Condoms 3 Other 4		

<i>Could I please ask you about your use of condoms in the past</i>		Current / Last long-term Partner	Current / Last Casual Girlfriend	Last Commercial / Transaction Sex Worker	Last One-Night Sex
57. Do you ever use a condom with ...		Yes 1 No 2	Yes 1 No 2	Yes 1 No 2	Yes 1 No 2
58. How often do you use a condom ?		Never 1 A few times 2 Some times 3 Most times 4 Every time 5	Never 1 A few times 2 Some times 3 Most times 4 Every time 5	Never 1 A few times 2 Some times 3 Most times 4 Every time 5	Never 1 A few times 2 Some times 3 Most times 4 Every time 5
59. Why ?		.....	.....	.....	.....
60.	Have you seen or known anyone with HIV/AIDS?	Yes 1 No 2			If no then goto Q.61
61.	In the last 2 years how many people have you seen or known with HIV/AIDS ?	None 1 One to two 2 Three to five 3 More than five 4			
62.	Do you think you could be at risk of catching HIV/AIDS?	Yes – at great risk 1 Possibly at risk 2 No – not at risk 3			
63.	Why do you think so ?	..... ..... .....			
64.	Have you ever had a HIV test ?	Yes 1 No 2			
65.	What is ‘Murray & Roberts’ doing to help workers prevent HIV infection ?	..... ..... .....			
66.	What do you think ‘Murray & Roberts’ could do to help workers prevent HIV infection ?	..... ..... .....			
67.	Do you think that more education could help to reduce HIV infection ?	Yes 1 No 2			
68.	Do you think that on-site accommodation for one’s partner could help to reduce HIV infection ?	Yes 1 No 2			
69.	Do you think that a long weekend break in the middle of each month could help to reduce HIV infection ?	Yes 1 No 2			

Thank you for your help in answering these questions.

FINISH time =

APPENDIX 2.

SUBJECT INFORMATION SHEET

Hello, my name is Clive Ashby.

I am studying a 'Master of Public Health' degree at the University of the Witwatersrand in Johannesburg, South Africa. I am carrying out a research project as part of the university degree. This research is looking into the situation of skilled and semi-skilled construction workers who migrate between building sites across Botswana as part of their work. I am trying to find out how the situation of being a migrant worker, away from one's partner and family, influences one's sexual behaviour, possibly leading to higher risks of HIV infection. The results from this study will help people to understand how migrant work could place construction workers at greater risks of HIV/AIDS. The study will be useful to help construction companies consider ways of reducing the situations which may contribute to HIV infection, and develop better HIV/AIDS programmes.

I have a questionnaire, which I would like to complete with you. This has questions about your employment and social situation. There are some personal questions about your relationships and sexual behaviour. I will not ask any question about your HIV status. All the information that you give to me will be confidential. Nothing of what you tell me will be known by anyone else. Your name will not be written on the questionnaire, a number will be used instead. I will be interviewing around 270 construction workers at Murray and Robert's building sites across Botswana. Your answers will be combined with all the other answers to produce a report about what aspects of migrant work affect people's sexual behaviour leading to greater risk of HIV/AIDS.

I would like to ask if you could please give around 25 to 35 minutes of your time to answer these questions. You have been requested for this interview because you are a skilled or semi-skilled worker and I am trying to interview all skilled and semi-skilled workers who migrate between building sites in Murray and Roberts company, Botswana. You do not have to take part in this interview, it is your choice. You can choose to stop the interview at any time or choose not to answer any question that you do not want to answer. If you do not answer any question, it will make no difference to your situation of employment in this company. I would not tell anyone from Murray and Roberts that you chose not to be interviewed.

If you agree to answer the questions, I will read out the consent form on the next page and ask you to sign it to say that you agree to the interview. Do you have any questions? Is there anything you would like me to explain?

If you have any further questions about the research, please contact myself, Clive Ashby, at telephone number 3957537.

APPENDIX 3.

INFORMED CONSENT FORM

Hello, my name is Clive Ashby from the University of the Witwatersrand in Johannesburg, South Africa. I want to ask for your permission to interview you about your employment situation and sexual behaviour as a migrant construction worker. Your participation is voluntary - it is your free choice. You can choose to stop the interview at any time or not answer any question that you are not comfortable with. If you sign this consent form, it will be kept separately from the questionnaire, which will not have your name on it.

The purpose of this study has been explained to me. I understand that my participation is voluntary and that I may stop the interview at any time. I understand that my job will not be affected if I choose not to participate in any questions.

Ion this theday of

2004, agree to be interviewed for the research project entitled “Factors contributing to the sexual behavioural patterns and increased risk of HIV/AIDS amongst migrant construction workers in Botswana.”

Signed

APPENDIX 4.

PERMISSION FROM 'MURRAY & ROBERTS' (BOTSWANA) COMPANY.

General Manager
Murray & Roberts
Construction Botswana.
Box 657, Gaborone.
Botswana.

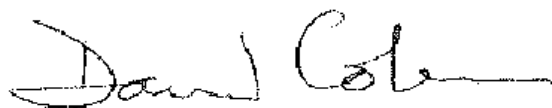
12th January 2004.

PERMISSION FOR RESEARCH

Murray and Roberts Construction Botswana hereby provides access for Mr Clive Ashby to carry out Public Health research involving interviews at the various work sites and offices of Murray & Roberts Construction, Botswana during 2004.

Murray & Roberts company supports this research which will help identify the factors that contribute to our employees being at risk of HIV infection.

Signed



Mr David Coleman,
General Manager.

APPENDIX 5.

CLEARANCE FROM ETHICS COMMITTEE

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

RI4/49 Ashby

CLEARANCE CERTIFICATE

PROTOCOL NUMBER M040217

PROJECT

Factors contributing to the sexual behavioural patterns and increased risk of HIV/AIDS amongst migrant construction workers in Botswana

INVESTIGATORS

Mr C Ashby

DEPARTMENT

Public Health

DATE CONSIDERED

04.02.27

DECISION OF THE COMMITTEE*

Approved unconditionally

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE 04.05.04

CHAIRPERSON



(Professor PE Cleaton-Jones)

*Guidelines for written 'informed consent' attached where applicable

cc: Supervisor: N Christofides

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to the Secretary at Room 10005, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. I agree to a completion of a yearly progress report.

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

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