The Health of our Educators

A focus on HIV/AIDS in South African public schools, 2004/5 Survey

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Report prepared for the
Education Labour Relations Council

elrc
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RELATIONS COUNCIL

Report prepared by a research consortium
comprising the Human Sciences Research Council
and the Medical Research Council of South Africa

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Foreword

The new millennium has heralded in several challenges at the door of educators and education in general. However, none have been as daunting or as catastrophic as the HIV/AIDS pandemic. Education is one of our most powerful weapons against HIV/AIDS; however, it is also a sector that is labour intensive and therefore most vulnerable to the disease.

Our children are our hope for the future. Our teachers mould them into instruments of social capital, the wellspring of our future. Without the inculcation of the skills and competencies that enhance human potential no developing country can hope to start building the basic social infrastructure that is a prerequisite for generating the levels of economic growth that underpin sustainable development. In South Africa's case the need to timeously address the inequities entrenched by generations of apartheid is more urgent. Thus the country's teachers are the primary agents of social change.

The efficacy of our educational system depends on the efficacy of our teachers. To the extent that its ranks are depleted by teacher deaths, illness, absenteeism, or chronic disabilities due to HIV/AIDS, the education of our children is then put at risk, levels of access to education are reduced, standards of education attained lowered, opportunities for secondary and tertiary advancement reduced, job skills forfeited, and society stunted.

South Africa can ill afford to allow a disease like HIV/AIDS and chronic diseases to deplete its teacher workforce. The seriousness of such an impending catastrophe therefore galvanised the Department of Education (National, Provincial, District), South African Council of Educators and the unions – South African Democratic Teachers' Union, the National Professional Teachers' Organisation of South Africa, Suid Afrikaanse Onderwysers' Unie and the National Teachers' Unions of South Africa – as well as the Human Sciences Research Council-led consortium and its partner, the Medical Research Council, under the auspices of the Education Labour Relations Council to take progressive action in ascertaining the prevalence and impact of HIV/AIDS and tuberculosis on the teacher workforce. This study was originally initiated separately by the South African Democratic Teachers' Union, the National Department of Education and other teacher unions and is a prime example of how key stakeholders can benefit by working together for the common good of their constituency. The management of HIV/AIDS demands a multi-sectoral response of partnerships and collaboration of government, organised labour, non-governmental organisations and so forth. The Education Labour Relations Council and the Human Sciences Research Council were instrumental in facilitating this consensus. The Human Sciences Research Council was able to harness the energies of all the partners, notably the Medical Research Council and other members of the Technical Task Team, throughout the research process and was receptive to ideas generated by the stakeholders without compromising the integrity of research. Consequently it was possible to co-generate knowledge that informs policy. Now the report is tabled to the Education Labour Relations Council and the partners will be required to examine the report and debate the policy recommendations. The value of this initiative will be judged by the extent to which interventions are implemented.

If South Africa cannot curtail the levels of infection and progression of HIV/AIDS among its teachers the consequences will be bequeathed not just to the present generation of learners but to future learners, adding immeasurably and unnecessarily to poverty and social stagnation in future decades.

Dhaya Govender General Secretary and Co-Chair of the Technical Task Team
Education Labour Relations Council

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Executive summary

South Africa has a severe HIV/AIDS epidemic. About 5.6 million South Africans, the majority of whom are in the economically active age group, are currently living with the virus. Studies have been conducted to examine the impact of HIV/AIDS on various sectors of the economy, including mining, manufacturing, health and education. The effectiveness and functioning of the public sector is also increasingly threatened by the HIV/AIDS epidemic. The education sector is thought to be particularly affected by HIV/AIDS because both the demand for and supply of educators are affected. Not only do children drop out of school because of HIV/AIDS, thus reducing demand for educators, but educators, school managers and education policy-makers are said to be dying of AIDS, thus reducing supply.

Despite the dearth of empirically-based studies on the impact of HIV/AIDS on the education sector, the few studies that exist suggest that the impact may be significant, with high morbidity and mortality due to HIV/AIDS and consequently, the attrition of educators predicted. It was for this reason that the South African Education Labour Relations Council (ELRC) – comprising all the unions: the South African Democratic Teachers' Union (Sadtu), National Professional Teachers' Organisation of South Africa (Naptosa), Suid Afrikaanse Onderwysers Unie (SAOU), National Teachers' Unions of South Africa (Natu) as well as the National and Provincial Departments of Education (DoE), commissioned the Human Sciences Research Council (HSRC)-led consortium and its partner, the Medical Research Council (MRC) to undertake a study examining the impact of HIV/AIDS on the supply and demand of educators to the education sector.

Objectives of the study

The study is designed to yield information to assist the government and unions in the ELRC in planning educator supply at national, provincial and district level. The specific objectives of this study are three-fold:

- To determine the prevalence of HIV and tuberculosis (TB) amongst South African educators in the public sector by age, sex of educator, race, qualifications, locality type, learning area and the phase/band of active teaching;
- To investigate the determinants of HIV amongst these educators by age, sex of educator, race, qualifications, locality type, learning area and the phase/ band of active teaching; and
- To determine the attrition rate among educators and reasons thereof.

Research questions

The ELRC commissioned the HSRC-led consortium to investigate the determinants of demand and supply of educators in the public education sector. Such a study is expected to answer several research questions such as:

- What is the prevalence of HIV/AIDS, TB, alcohol and drug use amongst educators in public schools?
- Do educators have higher HIV prevalence ratios compared with the general population of people aged 25 years and older, taking into account key confounders?
- What are the factors driving the HIV and AIDS epidemic amongst educators?
- What is the prevalence of HIV, TB and alcohol use per district council?

- What is the attrition rate among educators, and what are the reasons for attrition (such as sickness, mortality, TB diagnosis, sexually transmitted infections [STIs] and other endemic diseases, history of health service use, hospitalisation, alcohol and drug use and migration)?

Method

Research design

The study employed a triangulation of several research methods. A formative research was undertaken using focus groups and key informant interviews among educators throughout the country (a separate report is forthcoming). The data collected informed the design of the questionnaire. A once-off consultation with HIV/AIDS educators, other researchers and experts from the HSRC-led consortium was held to acquaint the HSRC researchers with current and comparable research work in the country.

A cross-sectional survey among educators and student educators was undertaken, employing the second-generation surveillance method that combines the measurement of behavioural and biological indicators within the same study. A behavioural risks questionnaire-based survey was conducted concurrently with HIV testing to determine the association between the two. Finally, an archival research method was used, where principals or rectors used existing school records to complete questionnaires on the institution.

Informed consent was obtained from educators who agreed to participate in the interview and provide a specimen for HIV testing. In addition, the result of the HIV test of each participant was linked anonymously to questionnaire data using bar codes.

To test the questionnaire, administration and HIV testing method, a pilot study was conducted among 438 educators. Three modes of questionnaire administration and three methods of collecting biological specimens were tested in 33 schools located in North West and Western Cape provinces.

Sample

The sample sites for the study were identified as public schools. For the schools sample, two data sets were available as potential sample frames from which a sample of educators could be drawn. The first was the DoE's School Register of Needs (SRN), which contained data from surveys in 1996 and 2000, and the second, a database extracted from the government's Personnel Salary System (PERSAL) system. The final schools sample of 1 766 schools had a total of 24 200 state-paid educators as potential respondents.

Data collection and access into schools

Nurses registered with the South African Nursing Council (SANC) were employed to conduct the interviews and specimen collections.[1] In total, 436 field workers, including trained nurses, were appointed to conduct the fieldwork.

1 Only professionally-trained and registered nurses are allowed to draw blood for laboratory testing purposes.

The DoE in the various provinces assigned co-ordinators who ensured that schools were informed about the study. The district officers of the DoE and labour unions assisted the HSRC co-ordinators, who consisted of MA and Phd research interns, in making appointments at schools and/or accompanying co-ordinators to schools to address educators. Officials from labour unions helped with advocacy for the study and the nature of the study, which increased participation. The field teams were supported by a national field manager, and a separate project manager who tracked progress of the study. Visiting times to schools were adapted to minimise possible disruption of teaching time.

Findings

Demographic and socio-economic characteristics of the ELRC study sample

The demographic and socio-economic profile analysis of educators in the sample revealed that 68% of the sample of educators consisted of females. The majority of the educators were married. Over three-quarters of the sample were Africans (77%) while less than 5% of the sample were Asians, which is a reflection of the demographic characteristics of South Africa. Self-reported socio-economic status and income distribution suggest that educators were generally well qualified, with a first degree or higher, and had many years of teaching experience, with 70% of educators teaching for at least ten years or longer. About 94% of educators reported that the DoE employed them with the rest (6%) being School Governing Body (SGB) appointments.

Only 27% of educators in the sample said they had a housing subsidy and 67.8% of the educators reported they were members of a medical aid fund. The majority of educators (89%) were members of a trade union. There were disparities in some of the demographic and socio-economic profiles of educators by race and province. The findings showed that there were proportionately more female and male African educators in the low-income category compared with educators in other race groups. On the other hand there were proportionately less male white educators in the medium-income category than male educators in other race groups.

Prevalence of HIV

The results showed that 12.7% of educators who gave a specimen for HIV testing were HIV positive. This percentage includes educators in all provinces, and educators of all ages, sex and racial groups.

In this study, without considering age and race differences, the HIV prevalence was the same for the male and female educators. The results in this study showed that HIV prevalence among educators was highest for those aged 25–34 years (21.4%) followed by those aged 35–44 (12.8%). Older educators (55 years and older) had the lowest HIV prevalence (3.1%). However, differences were observed when the analysis was restricted to women and men aged 25–34 years, with women having higher HIV prevalence. Women were generally more vulnerable to HIV infection because of their biological makeup as well as their low socio-economic status.

Major racial differences in HIV prevalence were observed. Africans had a prevalence of 16.3% compared to whites, coloureds and Indians who had a prevalence of less than 1%. It could be that other race groups knew their HIV status and hence did not give a specimen for HIV testing, but this could not be substantiated. The differences in age distribution among the different racial groups may also account for why African educators had higher HIV prevalence than other racial groups. African educators were more concentrated in the high HIV risk ages, from 25–34 years, than other racial groups. Africans were also more likely than other racial groups to belong to the low socio-economic status. Educators who had low socio-economic status had a much higher HIV prevalence when compared to those in the high socio-economic group. The likely reason why Africans are at the bottom end of the socio-economic ladder is the inferior education they received under the apartheid system.

This study found that educators residing in rural areas and those working in rural schools had higher HIV prevalence than educators residing in urban areas and teaching in urban schools. Educators working in schools located in urban formal settlements had a significantly lower HIV prevalence (6.3%) than those working in urban informal settlement (13.9%) and rural areas (16.8%). Teachers in poorer rural areas fall in the high-income group by local standards, suggesting that income may be an additional risk factor.

The study investigated the HIV prevalence of educators by province where they were teaching, and found significant differences. Educators employed in KwaZulu-Natal and Mpumalanga had the highest HIV prevalence (more than 19%) when compared with all other provinces. The second group of provinces with high HIV prevalence (more than 10%, but under 19%) were Eastern Cape, Free State and North West. The provinces with HIV prevalence under 10% were Limpopo, Gauteng and Northern Cape. Western Cape had the lowest HIV prevalence at 1.1%.

Part of the objective of this study was to estimate the HIV prevalence of educators in the district where the school is located. The ELRC requested that data be provided by district for the purpose of planning educator supply at a local level. It is important to note that the HIV estimates presented by district are the best estimates obtained given the small district sample size. Only KwaZulu-Natal, Mpumalanga and Eastern Cape had districts with HIV prevalence among educators that were higher than 20%, numbering 11 out of 54 – eight of these 11 districts were located in KwaZulu-Natal. Another 11 districts had an HIV prevalence among educators that was less than 5%; they were found in the Western Cape, Northern Cape and Gauteng. Overall, the metropolitan districts had low HIV prevalence among educators.

Determinants of HIV/AIDS

Number and age of sexual partners

A substantial body of literature has found a significant association between HIV/AIDS and having more than one sexual partner. This study investigated the sexual behaviour of educators and found that the majority of South African educators reported to have one current sexual partner, and about one in five educators reported not to have had a sexual partner in the previous 12 months. When data were disaggregated by race and sex of the educator, African males had a statistically significant higher rate of self-reported multiple

sexual partnerships than all other sex and race groups. Overall, the rates of self-reported multiple partnership for women in the past year were significantly lower than those reported by men.

Age mixing, where older persons have sexual partners who are significantly younger than themselves, is one of the frequently cited drivers of the HIV/AIDS epidemic. A significantly higher HIV prevalence rate (16.5%) was found among male South African educators who reported to have a sexual partner in the past six months who was more than ten years younger than themselves as compared to those who had a sexual partner who was within ten years of their age (12.4%).

Awareness of HIV status

A large proportion of educators (59%) had undertaken an HIV test prior to this study and of these 92.4% were told their HIV status. Indians (68%) and coloureds (67%) had slightly higher rates of HIV testing than whites (63.4%) and Africans (56.2%).

Condom use

This study found that generally the younger male and female respondents had high condom use compared to their older counterparts. The results showed that the older the respondents the less likely they were to use condoms. HIV prevention campaigns have generally neglected to include the older age groups, leading to the assumption that HIV is not common in this age group. If prevention messages are not targeted to the groups with low prevalence of HIV, there could be a rise in HIV rates among these groups.

Condom use at last sex by race showed that among African females (38.4%) and males (36.3%) condom use was higher when compared to other groups. Whites were lowest users of condoms at last sex, with 9% of females and 10.7% of males reporting using condoms. Condom use was high among females and males from non-urban areas (males 35.8% and females 37.4%) when compared to those living in urban formal (males 25.7% and females 24.4%) and urban informal areas (males 29.8% and females 32.3%). While the rates are still low for all the locality types, accessibility seems to be improving as individuals from urban informal and non-urban areas have higher reports of condom use.

Being HIV positive and consistently using a condom was associated with non-regular sexual partners but not with regular partners. The latter is cause for concern.

Health status

The study revealed that 10.6% of educators reported to have been hospitalised within the last 12 months prior to the study. The most frequently reported diagnoses educators received in the last five years were high blood pressure (15.6%), stomach ulcer (9.1%), arthritis (6.6%) and diabetes (4.5%).

A simple self-reported measure of TB was selected, and it was found that 0.9% of educators reported having been diagnosed with TB within the last five years and 3.2% reported having had a cough that lasted more than two weeks, an indication that they

might have had TB. The low percentage of educators reporting to have TB is likely due to stigma.

Knowledge of HIV transmission

The level of knowledge was high among both female and male educators. There were areas of knowledge, however, where a few of the educators did not have accurate information or did not know about certain issues related to HIV. These included misperceptions about the mode of transmission such as through sneezing, anal sex, oral sex, and breast milk. Some educators also lacked knowledge of anti-retrovirals (ARVs).

Alcohol use among South African educators

Alcohol abuse has serious health and social consequences. This study found that 75% of educators reported that they had abstained from alcohol in the past 12 months. Twenty per cent of the educators were classified as low-risk drinkers, and 5.3% high risk-drinkers according to the Alcohol Use Disorder Identification Test (AUDIT) scores (high risk was defined as 8 and more scores on the AUDIT). Of all racial groupings, male coloured educators (18%) and male African educators (16%) reported the highest levels of high-risk alcohol use. White male educators were most frequently low-risk drinkers (71%) when compared to male educators in all other racial groups. This may be a reflection of the culture of alcohol use in these communities. Furthermore, it seems that the younger the educator was, the more likely they were to use alcohol in a risky way. The age group 25–44 years among male educators reported the highest levels of high-risk drinking (15.9–16.4%) as compared to 45–54 year old male educators (12.5%).

Compared with educators who are non-drinkers or low-risk drinkers, high-risk drinkers reported a higher number of unhealthy days in the month prior to the survey, and more days of being absent from work in 2003. It is crucial to examine alcohol use and its relation to health-related quality of life. The rationale is that high-risk drinking may influence the health status of educators, which has an impact on quality of education.

Potential for attrition

The study revealed that 55% of educators intend to leave the education profession with two-thirds of this group being technology, natural sciences, economics and management educators. Some of the reasons for wanting to leave the education profession include low job satisfaction and job stress. If low job satisfaction and job stress can be addressed, in particular, potential attrition can be reduced. Furthermore, violence in education institutions may deter educators from coming to school and may contribute to attrition. The three major forms of violence experienced by educators in the past 12 months included instances where a learner or educator had been found carrying weapons into the educational institution (22%), assault (18%) and fights involving weapons (14.4%). Violent events at the educational institution seemed to have had an impact on the morale of educators and increased their probability of leaving the profession. Educators with a higher violence index score rated the morale at their school as lower than those with a low violence score, and educators with a higher violence score more often thought of leaving their profession.

Recommendations

The study was commissioned by the ELRC, comprising the DoE and the unions, mainly because of lack of adequate information for planning in the education sector. The unions and the DoE had separate but overlapping terms of reference for the study. Through discussion it was possible to combine the terms of reference for the study into one comprehensive research investigation that was agreeable to all parties. For this reason, the recommendations are specific to either or both parties and yet their implementation would require participation of the key relevant stakeholders from parties, the Council and tertiary institutions, donor agencies and, where applicable, domestic and international scientists.

1. Behaviour change and HIV prevalence

The key behavioural determinants of HIV infection were lack of condom use, HIV-positive status, multiple partnerships, alcohol use and age mixing. It is recommended that the DoE, working with unions and non-governmental organisations (NGOs) develop HIV prevention programme targeted at educators, given that they are a captive audience. The messages should not only be about using condoms, faithfulness and abstaining but should increasingly address the issues of serial monogamy and HIV testing before engaging in unprotected sex, and having sexual partners within ones' age group.

2. Increase HIV prevention knowledge

The DoE, with the participation of the unions, should design educational campaigns that place more emphasis on anal sex and oral sex in prevention campaigns to ensure that this form of sex is not considered as safe because it is not mentioned frequently as part of HIV awareness programmes. Priority for HIV prevention should be targeted at districts with a high HIV prevalence of 20% or more.

3. Target districts with high HIV prevalence

The observation that the HIV prevalence among educators is highest in 11 districts implies that the DoE should target its efforts in this area. The intervention could include improvements of conditions that are unfavourable to HIV transmission.

4. Improve self-efficacy skills

It is crucial that educators be given the skills to prevent themselves from becoming infected. It is therefore recommended that the DoE and the unions work together to design an education programme that will equip educators with skills to negotiate safe sex, especially young recently qualified educators.

5. Prevent transmission of HIV from those already HIV positive

To prevent new HIV infections, it is recommended that the DoE work closely with unions, NGOs and scientists to design an intervention programme to prevent HIV transmission from HIV-positive educators, using the healthy relationship model that has been shown to reduce new infections.

6. Discourage migratory practices that result in separation from support/family structures

It is recommended that the DoE and the unions develop a structured programme for deployment of educators to specific areas; this would entail a deliberate effort to place teachers near their homes rather than leaving it to chance. Where this is not possible, to facilitate deployment by supporting educators and encouraging them to migrate with families.

7. Establish health workplace programme

It is recommended that the DoE and donor agencies establish and manage a workplace programme specifically to provide a comprehensive prevention and treatment programme for all illnesses (including HIV/AIDS and TB), but ensuring confidentiality for educators. Such a programme would include stress reduction and involve counselling, assessment of workload and adjustment thereof, blood pressure and diabetes screening and treatment.

8. Eliminate gender disparities

To reduce gender disparities and reduce the rate of spread of HIV it is recommended that the DoE, the tertiary institutions and the unions join hands with civil society to create a social environment that discourages men from engaging in risky behaviour that puts them and consequently women at risk of HIV. All parties to work towards capacity building and devopment of women through increased opportunities for promotion and improvement of educational qualifications.

9. Reduce alcohol misuse

With respect to alcohol use, it is recommended that the DoE work closely with the unions to develop an alcohol prevention campaign targeting male educators to reduce high-risk drinking.

10. End violence in schools

The study found that violence at school was common, with the problem differing by province. It is recommended that the DoE should work together with the South African Police Service to increase security at schools for all educators and students.

11. Potential attrition

Low job satisfaction can be addressed through negotiation on conditions of service between the DoE and the labour unions in the ELRC. With respect to job stress, the discussion between the DoE and the unions may entail teaching methods and administrative issues. The DoE should also consider providing support to educators, especially those who have not been teaching outcomes-based education (OBE) who report having difficulty adapting to the new system.

12. Database management

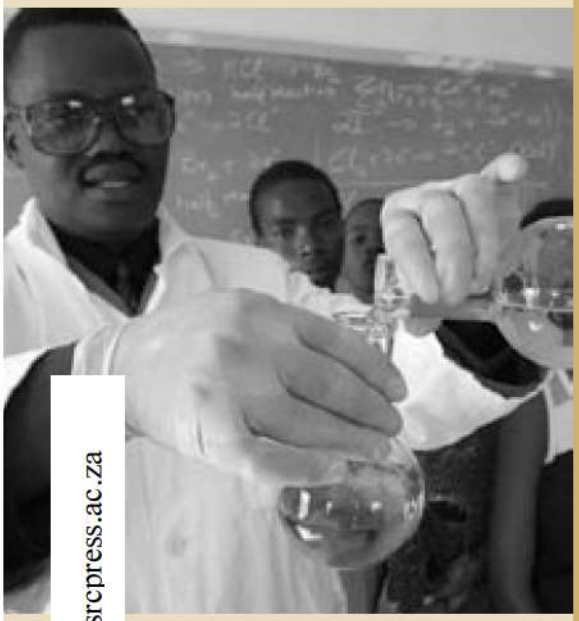
To draw the sample for the study required access to information on the geographic location of schools and the number of teachers employed at each school. There were serious difficulties in developing a sampling frame for the study due to lack of unique identifiers allowing educators to be linked to specific schools, as well as duplicate records; thus it was not easy to compile the total numbers of educators at schools. It is therefore recommended that the South African Council of Educators (SACE) develop a web-based system that will allow district managers to update information on school locations and attributes on a regular basis. ABET Adult basic educational training

List of abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ARRM	AIDS Risk Reduction Model
ARV	Anti-retroviral
ASSIST	Alcohol Smoking and Substance Involvement Screening Test
ATEE	Assessment Technology and Education Evaluation
AUDIT	Alcohol Use Disorders Identification Test
CADRE	Centre for AIDS Development, Research and Evaluation
CI	Confidence interval
CLS	Contract Laboratory Services
CVr	Coefficient of relative variation
DHS	Demographic and Health Survey
DoE	Department of Education
EAP	Employee Assisted Programmes
EEPR	Employment and Economic Policy Research
ELRC	Education Labour Relations Council
EMIS	Education Management Information System
FET	Further Education and Training
FL	Foundation languages
GHS	General household survey
HIV	Human Immunodeficiency Virus
HSRC	Human Sciences Research Council
HEI	Higher Education Institutions
IDU	Injection drug use
ISCO	International Standard Classification of Occupations
MOS	Measure of size
MRC	Medical Research Council
Naptosa	The National Professional Teachers' Organisation of South Africa
Natu	National Teachers' Unions of South Africa
NGO	Non-governmental organisation
OBE	Outcomes-based education
PERSAL	Personnel Salary System
PPS	Probability proportional to size
PSU	Primary sampling unit
SACE	South African Council of Educators
Sadtu	South African Democratic Teachers' Union
SAHA	Social Aspects of HIV/AIDS and Health
SAMM	Surveys, Analyses, Modelling & Mapping

SANC	South African Nursing Council
SAS	Statistical Analysis System
SE	Standard error
SGB	School Governing Body
SAOU	Suid Afrikaanse Onderwysers' Unie
SASA	South African Schools Act
SPSS	Statistical Package for Social Scientists
SRN	School Register of Needs
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
TB	Tuberculosis
TTT	Technical Task Team
USU	Ultimate sampling unit
VCT	Voluntary counselling and testing
WHO	World Health Organization

Section one: Introduction



- Epidemiological model
- Rationale of the study
- Research questions
- Objectives of the study

1. Introduction

South Africa has the largest number of people living with HIVAIDS in the world: 14.4% of all people living with HIV/AIDS live in South Africa. The 5.6 million South Africans living with HIV/AIDS (DoH 2004) are mostly in the economically-active age group. HIV prevalence is highest among those aged 15–49 years; however there are major differences for males and females. Among South African women aged 25–39, the estimated HIV prevalence in 2002 was 17.7%, much higher than among males (12.8%) (Nelson Mandela/ HSRC Study of HIV/AIDS 2002).

Studies have been conducted to examine the impact of HIV/AIDS on various sectors of the economy, including the mining (Evian, Fox, MacLeod, Slotow & Rosen 2004), manufacturing, health (Shisana, Hall, Maluleke, Chauveau & Schwabe 2004) and education sectors (Badcock-Walters, Desmond, Wilson, Heard & Mobile Task Team 2003). The findings generally indicate that the epidemic is affecting the economic sectors differently (Evian et al. 2004). HIV/AIDS appears to affect the mining and metal processing sector more than it does other industrial sectors, mainly because of the migratory labour system that forces men to live away from their families.

The effectiveness and functioning of the public sector is also increasingly threatened by the HIV epidemic. The disease undermines human capital and limits revenues available to finance development while generating increased demand for public services. Health sector studies show that the number of people seeking healthcare for HIV/AIDS-related illness has been increasing, while the service providers — health professionals – are in short supply and are also infected and dying. Studies in Zambia found that the death rate among health workers due to AIDS quadrupled between 1986 and 1999 to reach 3% per year; Botswana is expected to have lost 17% of its health workforce between 1999 and 2005 (ILO 2004). A South African health sector study also found that 15.6% of the tested health professionals were HIV positive. Furthermore, 80% of health facilities indicated that they needed more staff to cope with the disease (Shisana et al. 2003). The high mortality of patients with HIV-related disease can undermine feelings of professional adequacy.

The education sector is thought to be particularly hard hit by HIV/AIDS because both the demand for and supply of education are affected. Not only do children drop out of school because of HIV/AIDS, thus reducing demand for educators, but educators, school managers and education policy-makers are themselves dying of AIDS, thus reducing supply. Education is crucial to the creation and enhancement of human capital, which is essential for sustainable development. Despite the dearth of empirically-based studies on the impact of HIV/AIDS on the education sector, a few studies suggest that the impact may be significant. It is estimated that the education sector will experience high morbidity and mortality due to HIV/AIDS and consequently the attrition of educators.

In East and Southern Africa, where the HIV/AIDS epidemic has been prevalent for longer, the impact of HIV/AIDS on the education sector is evident. A Zambian study showed that educator mortality was 39 per 1 000, a figure considered 70% higher than that for the adult population aged 15–49 years. The World Bank projected that 40% of Malawian education personnel working in urban areas would die of AIDS by 2005; 100 Tanzanian primary school educators die of AIDS each month and estimates are that by 2006, 45 000 trained educators will be needed to make up for those lost to AIDS, while in Botswana death rates from AIDS increased from 0.7 per 1 000 in 1994 to 7.1 per 1 000 in 1999 (ILO 2004).

A 1999 educator demand and supply projection model in South Africa suggested that AIDS would add to existing high levels of educator attrition and that the cumulative attrition rate may require replacement of as many as 60 000 educators by 2010 (HEARD 2003). Another South African study found that the educators' mortality is expected to grow over time. While AIDS mortality among educators was estimated to be about 0.64% in 1999 in KwaZulu-Natal, it is expected to rise to around 5% by 2010. If the normal attrition rate of 6%, observed in 1999, was to hold constant over time, then it is hypothetically possible that gross attrition could climb significantly by the end of the decade (Badcock-Walters et al. 2003). All these findings suggest that the education sector may very well be experiencing higher than expected mortality due to AIDS.

The effects of the HIV epidemic do not end with issues of staff mortality. The performance of the whole education system can be affected by educators' morbidity, which can lead to extensive disruption of activities and by the impact of the epidemic on morale and internal and external disharmony (Cohen 2002). Sickness can result in high rates of educator's absenteeism and long-term and persistent absenteeism can be disruptive to the education system. No in-depth research has yet been undertaken that would allow robust estimates to be made on the effects of the HIV/AIDS epidemic on the overall number of days lost through increased educator absenteeism. However, of the available estimates, it is assumed that each infected educator loses a total of 18 months of working time (World Bank, cited in Bennell 2003).

Low educator morale and motivation can also have an impact on educator morbidity and absenteeism. High death rates among colleagues have always been cited as a factor, but a study conducted by Bennell (2003) found that low pay, poor conditions of service and inept school management also played a major role in educators' low morale. Higher levels of morbidity can adversely affect productivity in ways that will reduce the overall capacity of the education sector. These effects can further be exacerbated by mortality and morbidity of educators, managers, inspectors, and education officers.

The impact of HIV/AIDS has major implications for education systems. When an educator dies, many learners are without education. Some of the schools cope by combining classes, thus increasing the pupil/learner to educator ratio. In Botswana, death rates of primary school educators increased from 0.7 per 1 000 in 1994 to 7.1 per 1 000 in 1999 (ILO 2004). Thus the workload for the remaining educators increases, which compromises the quality of individual attention to learners. This in turn has serious implications for the intellectual capacity and skills of future generations. The gains of economic development are being reversed because of the slow progress African countries have made in educating children. Another challenge for the education sector is that the HIV/AIDS epidemic generates orphans. This is because most people become infected between the ages of 15 and 24 years, and many die when their children are still very young, leaving orphans who require extra emotional support from educators – a need which is unlikely to be met in large classes. In situations where classrooms have become larger, they are unlikely to receive much attention from their educators. Since they spend the greater part of their waking time in school, if they receive less attention they may grow up being emotionally deprived. This is no small problem if we consider that, as at December 2003, 15 million children in sub-Saharan Africa are estimated to have already lost their mother to HIV/AIDS (UNAIDS 2004).

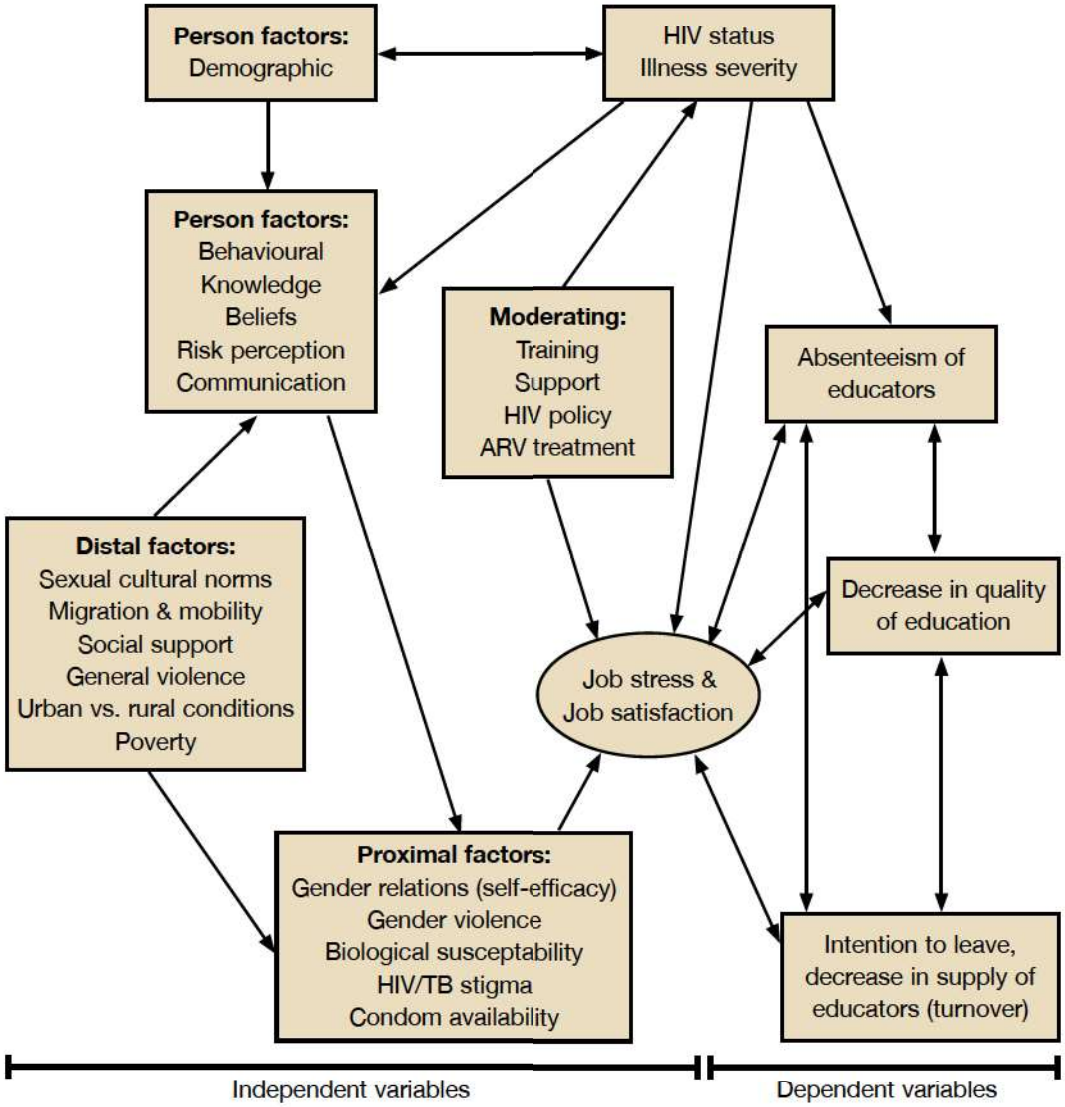
Loss of income within households also has a tremendous impact on children's school attendance. In Swaziland, primary school enrolment is projected to decline until 2011, and will only begin to level after 2012. Grades 6 and 7 will continue to grow as access to education improves (based on the past trends), and will begin to be affected by AIDS deaths in the year 2010. By the year 2016, with AIDS, there would be almost 45 000 Swazis of secondary school-going age. The number of secondary school age Swazis is projected to drop by 22.7% (Whiteside, Hickey, Ngcobo & Tomlinson 2003). This would have an impact on the economic status of future generations. Most of these estimates are based on projection models derived from antenatal data adjusted on the basis of specific assumptions. There is a serious scarcity of research based on HIV testing of educators and studies assessing the extent of the impact of HIV/AIDS on the public education sector. Some assume that because educators are dying, it must be from HIV/AIDS and few back up this assumption by testing the HIV status of educators. The dearth of scientific evidence makes it difficult to state with confidence what the impact of HIV/AIDS would be on supply of educators. It was for this reason that the ELRC, comprising the unions and the National DoE, commissioned the HSRC and its partners to undertake a study examining the impact of HIV/AIDS on the education sector. The main aim of this study was to explore the phenomenon of educator attrition and to understand various reasons why educators may be leaving the profession.

Some of the factors examined include health status of educators (including HIV/AIDS and TB), substance misuse or abuse, migration, staff morale and job dissatisfaction. In addition, the study will identify the required educator demands of the system, and the number of educators needed to meet this demand.

1.1 Epidemiological model

Figure 1.1 Epidemiological model

An epidemiological model, shown in Figure 4.1, was developed for the study. It consists of independent, moderator and dependent variables as explained below.



Independent variables

According to Peat, Mellis, Williams and Xuan (2002) independent variables are explanatory variables. In our model the independent variable consists of risk factors (distal, proximal and person factors), HIV/AIDS, moderators and other factors that influence and affect the dependent variables.

Risk factors in the model are those factors that contribute to vulnerability to HIV/AIDS. They include sexual practices, alcohol and drug use, poor knowledge and attitudes towards HIV/AIDS, sexual violence such as rape, as well as factors such as age, sex,

and race and locality type. Individually or combined, these risk factors contribute and increase the vulnerability to HIV/AIDS and therefore increase HIV infection, morbidity and mortality. TB and STIs, mentioned in the model as co-factors, are also directly influenced by the risk factors and contribute to HIV infection, as well as morbidity and mortality from AIDS. When dealing with AIDS-sick learners/colleagues and sick family, educators' morale and job satisfaction may be affected, which in turn affects (decreases) productivity.

Distal factors are the original distant cultural causative factors, and in the model are represented as sexual and cultural norms, migration and mobility, social capital, general violence, urban versus rural conditions and poverty. These factors have a direct influence and impact on the proximal factors. Proximal causes can be considered as current interpersonal causative factors, which include an individual's community or immediate surroundings and their influence. These are represented in the model by gender relations (self-efficacy), gender violence, HIV and TB stigma, and condom availability. These factors all have a direct effect on job stress and job satisfaction as well as on person factors.

Person factors can be considered as those personal or extremely close causative factors and are represented in the model as demographic, behavioural, knowledge, belief, risk perception and communication.

Moderators
Moderators such as the workplace laws, policies and programmes, ARV treatment, social support systems, staff morale, job satisfaction, destigmatisation/discrimination, and migration are affected by HIV/AIDS and affect the dependent variables. Apart from HIV/AIDS, other factors that influence the dependent variables are community violence and the general health status of educators, which decrease productivity, increase workload and attrition as well as affect the demand and supply of educators.

Dependent variables
Peat et al. (2002) consider the dependent variables as the outcome variables that explain or were affected by independent variables. The model above shows that the risk factors that directly influence HIV/AIDS go on to influence the dependent variables. All independent variables go on to influence and affect the demand and supply of educators, the recruitment and training of educators, student enrolment, attrition of educators, and productivity (including workload) of the educator workforce.

1.1.1 Independent variables

UNAIDS (2000) summarises the following behavioural, social and biological risk factors for HIV transmission:

Behavioural and social factors:
- Little or no condom use;
- Large proportion of the adult population with multiple partners;
- Overlapping (as opposed to serial) sexual partnerships – individuals are highly infectious when they first acquire HIV and thus more likely to infect any concurrent partners;

- Large sexual networks (often seen in individuals who move back and forth between home and a far-off workplace);
- 'Age mixing', typically between older men and young women or girls; and
- Women's economic dependence on marriage or prostitution, robbing them of control over the circumstances or safety of sex.

Biological factors:

- High rates of STIs, especially those causing genital ulcers;
- Low rates of male circumcision; and
- High viral load – HIV levels in the bloodstream are typically highest when a person is first infected and again in the late stages of illness.

With respect to HIV/AIDS, the available information shows that educators are a high-risk group in several countries in sub-Saharan Africa. HIV testing of educators in Zambia found high levels of infection amongst this group, compared to other groups in the population (Badcock-Walters & Whiteside 2000; Kelly 2000; Unicef 1999). High HIV infection results were also found in educators in Kenya (Bennell 2003; Unicef 1999) as well as in Malawi and Uganda (World Bank 2002). The Sadtu preliminary study into the mortality of its members revealed that out of 701 deaths, from August 1999 to May 2000, 'a significant number were considered to be AIDS-related' (Mannah 2001).

In South Africa the most common communicable disease is TB. In fact, South Africa ranked highest in the incidence and prevalence of TB, with 140 000 new cases estimated to have occurred in 1995. The extent to which educators are living with active TB in South Africa is not known. Educators with active TB are likely to miss school due to illness, and are also likely to die prematurely from the disease. The strategic goal is to reduce TB transmission, morbidity and mortality (while minimising the risk of anti-TB drug resistance), as part of overall efforts to reduce HIV-related morbidity and mortality in high HIV prevalence populations of South Africa.

Treating STIs is key to reducing new HIV infections. The probability of transmitting HIV during unprotected sex rises dramatically if either partner is infected with another sexually transmitted disease (STD), such as syphilis or chancroid. These infections form ulcers and sores that facilitate the transfer of the virus. Like TB, the extent to which educators contract STIs is unknown and it is vitally important to reduce STIs and therefore reduce HIV transmission. The syphilis prevalence trend among pregnant women from 1997 to 2003 shows there has been a significant decline from a high of 11% to 2.7% (DoH 2003).

The most common route of HIV transmission in South Africa is heterosexual. For this reason, condom use is an important means to prevent transmission.

The AIDS Risk Reduction Model (ARRM) uses the term stage to characterise three key markers in the process of changing one's condom use behaviour: (1) labelling; (2) commitment; and (3) enactment. These stages indicate that different psychosocial variables may be influential at different points in the process of behaviour change, though movement through the stages is not conceived as unidirectional or irreversible.

The labelling stage involves awareness of the threat of AIDS and recognition that one's sexual behaviour could put one at risk of HIV infection. Several variables (not all

included here) operationalise this process. First, knowledge of HIV/AIDS is important, especially information regarding sexual activities associated with HIV/AIDS transmission and preventive strategies. Second, variables specified by the Health Belief Model are likely to be influential at this stage. Believing that one is personally at risk of infection with HIV/AIDS (perceived susceptibility) and believing that the consequences of infection would be serious (perceived severity) lead to the appraisal of HIV/AIDS as a disease that is personally threatening. Acknowledging that AIDS could be a problem also implicitly involves reviewing one's past risk behaviour, including the number of sexual partners. Several cues to action might also contribute to labelling one's sexual behaviour as problematic. Cues to action refer to situational factors that might trigger preventive behaviour when appropriate beliefs are held and have been operationalised in this analysis in terms of being exposed to school-based HIV/AIDS education, being aware of AIDS-related media campaigns, knowing a person who is HIV positive or has died from AIDS, having previously been diagnosed with an STI, having had a test for HIV antibodies and received the results, and being HIV positive.

The commitment stage involves a process of decision-making that should culminate in a firm commitment to use a condom during intercourse. A key factor contributing to this decision-making process is the belief that a condom is effective in preventing HIV infection (efficacy of condom use). Self-efficacy has been operationalised in terms of people's confidence in their ability to perform a behaviour. Pregnancy-prevention issues could also influence decisions to use condoms. People may decide not to use condoms because they are using another form of contraception such as an injectable contraception. Barriers to condom use are assessed with the embarrassment to obtain condoms. The most important variable in the commitment stage is the person's intention to use condoms. Behavioural intention summarises a person's motivation regarding a particular action.

The ARRM posits a third, post-intentional phase in the change process – the enactment stage. According to the ARRM, labelling one's behaviour as problematic and making a commitment to change may not be sufficient conditions for safer sex – one must also be capable of implementing the intention to use a condom by including preparatory behaviours that people may undertake to ensure that they will ultimately perform a particular behaviour. In the context of heterosexual condom use two preparatory behaviours have been examined: condom availability and communication about sex and HIV/AIDS. Relationship status and condom use was operationalised in terms of condom use consistency with a regular or steady partner and/or non-regular or casual partner. The enactment variable also embraces contextual factors such as substance use. Apart from alcohol or drug use before sex and binge drinking, a variable measuring heavy consumption of alcohol is included on the assumption that since alcohol blurs judgement, heavy drinkers may be less likely to use condoms consistently in high-risk sexual encounters. (Sheeran, Abraham & Orbell 1999).

Some factors seem to render educators more vulnerable to HIV infection. Firstly, placements of educators could be away from home, and lack of housing compels them to leave behind their families. Secondly, their level of income is higher than that of the general population. When these factors are combined they increase the likelihood that they might engage in risky behaviour (CAER II 2000). However, it is likely that because they have higher income, they may have access to HIV testing for insurance purposes,

and hence are aware of their serostatus. Knowing one's serostatus may encourage one to avoid risky sexual behaviours. Another factor is mobility (Coombe 2000). However, there is a dearth of literature to support the proposition that educators may be at high risk for HIV due to migration resulting in high attrition. It is critical that this matter be investigated. Due to the high expected attrition rates, it is important to take into consideration ARV treatment that should slow down the attrition rate due to AIDS.

Substance abuse may be an HIV risk factor. Transmission of HIV involving drug use can be direct or indirect. Direct transmission is through the sharing of needles; indirect transmission occurs when an HIV-positive injecting drug user has unprotected sexual contact with another person. Furthermore the use of drugs, including those that are not injected, increases the risk for HIV because of their effect on decision-making and subsequent increased sexual risk taking and unplanned pregnancies. While the direct link between injecting drug use (IDU) and HIV has been established in other regions, the situation in sub-Saharan Africa has not been clear until recently (UNODC 2002).

Very little research on drug use and HIV has been done in South Africa. Small studies, largely based on facility data, indicate that drug use varies from population to population. Studies done in South Africa suggest an increase in the use of IDU amongst women and youth, but it is not known among educators. It is also suggested that the problem might be larger than previously estimated. Studies conducted as early as 1991 and 1992 investigating the relationship between IDU and HIV suggest a link between the two in South Africa (Rocha-Silva 1993). However, a population-based study showed that there is under-reporting of substance use in South Africa (Nelson Mandela/HSRC Study of HIV/AIDS 2002).

Alcohol use and abuse is often studied in the context of frequency of use, addiction and resulting consequences of abuse. Very limited work has been done to investigate the extent of alcohol use within different professions. Data that is available may be in the form of records kept by managers or employers in a process of disciplinary enquiries. It is often reported through media and anecdotal evidence that there are high rates of alcohol use and abuse among educators but our research did not yield any scientific study done in South Africa to support this assertion. Allegedly high rates of suspected substance use and abuse are often linked to the level of demand, recent changes within the education system and the stressful environment at school and in the educators' personal lives. No scientific study which links alcohol use and the other variables within the education sector could be found.

In a sample of educators in Zimbabwe, Eide, Butau and Acuda (1999) found that 38.6% of male educators and 8.2% of female educators reported drinking every day or at least weekly. In a national household survey (2002) of 6 080 youth and adults, it was found that 32.8% of South Africans consumed alcohol with 2% consuming it daily. Data broken down by sex indicated that 50.8% of males and 78.3% of females do not drink alcohol. Alcohol use was related to sexual activity, number of sexual partners and condom use. Sexually active people had a much higher rate of alcohol use when compared to secondary abstainers and reported virgins. Multiple partnerships were highest for weekly drinkers (Shisana, Zungu-Dirwayi, Simbayi & Toefy 2004).

Alcohol abuse has serious health and social consequences. In recent years alcohol has increasingly been associated with violence and traffic related trauma. In three cities (Cape

Town, Durban and Port Elizabeth) for example, 71% of violence-related trauma was found to be linked to alcohol. Road accidents have been associated with intoxication. In the three areas mentioned above, 50% of drivers involved in a traffic collision tested positive for alcohol (Parry, Bhana, Myers, Pluddemann, Flisher, Peden & Morojele 1999). Alcohol use can lead to addiction, with serious consequences for the normal functioning of the individual affected. In most cases there is an impact on responsibilities, which may impact on family and work commitments. In a survey conducted in Pretoria and in Bela-Bela in Limpopo, 12% reported injuries due to drinking, 11% said that concern had been expressed about the respondent's drinking. In this sample 14% of participants reported that they had driven under the influence of alcohol. With respect to performance 9% reported to have experienced poor performance at school or college while 3% of those employed reported experiencing poor performance at work (Parry et al. 2002).

Substance use can lead to impaired judgement which in turn results in exposure to dangerous behaviour, including an increased likelihood that the person may engage in risky behaviour that may expose them to HIV and other STDs. There is an increased focus on the link between the use of substances such as alcohol, and condom use and HIV status (Mbulaiteye, Ruberantwari, Nakiyingi, Carpenter, Kamali & Whitworth 2000). Results from a national household survey found an association between alcohol use, having multiple partners and inconsistent condom use (Shisana, Zungu-Dirwayi, Toefy & Simbayi 2004). It is also important to note that alcohol is often used with other drugs such as dagga, mandrax and even prescription medications that increase the intoxication levels considerably with potentially fatal consequences.

Community violence and the general health status of educators (independent variables in the above model) directly affect the above dependent variables. Community violence decreases productivity and learner enrolment as it has a negative effect on staff morale and job satisfaction. The general health status of educators also directly influences productivity and possibly attrition.

With regard to knowledge on the nature, transmission, and prevention of HIV/AIDS, most studies show that people aged 15 years and older in the general population in South Africa are highly aware of HIV/AIDS. Although this evidence seems most encouraging in suggesting the reach of AIDS health education campaigns, there is lack of significant sexual behavioural changes involving safer sex practices such as reducing the number of sexual partners and using condoms consistently, particularly among adults (Simbayi 2002). The younger population has very high rates of condom use (Nelson Mandela/HSRC Study of HIV/AIDS 2002).

Perceptions about one's personal vulnerability to a health threat, and one's perceived ability to reduce one's risk, are key determinants of health behaviour. Low perceived personal vulnerability is a risk factor because it reduces the motivation to take the necessary precautions. The South African research does indicate that higher perceived vulnerability and anxiety about personal risk is linked to greater intended and actual sexual behaviour change (Eaton, Flisher & Aarø 2003). In a nationally representative sample in South Africa, people were asked whether they thought they were at risk of HIV infection. The results showed that half of the respondents thought they were at risk; one in three thought they were not at risk and 15% did not know (Shisana 1999). These and other data suggest that many South Africans seem to underestimate their risk for contracting HIV, especially in some groups with high rates of sexual activity and low condom use (Eaton et al. 2003).

1.1.2 Moderators

The impact of HIV/AIDS on morale can extend to both the infected and affected in schools. HIV positive educators are likely to lose interest in furthering professional development (Coombe 2000). Issues of declining health, and increased rate of absenteeism may impact on ability to teach (Badcock-Walters et al. 2003). An assessment of the impact of AIDS in education in Zimbabwe found that the epidemic is causing anxiety and stress among infected and affected staff, posing a challenge to morale (HIV/AIDS Assessment Team in Zimbabwe 2002). A Zambian study (Baggaley, Sulwe, Chilala & Mashambe 1999) of stress factors experienced by primary school educators after a course on stress management and counselling skills, found that despite the training, many of the educators felt inadequate to counsel school learners on poverty, death and illness of parents, fellow learners and educators, teenage sex and pregnancy, violence in the home, and low self-esteem among girls.

It is also important to note that workplace policies, laws and programmes are vital in dealing with HIV/AIDS-infected individuals within the working environment. People living with HIV/AIDS have rights and it is the laws, policies and programmes (HIV destigimatisation programmes) that should protect these rights.

For a number of years, HIV activists and researchers have highlighted the role gender inequality may play in placing women at increased risk for HIV infection. Traditional gender roles held by many of the world's societies are largely responsible for the continued spread of HIV, particularly from men to women (Reproductive Health Outlook 2004). From childhood, girls and boys are expected to exhibit traditional practices, which might be harmful or protective (Shisana & Davids 2004).

Young women are most vulnerable between the ages 15–24 (UNAIDS 2004). A host of economic vulnerabilities underlie young women's inability to challenge the sexual status quo (CDC 2004). Women often have difficulty negotiating safer sex with their partners because of their lower social status, economic dependence on men, and fear of violence.

Young women and girls are often the target of older men in search of 'safe' sexual partners, including men who believe the myth that sex with a virgin will cure their infection (Matlin Spence 2001). Unequal social roles and vulnerability to men's demands also mean that women are more likely to become infected with HIV at an earlier age than men. A study done by the Centers for Disease Control and Prevention (CDC 2004) indicated that even though limited sexual power was not directly associated with HIV, it was associated with inconsistent condom use, which in turn was significantly associated with HIV infection. Women are especially vulnerable where they are powerless to negotiate the terms of sexual relations.

Given that male behaviour is one of the main determinants of HIV infection in women, the participation of men in prevention activities is clearly essential. Cultural beliefs and expectations also increase men's own vulnerability to HIV/AIDS. As a result of many cultural expectations, men have more sexual partners than women and are more likely to engage in risky behaviours.

Even though men may not know enough about sex, society expects them to be knowledgeable, which is dangerous because knowledge, though not sufficient, is vital in

HIV prevention (Shisana & Davids 2004). Prevention programmes amongst others can:

- Highlight how gender stereotypes and expectations affect both women and men, and support work to improve gender equality and equity;
- Challenge damaging notions of masculinity and other gender stereotypes;
- Encourage men to discuss sex, drug use, and HIV/AIDS; and
- Strengthen women's ability to decide when, where, and whether sex occurs. (CDC 2004)

1.1.3 Dependent variables

HIV/AIDS affects the supply of education through reduced numbers of skilled educators (Badcock-Walters & Gorgens 2001). According to Coombe (2000), educator mortality and morbidity from the epidemic deprives the education sector and learners of the sector's most experienced senior educators and managers. On the other hand, increased absenteeism because of AIDS has costly implications for quality of teaching and learning, and workload and working conditions for educators in most affected schools (Sadtu 2003).

Educators who are HIV positive, but have not developed full-blown AIDS, will not always work to their full potential (Kelly 2002). In fact, it is estimated that repeated sickness could lead to such educators losing about six months of teaching time during the infection period, before terminal illness (Kelly 2002). ARV treatment should reduce the rate of sickness as well as educator attrition. The morale of educators who are not infected is also likely to fall as they deal with sickness, and the mortality of colleagues, relatives and friends. Healthy educators will have to take on additional work to assist colleagues who are not well (Coombe 2000). Additional responsibilities will include counselling and caring for learners who are either HIV positive or affected by HIV/AIDS through a sick parent/s or relatives. These additional stresses may need to be incorporated in initial and continuous educator training and development.

Baggaley et al. (1999) highlighted in a Zambian study the importance of training in counselling and stress management skills for educators who work in environments where there are learners and educators affected and infected by HIV/AIDS. Continuous educator professional training and development also emerged as another important factor in the management of the impact of HIV at school. It is also important to note that due to attrition, new educators need to be recruited to fill the gap. Whilst the DoE is able to predict turnover related to resignations and labour market movements, the prediction of educator attrition and mortality has become much more difficult because of AIDS.

Increased levels of HIV infections, AIDS mortality and morbidity in society in general will impact on learner enrolments, through reduced number of learners and an increased drop-out rate by infected and affected learners (Badcock-Walters & Gorgens 2001). In South Africa, a reduced primary school learner enrolment over the coming decade is anticipated, because of mother-to-child transmission of HIV and lower fertility rates (Sadtu 2003) due to education of the girl child. The other reason for low enrolments at either primary or secondary school level includes the effect of the epidemic on disposable incomes as affected households will have less money for school fees, stationery, textbooks, and school uniforms, particularly given increased demand on family income for healthcare costs and funeral expenses (Coombe 2000). In terms of monitoring the effects of the epidemic on enrolment, it is also important to look at differences

in enrolments between girls and boys. Desmond, Michael and Gow (2000) as well as Marcus (1999) state that female children are more likely to be taken out of school to help with household chores and take care of the sick, especially when adult females are not available.

1.2 Rationale of the study

Much of the research conducted in South Africa on the impact of HIV/AIDS on the education sector is based on projections or conjecture; it is essential to obtain empirical evidence on self-reported measures as well as biological measures of HIV status.

The ELRC thus identified the need for a study to explore the phenomenon of educator attrition and to understand why educators may be exiting the profession. Some of the factors identified include the health status of educators (including TB), substance use or abuse, migration, staff morale and job dissatisfaction. In addition, such a study should seek to clarify the extent of demand for educators in the system, and the number of educators needed to meet this demand.

1.3 Research questions

The ELRC commissioned the HSRC to investigate the determinants of demand and supply of educators in the public education sector. Such a study is expected to answer several research questions such as:

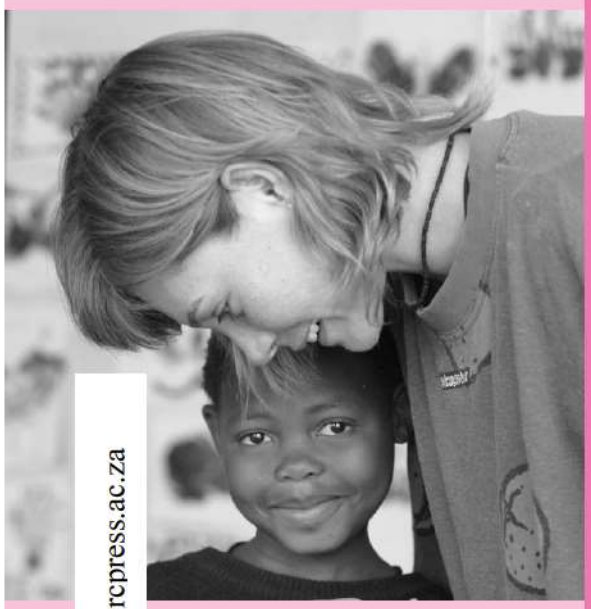
- What is the prevalence of HIV/AIDS, TB, alcohol and drug use amongst educators in public schools, Further Education and Training (FET) colleges and students in educator training?
- Do educators have higher HIV prevalence ratios compared with the general population of people aged 25 years and older, taking into account key confounders?
- What are the factors driving the HIV and AIDS epidemic among educators?
- What is the prevalence of HIV, TB and alcohol use per district council?
- What is the attrition rate among educators, and what are the reasons for attrition (such as sickness, mortality, TB diagnosis, STIs and other endemic diseases, history of health service use, hospitalisation, alcohol and drug use and migration)?

1.4 Objectives of the study

The study is designed to yield useful information to assist the government and unions, partners in the ELRC, in planning educator supply at national, provincial and district level. The specific objectives of this study are threefold:

- To determine the prevalence of HIV and TB amongst South African educators in the General and Further Education and Training colleges by age, sex of educator, race, qualifications, locality type, learning area and the phase/ band of active teaching;
- To investigate the determinants of HIV amongst these educators by age, sex of educator, race, qualifications, locality type, learning area and the phase/ band of active teaching; and
- To determine the potential attrition rate among educators and the reasons for this.

The objectives relating to demand and supply of educators, which focus on human resources and policies will be discussed in several forthcoming reports. This report is limited to the epidemiological profile and potential for attrition and its causes.



Section two: Methodology

- Research design
- Instruments and scales
- Pilot study
- Ethical clearance
- Sample design
- Sample
- Data collection

2. Methodology

2.1 Research design

The study employed a triangulation of several research methods. Firstly, there was significant involvement of key stakeholders in conceptualisation and design of the study and its execution. A Technical Task Team (TTT) consisting of researchers from the HSRC-led consortium and representatives from all ELRC stakeholder groups, the DoE (national and provincial), Sadtu, Naptosa, SAOU, Natu and the SACE jointly developed the terms of reference for the study, the research proposal and an advocacy plan for both facilitating entry of fieldwork teams into educational institutions and for dissemination. This ensured a 'buy-in' into the research process by all ELRC stakeholders and the SACE, which was necessary to achieve a high response rate. The same approach was also used with FET campus/human resources managers and deans responsible for education at various universities in connection with accessing of FET-based educators and education students respectively. As much collaboration as possible took place throughout the study.

Secondly, formative research was undertaken using focus groups and key informant interview methods among educators throughout the country. These qualitative methods helped to determine the themes to include in the questionnaire.

Thirdly, there was also a once-off consultation with HIV/AIDS educators, researchers and experts from the HSRC-led consortium to acquaint the task team with research work in the area that was being undertaken in the country. This process also helped to inform the final protocol for the study.

Fourthly, and most importantly for the present report, a cross-sectional survey among educators and student educators employing the second-generation surveillance method that combines the measurement of behavioural and biological indicators within the same study was used. A behavioural risks questionnaire-based survey was conducted concurrently with HIV testing to determine the association between the two.

Fifthly, and finally, completion of the institutional questionnaire by the principal or rector involved them undertaking some archival research to look up school records to obtain the information required.

2.2 Instruments and scales

2.2.1 Individual questionnaires

The questionnaire was developed during a lengthy process: As a first step, indicators were identified based on epidemiological and prevention intervention models (FHI 2000; Mertens, Caraël, Sato, Cleland, Ward & Smith 1994; Rietmeijer, Lansky, Anderson & Fichtner 2001). Secondly, the design of the questionnaire was informed by information collected during a series of qualitative interviews (focus groups with educators and in-depth interviews with experts) that dealt with a range of education issues, including work-related aspects. This qualitative phase was conducted across the country with a cross section of educators and other experts. Thirdly, the questionnaire also reflected the needs of the DoE and the ELRC. The first draft of the questionnaire was tested during a pilot survey. Based on the feedback from the pilot survey, the questionnaire was adapted

by shortening it as well as changing some questions that proved to be problematic during the pilot survey. The actual questionnaire administered during the study consisted of the following components:

a) Biographical data of the respondent;
b) Teaching responsibilities and work load;
c) Impact of HIV/AIDS on educators and their work;
d) Absenteeism from work;
e) Morale and job satisfaction and how this was influenced by HIV/AIDS;
f) Training and support received by educators;
g) Substance use;
h) Violence within institutions;
i) Sexual behaviour of the respondent;
j) Male condom accessibility;
k) HIV/AIDS knowledge;
l) Communication about HIV/AIDS;
m) Risk perception on the part of the respondent;
n) Voluntary counselling and testing (VCT) services;
o) Stigma;
p) TB;
q) Health and medical service.

Using the educator questionnaire as a basis, a much shorter questionnaire was developed for use among students at tertiary training institutions. Obviously a number of sections dealing with work-related experiences were not applicable to students.

The final questionnaires were translated into Afrikaans, SeTswana, isiXitsonga, SePedi, isiZulu and IsiXhosa.

2.2.2 Scales used in the study

Scales were developed on the basis of a literature review, focus groups with educators, expert interviews, pilot testing, and statistical analysis (for example, item-total correlations and factor structure). Summated scales were developed by adding scores on all variables loading on a component. To verify that these items measured the same attribute, it was necessary to calculate Cronbach's alpha. If Cronbach's alpha was =>0.70, the items measured the same attribute. Since this study was exploring some of these relationships, a Cronbach's alpha of 0.60 or greater was considered sufficient to determine reliability.

The various scales and their reliability using Cronbach's alpha (α) are listed below:

- Religious involvement index (α=0.74)
- Job satisfaction scale (α=0.71)
- Job stress (α=0.52)
- Educator support index (α=0.82)
- Violence at school index (α=0.68)
- Alcohol use scale (AUDIT) (α=0.78)
- Self-efficacy scale for HIV risk behaviour (0.78)
- HIV/AIDS knowledge index (α=0.52)
- HIV and sexuality communication comfort index (α=0.61)
- HIV risk perception scale (α=0.58)

- TB social distance scale (α=0.69)
- HIV/AIDS stigma (α=0.68).

A detailed analysis is provided in Appendix 1.

2.2.3 Learning areas

During the interview educators were asked an open-ended question about what subject they are currently teaching (see right column in Table 2.1) and this was grouped into the current/future learning area (see left column in Table 2.1), except for foundation phase, according to the DoE. Many educators did not respond with particular subject but with 'foundation phase' or all subjects, and thus, 'foundation phase' was added in the subject groups.

Table 2.1: Learning areas and subject groups

Learning area	Subjects
Foundation phase	Numeracy Literacy, Communication, Linguistics, Creative writing Life skills
Foundation languages	Afrikaans, English, IsiXhosa, IsiZulu, SePedi, SeSotho, SeTswana, SiSwati, TshiVenda, XiTshonga, Ndebele
Additional languages	Arabic, Classical Greek, French, German, Gujarati, Hebrew, Hindi, Italian, Latin, Portuguese, Tamil, Telegu, Urdu
Arts and culture	Dance Studies (Dance, Dance Performance, Practical Ballet) Design (Design, Graphic Art) Dramatic Arts (History of Theatre, Costume & Literature, Speech & Drama) Music (Music, Music Performance, Anatomy & Music, Music Composition) Class Music Visual Art (Art, History of Art, Painting & Decorating, Painting, Sculpture)
Economic and management science	Accounting Business Studies (Economics, Business Economics, Entrepreneurship, E-commerce) Hospitality Studies (Hotel-keeping & Catering, Restaurant Studies, Reception Studies) Travel and Tourism Hairdressing, Beauty Care/cosmetic, Administration
Social sciences	Geography History Human and Social Science

Life orientation	Health Education, Sex Education, Religious Education, Scripture, Bible Education Civic Responsibility, Family Guidance, Life Skills, Guidance, Physical Education, Movement Education, Sports Activities Information Skills, Library/librarianship, Library Science, Media Guidance, Media-user Guidance Jewish Studies, African Studies, Biblical Studies
Mathematics	Mathematics (Functional Mathematics, Mathematics, Additional Mathematics, Commercial Mathematics) Mathematical Literacy
Natural sciences	Physical Sciences (Functional Physical Science, Physical Science) General Science Environmental Studies Maritime Studies Life Sciences (Biology, Physiology, Physiology and Hygiene) Agricultural Sciences (Gardening, Field husbandry, Equine studies, Applied Agricultural Science, Agricultural Economics, Farm Mechanics, Animal Husbandry)
Technology	Computer Studies (Computer Application Technology, Information Technology) Civil Technology (Bricklaying & Plastering, Building Construction, Plumbing & Sheetmetalwork, Woodwork, Woodworking, Technika Civil Consumer studies (Cookery & Nutrition, Home Economics, Housecraft, Needle & Clothing) Compu-typing, Typing Electrical Technology (Electrician work, Electronics, Technika Electrical, Technika Electronics) Technical Drawing, Technology, Design, Mechanical Technology (Fitting and Turning, Motor Body Repairing, Metalwork, Metalworking, Technika Mechanical, Motor Mechanics, Motor Vehicle Construction, Welding & Metalworking)
Special	Remedial Adult Basic Education and Training (ABET)
Other	Methods of Teaching, Education Didactics & Pedagogic, General Teaching Method, Outcomes-based Education, Management Skills/School Organisation Commercial Company Law, Mercantile Law, Law of Criminal Procedure and Evidence, Introduction to Criminology, SA Criminal Law Psychology, Sociology, Anthropology, Introduction to Ethnology, Research EBW Zoology, Botany Child study/Paeds/Kindergarten

2.2.4 HIV testing

Participants in this study had the option of either providing a blood specimen or a specimen of oral fluid for HIV testing. This approach was used in order to maximise participation. All specimens were linked to the questionnaire by means of a bar code, which enabled an HIV result to be linked to data from the questionnaire, but no HIV result could be linked back to any individual, thus ensuring anonymity and confidentiality.

HIV testing was conducted by Contract Laboratory Services (CLS) of the University of the Witwatersrand Medical School and CD4 testing was undertaken at the same medical school by the Department of Molecular Medicine and Haematology. Both laboratories are registered with the South African National Accreditation System (SANAS) and both participate in national and international quality control programmes. See Appendix 2 for more details.

Blood specimens were tested for HIV on the Abbott AXSYM third generation HIV 1 / 2 g0 testing system. Oral fluid specimens were obtained by using the 'Orasure' oral fluid collection device and these specimens were tested using the Vironostika HIV Uni-Form II Oral Fluid testing system.

Only a single test was conducted per specimen. In the case of blood specimens that gave borderline readings, the result was confirmed by using the Biorad HIV test. Specimens that remained borderline on the Biorad system were reported as 'indeterminate'. Oral fluid specimens that were borderline were not repeat tested and were reported as indeterminate.

2.3 Pilot study

A pilot study was conducted among 438 educators, 393 of whom also provided biological specimens. Three modes of questionnaire administration and three methods of collecting biological specimens were tested in 33 schools located in North West and Western Cape provinces. The three modes of questionnaire administration tested were self-administered, group-administered with the assistance of the interviewer, and interviewer-administered. The three methods for biological specimen collection were giving venous blood serum specimen, oral mucosa transudate (oral fluid or saliva specimen) or a choice between the two. On the basis of the findings the decision was taken to: (1) use the interviewer-administered approach as a means of obtaining better quality of data using a questionnaire; and (2) give respondents a choice of either providing a blood specimen or an oral fluid specimen, with preference for the blood. This increased the response rate for the former over the latter.

2.4 Ethical clearance

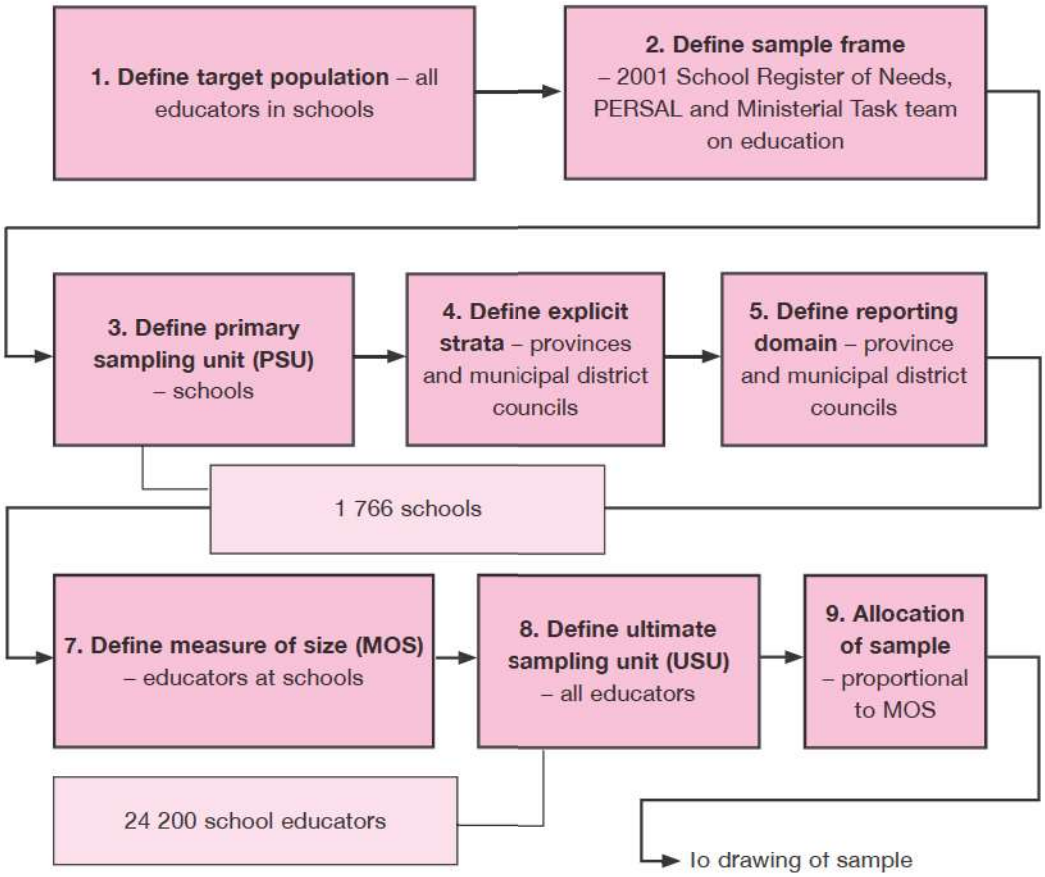
Ethical approval for conducting the study was obtained from the HSRC's Ethics Committee (Application Number REC2/20/08/030). Informed consent was obtained separately for agreeing to participate in the interview and for providing a specimen for HIV testing. In addition, the result of the HIV test for each participant was linked anonymously to

questionnaire data using bar codes. Finally, voluntary counselling and testing (VCT) for HIV testing was not provided as part of the study. Instead, those interested in finding out about their HIV status were given a referral card to go to the nearest primary healthcare centre that provided VCT services free of charge.

2.5 Sample design

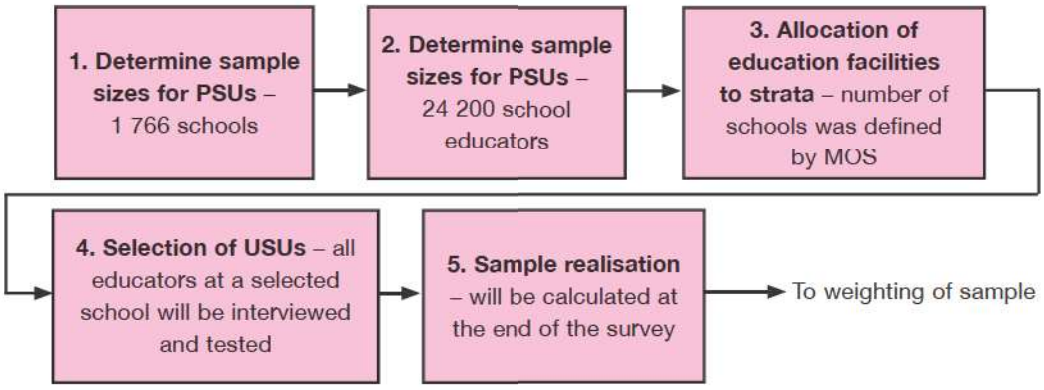
The steps used in designing and drawing the sample for the epidemiological survey are shown in Figure 2.1 and 2.2 below.

Figure 2.1: Steps in the sample design



The intention of the study was to report the results of the national survey at a provincial level and for the school sample also at the district/metropolitan council level. District councils were used because the boundaries of education regions have not been finalised for the country, and district/metropolitan councils have an important local government responsibility in terms of provision of education services.

Figure 2.2: Steps in the drawing of the sample



2.6 Sample

The target population for the study were identified as teachers at public schools, further educators at the FET colleges and students studying for an educational qualification at universities and technikons. In this report only the schools sample is presented.

Two data sets were available as potential sample frames from which a sample of educators (teachers) could have been drawn. The first was the DoE's School Register of Needs (SRN) which contained data from surveys in 1996 and 2000 and the second, a database extracted from the government's PERSAL system and made available by the firm, Price Waterhouse Coopers. The SRN data set contained records for 26 713 schools with a total of 356 749 educators. The data set obtained from Price Waterhouse Coopers contained 363 650 records pertaining to state-employed school educators and administrative staff in education offices. Due to the size of the file, the exact number of 'educators' could not be determined.

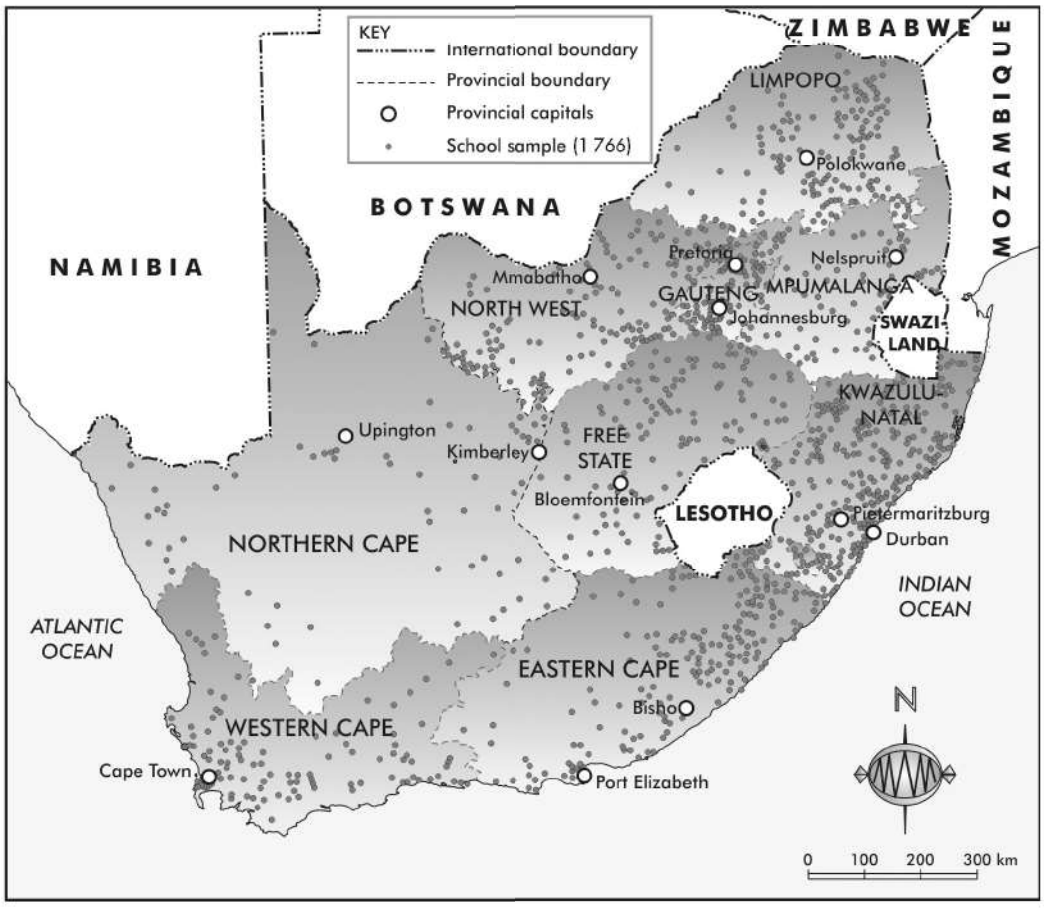
An initial sample of 1 750 schools was drawn from the SRN data set. When these were individually compared to the educator information captured in the PERSAL system, the number of state-paid educators at 248 schools could not be identified. The geographical distribution of these 'missing' schools was such that their exclusion would have resulted in compromising the representivity of the sample.

The sample was thus redrawn and a total of 2 015 schools were identified. When compared to the PERSAL data set, the most recent number of state-paid educators could not be determined for 249 schools. These schools were excluded as it did not compromise the representivity of the sample as was the case with the original sample of 1 750. The final sample, consisting of 1 766 schools, had a total of 24 200 state-paid educators as potential respondents. The provincial distributions of the schools sample are shown in Table 2.2 and Figure 2.3.

Table 2.2: Breakdown of the sample of schools by province

Province	Number of SRN educators	Number of schools
Eastern Cape (EC)	3 193	263
Free State (FS)	1 700	165
Gauteng (GT)	3 998	171
KwaZulu-Natal (KZN)	4 893	383
Limpopo (LP)	2 570	212
Mpumalanga (MP)	1 940	118
North West (NW)	1 596	179
Northern Cape (NC)	1 603	99
Western Cape (WC)	2 707	176
Total	24 200	1 766

Figure 2.3: School sample



Source: HSRC GIS Centre

2.7 Data collection

2.7.1 Recruitment and training of field workers

In total, 436 field workers, comprising trained nurses and MA and PhD research interns, were appointed to conduct the fieldwork. To conduct the interviews and specimen collections, nurses registered with the SANC were employed. Interviewers were selected on the basis of their professional status (being registered with the SANC), their availability, representivity of the various racial and language groups of the educators, representivity of the various provinces, and successful participation in the training.

Five training sessions were conducted: in Cape Town from 21–24 February 2004, in Pretoria and Durban from 23–26 February 2004, in Bloemfontein from 1–3 April 2004 and Limpopo from 5–7 April 2004.

Nurses were trained to understand the purpose of the project and the project itself, the ethics of sensitivities to asking questions on human sexuality as well as the threats to the validity of the study and how to manage them, including the need for a high response rate. In addition, they were trained on questionnaire administration, HIV testing, disposal of medical waste and standard operating procedures for needle stick injuries.

2.7.2 Access into schools

Masters and doctoral research interns served as co-ordinators for the study. They were supervised by a national field manager and a project manager, all reporting to the principal investigator who was responsible for the conduct of the study. The scientific project director oversaw scientific issues. Several co-investigators participated in various aspects of the study. In all, a team of 21 scientists worked on the project.

To facilitate access to schools, the HSRC co-ordinators were supported by district officers of the DoE and labour unions. The field teams were supported by a national field manager, a project manager who tracked progress in the field, technical staff working on data management, as well as the principal investigators and the project director who oversaw the research process.

The DoE in the various provinces assigned co-ordinators who ensured that schools were informed about the study by means of faxes, and in some cases, during meetings with school principals in their respective provinces. Some difficulties were experienced in this process because of outdated school contact details, changes in staff in the provinces, and other circumstances. However, the majority of schools knew about the study before HSRC co-ordinators or supervisors contacted them.

District officials and circuit managers of the DoE played a facilitating role in verifying the contact details and addresses of schools and also assisted co-ordinators and supervisors in setting up appointments with the schools.

In some cases appointments were made over the telephone and in others pre-visits were made to set up appointments. During pre-visits or on arrival at the school for the actual interviews, the supervisors delivered the Head of Educational Institution questionnaires

and the information materials (comic book informing educators about the study, poster and flyer) on the purpose of the study.

Schools were visited between 9 am and 12.30 midday. However, on request of the principal, visiting times were adapted to suit the activities of the educators.

The school principals were given a Head of Educational Institution questionnaire on which they recorded the number of educators and learners, and absenteeism on the day of the visit by the fieldworkers. Follow-up was done to increase completion rates.

On the day of the visit, nurses wore epaulettes and nametags. Supervisors and the school principals identified appropriate areas to conduct the interview and draw biological samples. The supervisor introduced the study to all the educators before the interviews began.

Only those educators who consented to participate in the study were interviewed. VCT clinic cards were handed out to interviewees who wanted to know their HIV status; the cards referred them to a clinic to undergo a full VCT procedure.

After the interview, the interviewees were asked to give a blood specimen. If the respondents declined, they were requested to provide an oral fluid specimen instead. Barcodes on the questionnaire, specimen and tracking forms linked the questionnaire and specimen. The supervisor was responsible for ensuring that the appropriate medical waste disposal procedures were followed. In addition, the supervisors kept a fieldwork record sheet to record the number of interviews and samples as well as absenteeism. After the school visit, the specimen was immediately couriered to the laboratory for testing. A waste management company collected biological waste from the supervisors.

2.7.3 Quality control

Quality control in a study of this nature cannot be reduced to a single action. In effect, the quest to reduce errors in the study started with the meticulous process of questionnaire design, in order to ensure that the instrument assisted in the collection of quality data. The same applies to the extensive training provided to the fieldworkers.

Direct quality control was the responsibility of the provincial co-ordinators and field team supervisors. The supervisors ensured that the interviewer team visited the correct school, assisted in setting up the interviewing process, for example, by negotiating a time and place for the interviews and checking the completed questionnaires for obvious errors.

A next line of quality control occurred at the office where a team of editors went through the returned questionnaires to code open-ended questions and to ensure that the geographic and other details were correctly entered on the questionnaires. Quality control was also done during the testing of the blood or oral specimens (see 2.2.4 and Appendix 2), while double data entry procedures were used during data capturing to reduce errors to a minimum.

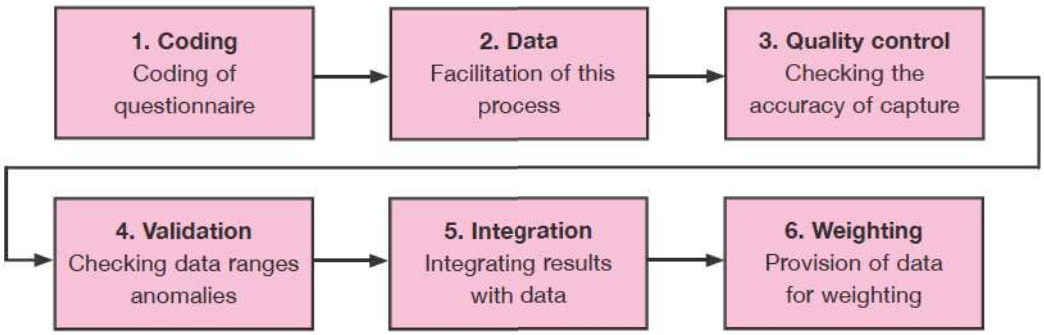
2.7.4 Needle stick injuries to nurses during fieldwork

A few (n=7) needle stick injuries occurred during fieldwork. Fortunately, none of the nurses became infected with HIV because the Standard Operating Procedures For Occupational Exposure were followed.

2.7.5 Data management

Data processing was managed for two questionnaires, namely, the educator and educational institutional sectors (see Figure 2.4).

Figure 2.4: Steps in data processing



The process involved coding the questionnaires and the electronic capture of the data. Biographical information on the questionnaires was also checked during the coding process. Coding involved the allocation of numeric values to text information on subjects trained for and being taught at different education levels (for example, primary, secondary and tertiary). Data was captured electronically and verified through the use of double capturing.

Quality control was done on data captured from the questionnaires. The validation process involved the writing of programmes to detect problems in the captured data and identifying potential outliers. This included checking whether the data was within the ranges stipulated by the project team. Duplicate records were checked as well as wrong codes captured for schools, districts, and provinces before correcting these errors. Checks were made for skip patterns and any errors detected were corrected.

Data management included liaison on a regular basis with the laboratory with regard to specimen results received and any problems that were encountered. As the specimen results were received they were integrated into the existing database of questionnaires. Further quality checks were done to ensure that the type of specimen indicated on the questionnaire was the same as that received from the laboratory. Two problems that had to be addressed were duplicated barcodes for specimens received from the laboratory and mismatches between the specimen's barcodes and data records in the database. Throughout this process new batches of questionnaires and specimen results were received as revisits to the different education institutions were completed, which necessitated processing their data, as has been described above.

To enable the weighting of the data, further reconciliation between data captured from the questionnaires and the actual situation at schools was performed. In other words, the number of educators at each of the schools had to be checked and, if necessary, updated to allow the weighting of the survey results. Tables were also generated to enable the realisation, non-contact/absenteeism and refusal rates to be calculated. The data was then transferred to the statistician for final weighting. Finally, the educational institution and educator data had to be merged.

2.7.6 Weighting of samples

Prior to analysis of data, the following weighting procedures were done to take into account the realised samples and non-responses. The steps required to weight the data are presented below in Figure 2.5.

Step 1 – Calculating the sampling weights: The Statistical Analysis System (SAS) procedure Surveyselect was used to draw the sample of schools in each district. The schools were drawn using probability proportional to size (PPS) sampling and the estimated number of teachers used as the measure of size (MOS). Therefore, the data file of drawn schools contained the selection probabilities as well as the sampling weights of these schools. The first step was to calculate the sampling weight of the schools in each district.

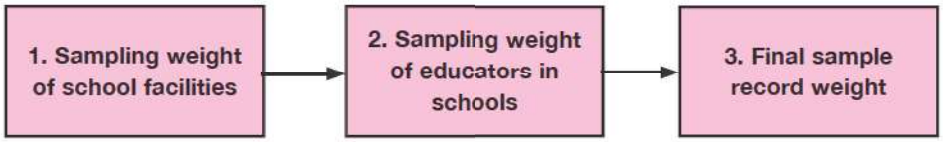
Step 2 – Provision of information on realised sample: With respect of all realised schools or the final samples used in this study, the following information was used:

- The total number of educators in the school;
- The actual number of educators in the school that participated in the study.

Step 3 – Calculating the educator sampling weight: The educator sampling weight was based on the counted number of educators in each school divided by the number of educators participating in the survey.

Step 4 – Calculation of final record weight: In this step, the above information was integrated and the final sampling weight for each data record was calculated. This weight was equal to the final school sampling weights (as given in Step 2) multiplied by the educators' sampling weight.

Figure 2.5: Steps used for weighting of the sample



2.7.7 Data analysis

The collected data in the form of questionnaires was captured on a database by a professional data-capturing company. The database was designed with validation and consistency checks.

After the data was received from the capturing company, programmes were run to validate the reliability of the data. The validation included consistency checks on the extent to which the skip patterns were followed in the data collection. The validation ensured that, for example, males did not answer questions designed for females and vice versa. The quality control of the data was carried out to ensure that there were no data-capturing mistakes. Suspect values were confirmed by drawing the archived physical questionnaire.

The data were converted to statistical packages such as Statistical Package for Social Scientists (SPSS), SAS and STATA. The exploratory analysis of the data was carried out in SPSS and SAS. The exercise included exploring the frequency distributions of all the variables to check the responses to each variable and check that the variables contained values in the accepted range of values. After the data had been edited, weights were calculated and attached to the complete dataset.

The weighted data were analysed using both SAS and STATA. However, an extensive analysis was carried out mainly in STATA, whilst most data manipulation was carried out in SAS. The analysis in STATA took into account the multilevel stratified cluster sample design of the study.

In the analysis, weighted percentages are reported. The reported sample size refers to the sample that was asked the target question. The two-sided 95% confidence intervals are reported. The p-value less or equal to 5% is used to indicate statistical significance. Both the reported 95% confidence intervals and the p-value are adjusted for the multi-stage stratified cluster sample design of the study. Multivariate logistic regression analysis was carried out on the selected determinants of HIV.

In the analysis annual income is reported from low, medium to high; low stands for from less than R40 000 to R60 000, medium = R60 000 to R132 000, and high = more than R132 000. Position in school is sometimes reported as junior or senior: junior = educator and senior = senior educator/education specialist/principal. Educational qualification is sometimes reported from low, medium to high: low stands for Grade 12 and under, medium = diplomas, high = first degree and above. Finally, if marital status is reported as single versus married, single stands for single/separated/divorced/widowed and married = married/co-habitating.

Section three: Strengths and limitations of the study

- Strengths
- Limitations

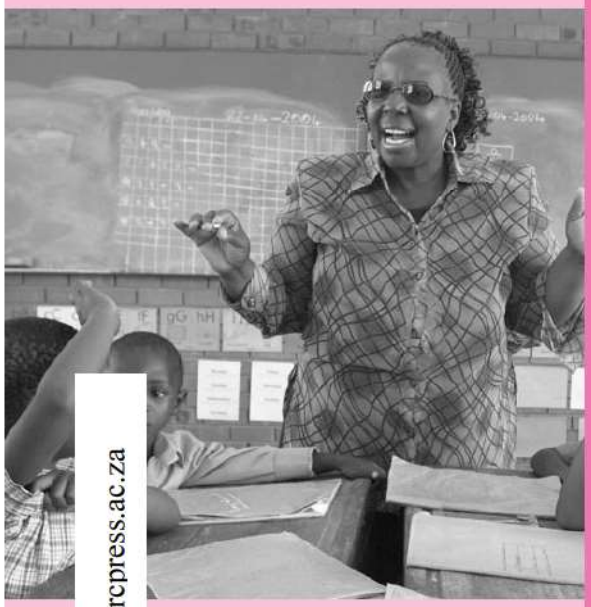
3. Strengths and limitations of the study

3.1 Strengths

- This study is based on a large sample of schools selected randomly throughout each district. This reduced selection bias.
- The response rate on this study based on the number of educators present on the day of the visit was very high for questionnaires and plausible for HIV testing. Bias of non-response was addressed through revisits, which is seldom done in workplace studies.
- This study involved the participation of researchers, policy-makers and representatives of educators and regulatory authorities in its conceptualisation and execution. This is a major change in approaches to conduct research because it allows for co-generation of knowledge and validation of findings by participation of representatives. This approach increases the chances of results being implemented.
- The study provides information using a combination of survey of respondents and record review used in collecting data from educational institutions, allowing for triangulation of the findings in order to increase reliability.

3.2 Limitations

- The first limitation of this study is the cross-sectional nature of the design. The impact of HIV/AIDS on the educators would have been best studied using a longitudinal design, with a series of measurements taken over time. This would have addressed potential problems related to recall bias. Cross-sectional study designs also suffer from lack of clarity on temporal sequences. For example, it is not clear whether condom use preceded HIV infections or is a result of HIV infection. However, the cost of undertaking such a study would be enormous.
- There were difficulties in securing a sampling frame based on an accurate and updated database. In a later report, detailed recommendations regarding an information system for the education sector will be made.
- It is likely that some educators missed school the day the survey was done because they were ill due to HIV/AIDS-related illnesses. Although an attempt was made to revisit the schools where the absenteeism rate was high, it was not always possible to interview and test all educators who were absent. Those who were absent on the visit of the survey and present during the second visit were tested for HIV and found to have a lower HIV prevalence than those who were present during the first visit.
- It was not possible to collect sputum specimens from participants to test for TB, hence the estimates of people with TB disease or TB infection was based on self-reports, which probably led to underestimates.
- It was also not possible to conduct clinical examinations to determine the percent of educators with opportunistic infections as well as other clinical manifestations of HIV/AIDS related disease.
- Finally, quantitative data seldom provides depth; for this reason qualitative data collected through focus groups and review of policies will form part of a comprehensive, integrated report, due in mid 2005.



Section four: Results

- Response rates
- Demographic and socio-economic characteristics of the study sample
- HIV prevalence among South African educators
- Determinants of HIV/AIDS
- Residence, migration, mobility and HIV status
- Alcohol use among South African educators
- TB prevalence
- Sexually transmitted infections and HIV
- Health status of South African educators
- Violence in educational institutions
- Potential attrition of educators

4. Results

This report excludes results from the FET and Higher Education institutions. These results will be reported on in the July 2005 report.

4.1 Response rates

The main survey was carried out between April and August 2004 in Grades R to 12 schools in all provinces. The envisaged sample size was 1 766; however, three schools straddled the borders of North West and Northern Cape and were excluded. This reduced the number to 1 763. At the end of June/July 1 647 schools had been surveyed. Of the outstanding 116 schools that had not participated, 65 were replaced for the following reasons: 48 schools had closed down, six schools had merged with another six schools, and five were found to be independent.

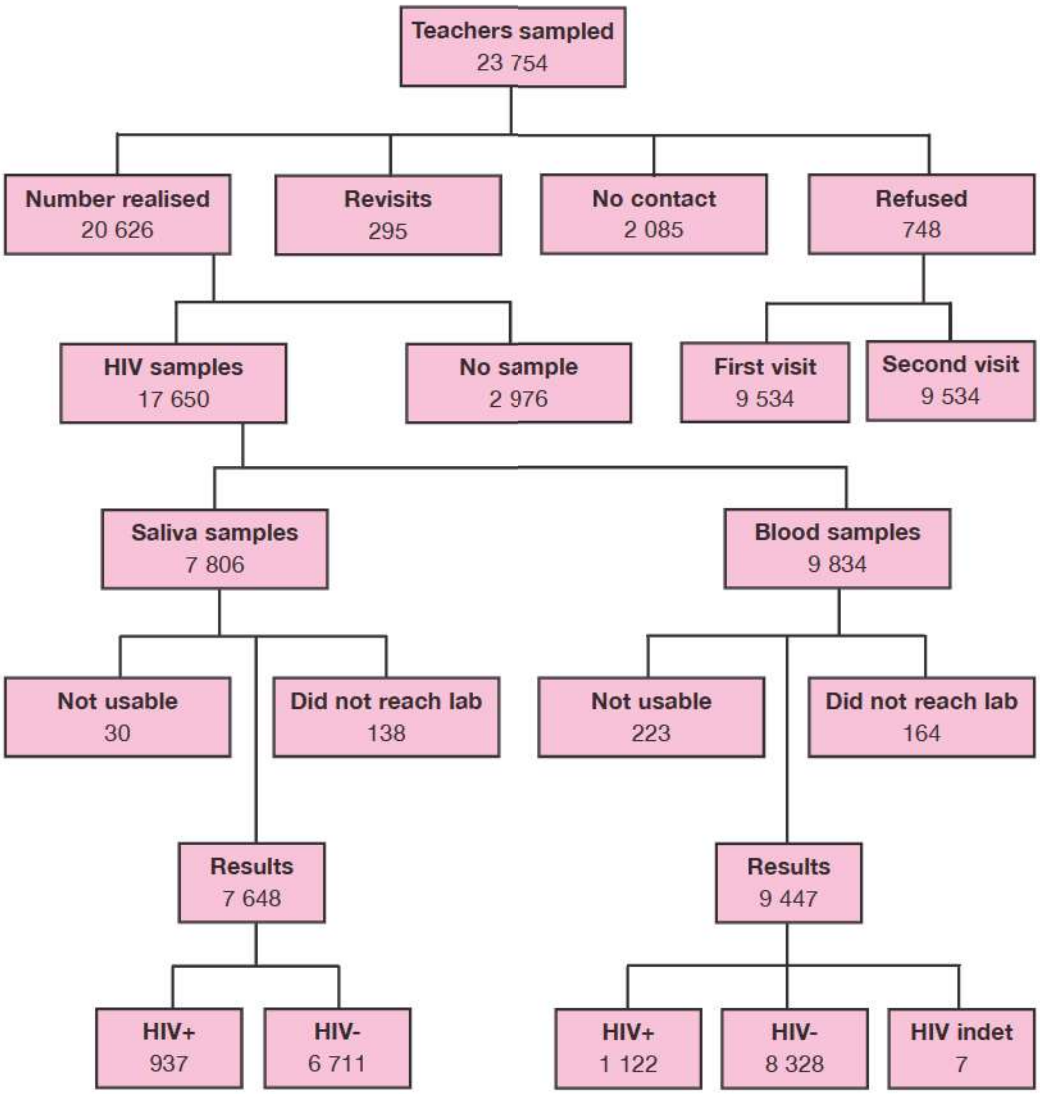
Another 51 schools were either not found in the field (3), questionnaires could not be accounted for even though tracking records indicate that these schools had been surveyed (8), schools could not be accessed owing to logistical reasons (38), an error in the sample (1), and a 100% refusal (1). One school in the North West was surveyed although it had not been sampled. Another three were surveyed in Mpumalanga, however only one was accepted since no questionnaires had been received from the other two schools. In total 1 714 schools were surveyed during the study.

Using the 2001 PERSAL data to determine the targeted educators in schools, 24 200 educators were estimated as a target, although during the study this data was continuously updated using the 2004 figures which were more accurate. However, the real target number of educators used in the analysis is the total number of educators on the registry minus those who were absent (23 754 - 2 085 = 21 669), that is the number of public educators present on the day of the survey. This is the denominator used in the calculation of response rate (see Table 4.1).

Table 4.1: Response rates of educators in public schools surveyed by province, South Africa 2004

Province	No. of targeted schools	No. of visited schools	No. of targeted educators	No. of educators absent on the day of visit	Revised target no. of educators	No. of educators interviewed	Questionnaire participation rate (%)	No. of educators who refused to participate in the study	Blood	Saliva	Total specimen	Specimen participation rate (%)
WC	176	169	2 603	88	2 476	2 416	98	60	1 107	1 060	2 167	88
EC	263	257	2 867	281	2 573	2 544	99	29	1 362	703	2 065	80
NC	96 (+ 3)	94	1 325	133	1 181	1 119	95	62	499	451	950	80
FS	165	157	1 511	123	1 378	1 352	98	26	609	552	1 161	84
KZN	383	365	4 762	411	4 320	4 263	99	57	2 269	1 429	3 698	86
NW	179 (+ 1)	180	2 288	253	1 951	1 839	94	112	743	778	1 521	78
GT	171	167	3 960	380	3 511	3 317	95	194	1 147	1 675	2 822	80
MP	118 (+ 3)	118	1 771	163	1 572	1 496	95	76	675	650	1 325	84
LP	212	207	2 667	253	2 396	2 280	95	116	1 423	518	1 941	81
Total	**1 763 (1 770)**	**1 714**	**23 754**	**2 085**	**21 358**	**20 626**	**97**	**732**	**9 834**	**7 816**	**17 650**	**83**

Figure 4.1: Flow of data collection



In the 1 714 schools visited, principals reported that there were a total of 23 754 educators registered. If the total number of reportedly registered educators is taken as the denominator for calculating response rates, then 88% of educators were successfully interviewed and 73% provided specimens for HIV survey. However, if only those educators who were present on the day of testing are taken as the denominator, then 97% were interviewed and 80% provided a specimen. Figure 4.1 shows the flow of data collection including the response rates for all phases of the fieldwork and laboratory work.

The 8.8% absence of educators on the day of research would have led to an under-estimation of HIV prevalence; the assumption being that those who were absent were ill. However, the research team revisited the school and re-interviewed those who were

absent during the survey date and found a lower HIV prevalence than among those educators who participated in the study.

4.2 Demographic and socio-economic characteristics of the study sample

4.2.1 Introduction

An important aspect of any survey analysis is the examination of the demographic characteristics of the survey sample. Virtually all aspects of the life cycle, including sexual behaviour and morbidity, are influenced directly or indirectly by demographic factors. Very often, there is a relationship between demographic characteristics and socio-economic phenomena and morbidity – for example, the relationship between age and education, the relationship between age and HIV prevalence or the relationship between age and certain forms of disease and morbidity. An examination of demographic variables therefore can provide useful insight into understanding the nature of non-demographic phenomena from a sample survey.

Furthermore, a critical examination of the demographic variables from a survey provides valuable insight into the quality of the survey data and hence strengthens confidence in the quality of the non-demographic aspects of the data. Two important variables in this regard are age and sex. An appraisal of the age-sex distribution of the study sample was carried out and found to be of reasonably good accuracy. Details of the appraisal are given in Appendix 3. The following section profiles the demographic and socio-economic characteristics of the study sample.

4.2.2 Demographic characteristics

School Governing Body (SGB) educators were included in the analysis for the following reasons. From an education policy perspective, SGBs are structures that have been established through the South African Schools Act[1] (SASA) of 1996. Their role is to provide support in the management of the schools as well as to offer the community and, in particular, parents the right to participate in the education of their children. Following the establishment of SGBs, many schools have used that to their advantage to determine their school's policies, including provision of tuition. In essence the schools from the affluent communities have used the advantage of SGBs to provide educator vacancies whenever a need arises and when the DoE could not offer the position. Educators employed in this manner are thus referred to as SGB educators. Often these educators are absorbed into the system as fulltime DoE educators when vacancies are made available. The fact that these educators are SGB educators does not preclude them from being affected by HIV/AIDS and their vulnerability/affectedness has implications for demand for and supply of educators. Thus the analysis includes SGB educators as they have the potential of becoming fulltime DoE educators.

1 SASA is an Act/legislation that was passed in 1996 as a guiding document, which schools can use as reference to develop policies to manage themselves. Some of the schools' policies emanating from this guiding document include, but are not limited to, schools admission and Language in Education policies. As for this study, it is worth noting that it was through this Act that SGBs were established in schools.

Age-sex distribution

An overview of the demographic and socio-economic profile of educators in the entire sample is shown in Table 4.2 below. Table 4.2 shows that about 32% of the sample consisted of males, while about 68% of the sample were females (that is, an overall sex ratio of 47). Over three-quarters of the sample were Africans (77%), while less than 5% of the sample were Asians, which is a reflection of the demographic characteristics of South Africa. (According to the results of the 2001 census, 79% of the population of South Africa in 2001 were Africans). The observed age profile of educators in the sample suggest that nearly one-half of the sample were in the age group 35–44, while less than 2% were in the age group 18–24. A significant proportion (5%) was in the age group 55 and above.

Table 4.2: Demographic and basic characteristics of the sample

Demographics	n	Percentage
Sex		
Male	6 580	32.2
Female	14 018	67.8
Race		
African	14 439	77.4
White	2 778	10.1
Coloured	2 705	8.1
Asian	623	4.4
Age in years		
18–24	272	1.1
25–34	5 135	25.4
35–44	8 965	44.5
45–54	5 189	23.9
55 and above	1 040	5.0
Current marital status		
Married, cohabiting	12 823	61.6
Never married	5 545	28.3
Separated	210	1.0
Divorced	1 177	5.2
Widowed	774	3.8

Demographics	n	Percentage
Province		
WC	2 416	8.6
EC	2 544	18.5
NC	1 119	1.6
FS	1 352	6.1
KZN	4 263	23.6
NW	1 839	7.7
GT	3 317	12.1
MP	1 496	6.6
LP	2 280	15.2
Qualification		
First degree and above	10 355	50.6
Diplomas	8 457	40.9
Grade 12 and under	1 749	8.4
Household economic situation		
Not enough money	1 546	8.6
Money for food but short on many things	10 307	53.1
Have most important things	7 111	31.6
Some extra money	1 481	6.7
Position in educational system		
Educator	15 363	76.2
Senior educator	2 200	10.5
Education specialist	636	3.2
Deputy principal/Principal	1 989	10.1
Annual income		
Low	3 482	16.9
Medium	15 971	78.5
High	965	4.6

Demographics	n	Percentage
Type of employment		
DOE	18 628	94.4
SGB	1 250	5.5
Don't know	34	0.2
Type of Institution		
Primary	11 463	51.6
Combined	1 719	7.7
Secondary/High school	7 275	40.5
Special	31	0.2
Years of teaching experience		
0–4	2 388	11.9
5–9	3 301	16.4
10–14	5 428	27.2
15–19	3 204	15.6
20–24	2 951	14.1
25–29	1 807	8.3
30 +	1 354	6.4
Have housing subsidy		
Yes	5 738	27.2
No	14 705	72.8
Member of medical aid fund		
Yes	13 772	67.8
No	6 671	32.2

Table 4.3: Age-sex distribution by race

African			White			Coloured			Indian/Asian		
	Males	Females		Males	Females		Males	Females		Males	Females
	n=4 734	n=9 686		n=604	n=2 168		n=991	n=1 709		n=222	n=400
Age	% of total	% of total	Age	% of total	% of total	Age	% of total	% of total	Age	% of total	% of total
18–24	0.7	0.5	18–24	5.6	4.7	18–24	0.4	1.6	18–24	2.5	1.3
25–34	30.3	25.5	25–34	15.1	19.1	25–34	22.6	21.4	25–34	15.5	21.9
35–44	46.4	46.4	35–44	26	30.1	35–44	48.5	38.1	35–44	46.4	53.5
45–54	19.2	23.4	45–54	36.9	35.2	45–54	24	33.3	45–54	27.4	16.4
55+	3.3	4.2	55+	16.4	10.9	55+	4.5	5.6	55+	8.2	6.9
Total	**100**	**100**	**Total**	**100**	**100**	**Total**	**100**	**100**	**Total**	**100**	**100**

The racial profile indicates that the relative proportions of male and female educators within each age group show more congruence within each age group than across race groups (see Table 4.3). In particular, the proportions of white male and female educators in the 35–44 age group are much lower compared with the corresponding proportions in the other race groups. The age-sex distribution by province indicates that in the 25–34 age group, the proportion of female educators is less than the proportion of male educators in each province except in Western Cape and Northern Cape. Also, there are proportionately more female than male educators in the 45–54 age group in each province.

Table 4.4: Age-sex distribution by province

Western Cape			Eastern Cape			Northern Cape		
	Males	Females		Males	Females		Males	Females
	n=823	n=1 589		n=694	n=1 847		n=378	n=739
Age	% of total	% of total	Age	% of total	% of total	Age	% of total	% of total
18–24	1.5	2.7	18–24	1.0	0.7	18–24	0.8	2.0
25–34	19.7	24.4	25–34	32.0	26.7	25–34	24.4	26.4
35–44	43.3	37.0	35–44	43.8	41.3	35–44	46.8	35.5
45–54	28.4	30.6	45–54	18.2	23.7	45–54	21.8	31.0
55+	7.2	5.3	55+	5.0	7.6	55+	6.2	5.1
Total	**100**	**100**	**Total**	**100**	**100**	**Total**	**100**	**100**

→

Free State			KwaZulu-Natal			North West		
	Males	Females		Males	Females		Males	Females
	n=461	n=890		n=1 298	n=2 959		n=589	n=1 244
Age	% of total	% of total	Age	% of total	% of total	Age	% of total	% of total
18–24	1.0	1.3	18–24	1.4	1.1	18–24	0.6	0.4
25–34	26.2	16.8	25–34	34.9	29.6	25–34	31.9	22.3
35–44	41.9	41.1	35–44	43.9	45.6	35–44	46	48.7
45–54	29.0	34.7	45–54	16.2	19	45–54	17.7	24.8
55+	2.0	6.2	55+	3.7	4.7	55+	3.8	3.8
Total	**100**	**100**	**Total**	**100**	**100**	**Total**	**100**	**100**

Gauteng			Mpumalanga			Limpopo		
	Males	Females		Males	Females		Males	Females
	n=911	n=2 395		n=456	n=1 034		n=963	n=1 313
Age	% of total	% of total	Age	% of total	% of total	Age	% of total	% of total
18–24	2.8	2.3	18–24	0.6	0.8	18–24	0.2	0.1
25–34	30.0	24.2	25–34	25.5	19.4	25–34	19.7	17.2
35–44	37.9	37.8	35–44	50.1	52.0	35–44	51.9	52.0
45–54	23.7	29.4	45–54	19.9	25.0	45–54	23.8	27.3
55+	5.5	6.3	55+	3.9	2.8	55+	4.4	3.4
Total	**100**	**100**	**Total**	**100**	**100**	**Total**	**100**	**100**

Marital status

Figure 4.2 presents the distribution of the sample of educators by marital status. About 61% of educators reported they were currently married (currently married was defined as those currently married or cohabiting) while 28% reported they had never been married. The observed proportion divorced and widowed were 5.2% and 4% respectively. The proportions divorced at any one time in a population or subgroups of a population provide some indication of the stability of marital unions although low proportions divorced may not necessarily imply that marital unions are stable as re-marriage may occur soon after divorce resulting in low proportions of women (and men) in the population divorced even though marital dissolution is frequent (see Udjo 1987). Figure 4.2 shows the observed current marital status by race group. Within each race group, the proportion of currently married is less among females than males. Marriage is far less universal among African and coloured educators than Indian and white educators. For example, whereas 34% of African female educators had never married, only 10% of Indian female educators were in the same category. The observed proportion of divorced African female educators (6%) is twice that of the corresponding proportion among white female educators (3%). This is unlikely as mortality is lower in the white than African population. It is highly probable that some African female educators who were currently divorced reported they were currently widowed as in the general population (see Udjo 2001).

Figure 4.2: Percentage of educators in current marital status category

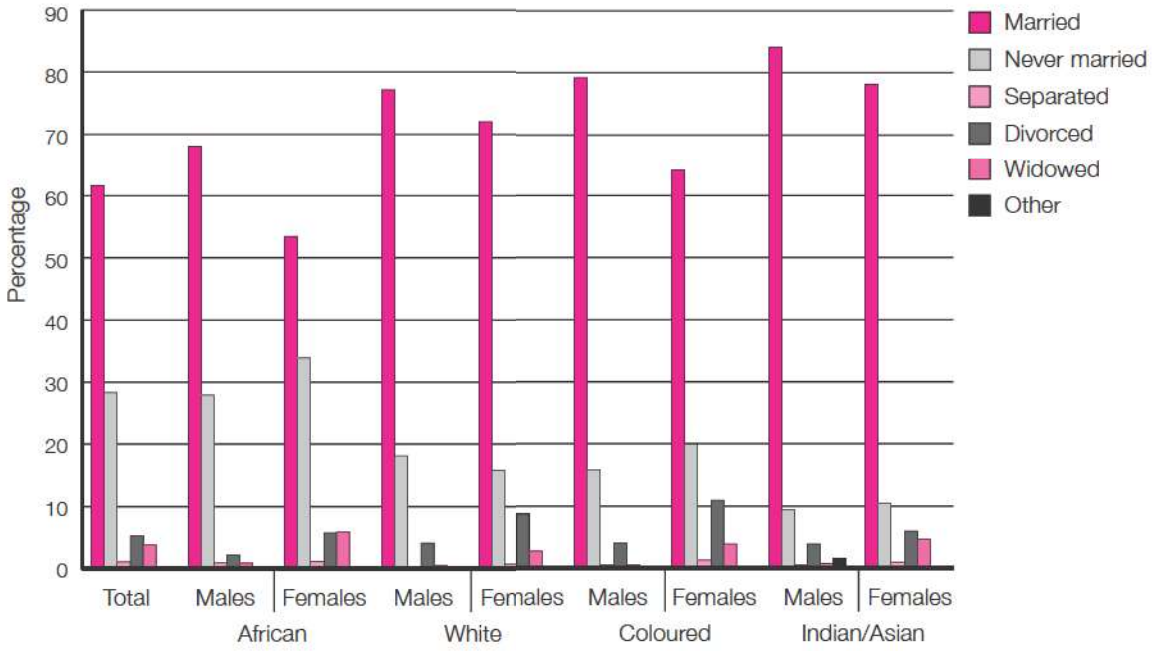
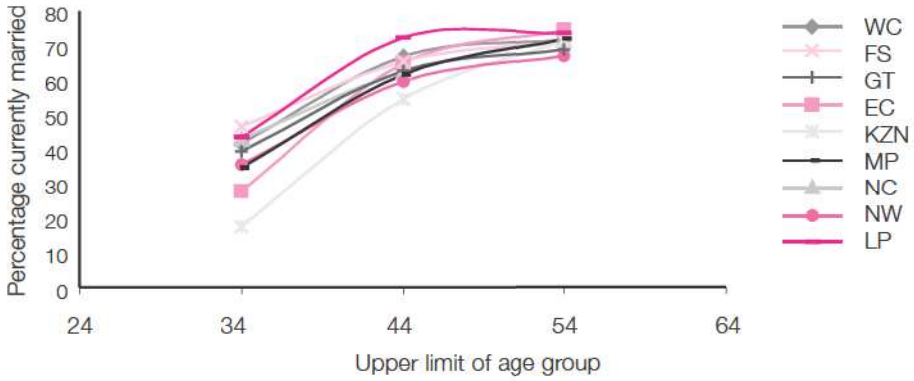


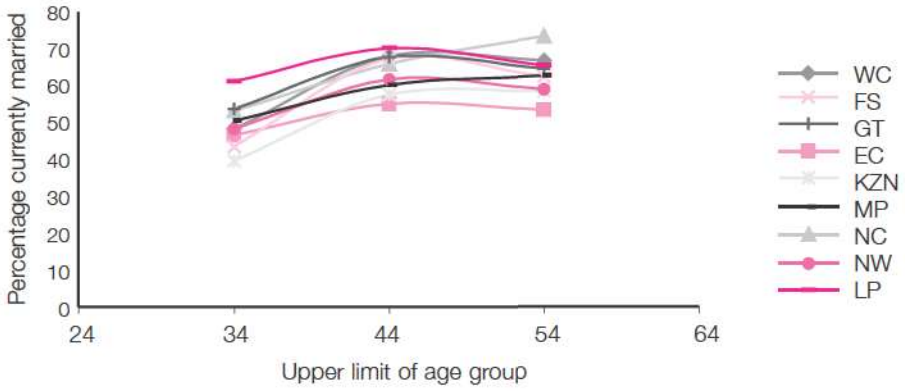
Figure 4.3 shows the proportions of male educators currently married by age and province. The x-axis of the points plotted denotes the upper age limit of the age group 25–34, 35–44 and 45–54. As expected, the proportions currently married increases with age. However, there are provincial differences with male educators in KwaZulu-Natal showing the least observed propensity to marry with age and male educators in Limpopo showing the highest propensity to marry with age. For example, at age 35–44 whereas 68% of male educators were currently married in KwaZulu-Natal, 90% of male educators were currently married at that age in Limpopo.

Figure 4.3: Currently married male educators by age and province



KwaZulu-Natal female educators have the least observed propensity to marry below the age of 44. Female educators in the Eastern Cape were least likely to marry above age 44 compared to the other provinces. In general, both male and female educators in Limpopo have the highest propensity to marry with age (see Figure 4.4).

Figure 4.4: Currently married female educators by age and province



As expected and in contrast with currently married, the proportion of male educators never married declines with age with male educators in KwaZulu-Natal showing the highest proportion never married at each age and male educators in Limpopo generally having the least proportion never married at each age (see Figure 4.5). Female educators in the Eastern Cape generally have the highest proportion never married at older ages (that is, above 34) while female educators in the Northern Cape, Free State and Gauteng have similar and least proportions never married at older ages (see Figure 4.6).

Figure 4.5: Never married male educators by age and province

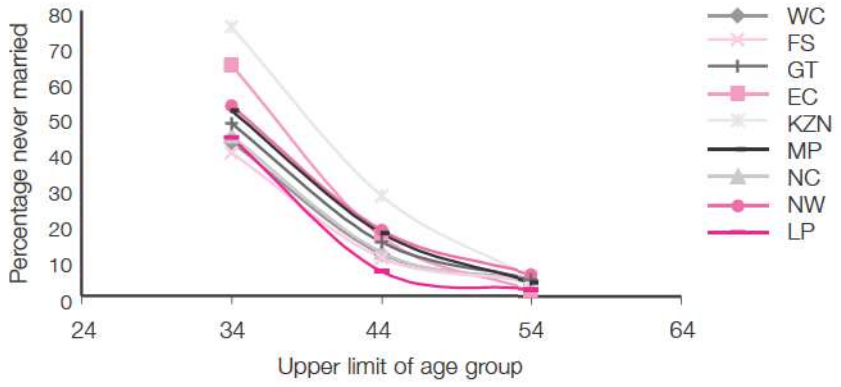
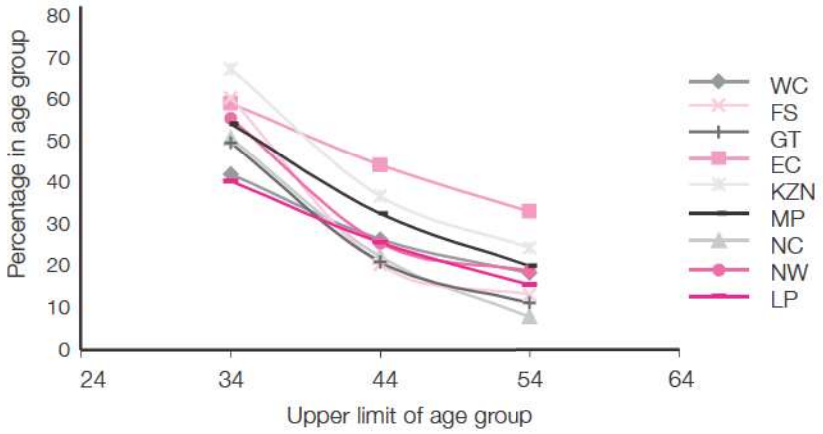


Figure 4.6: Never married female educators by age and province



Marital status and pregnancy

A demographic analysis of marital pattern in a population or population subgroups provides insight into the impact of marital pattern on exposure to the risk of pregnancy and childbearing. Certain aspects of current marital status and pregnancy among female educators are examined, even though not all pregnancies end in a live birth. Although current marital status itself does not provide information about the timing of the status, nonetheless, it does give some indication of exposure to risk of pregnancy and thus HIV as well as childbearing within and outside marriage.

Figures 4.7–4.10 show the proportion of currently and never married female educators pregnant in the last 12 months by race group. As seen in Figures 4.7 and 4.9, non-marital pregnancy is common at the reproductive ages among African and coloured educators.

Figure 4.7: Currently and never married African female educators pregnant in the last 12 months

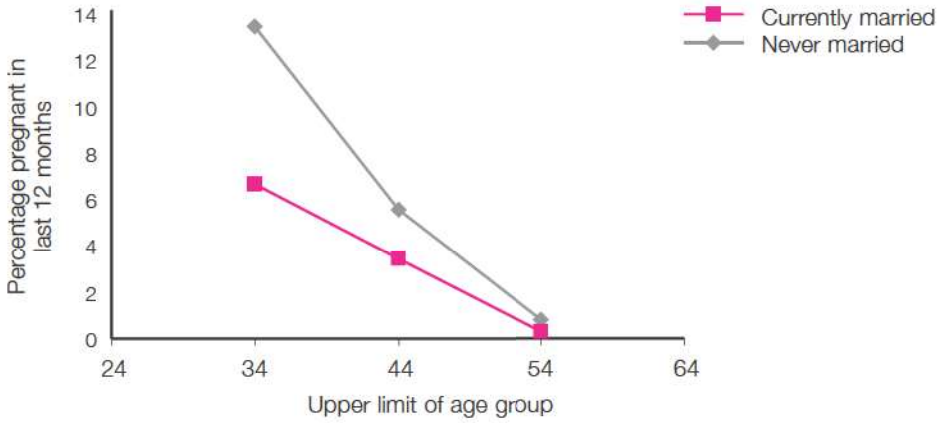


Figure 4.8: Currently and never married white female educators pregnant over last 12 months

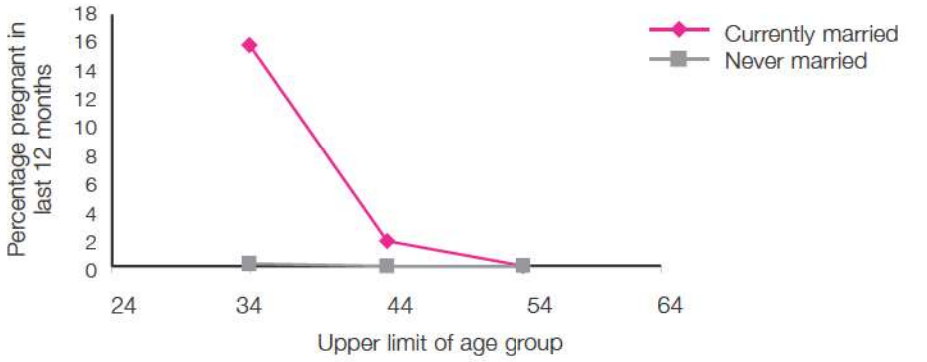


Figure 4.9: Currently and never married coloured female educators pregnant over last 12 months

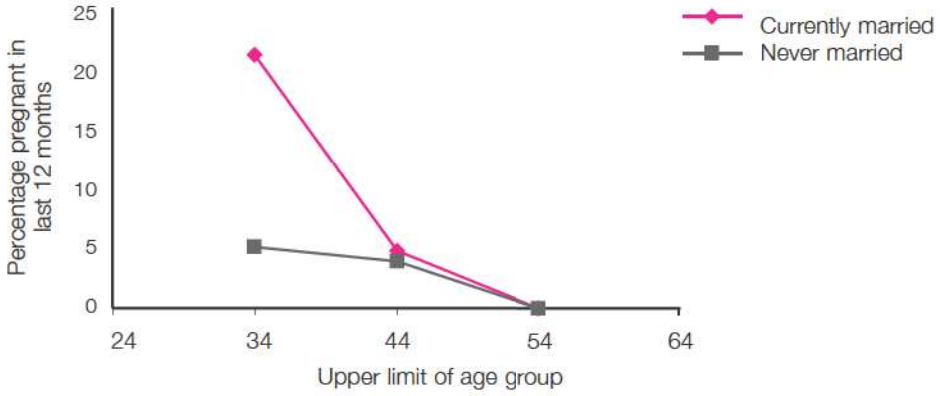
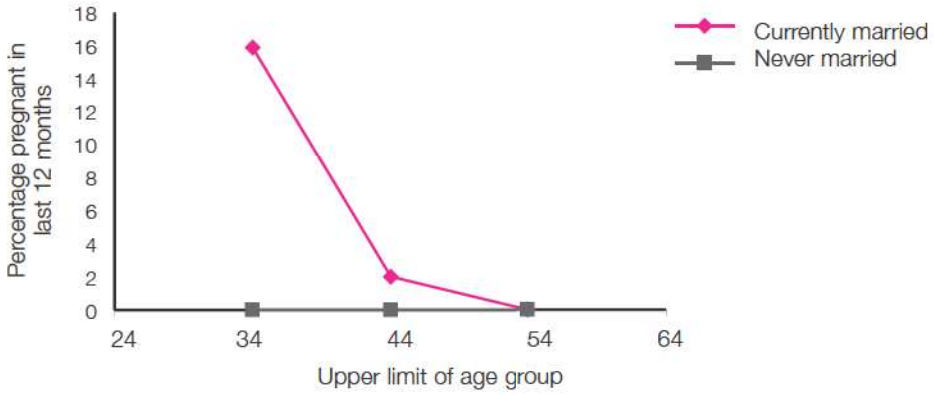


Figure 4.10: Currently and never married Indian/Asian female educators pregnant over last 12 months



However, the levels of non-marital and marital pregnancies are not similar. As expected, the level of marital pregnancy at each reproductive age is higher than the corresponding level of non-marital pregnancy. The greater the convergence between the two curves, the greater the similarity between the level of marital and non-marital pregnancy (that is, the less the difference between marital and non-marital pregnancy).

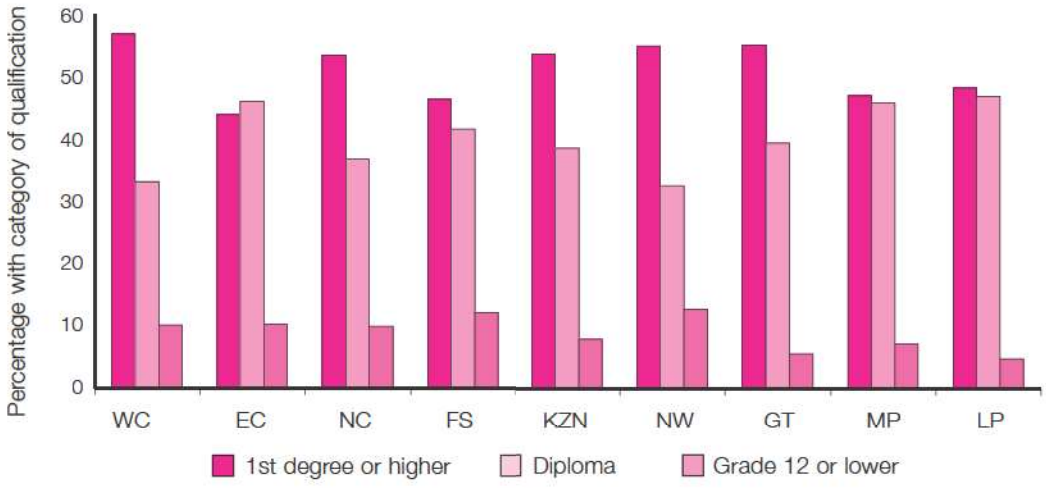
Figures 4.8 and 4.10 indicate that non-marital pregnancy is uncommon among female white educators and non-existent among female Indian educators at any age as the non-marital pregnancy curve is almost or horizontal in both cases.

4.2.3. Socio-economic characteristics

Level of education, income and teaching experience

As seen in Figure 4.11, about half of educators in the sample had a first degree or higher. These are educators who are considered to have at least M+4 (M=matric) qualification in the education system. About 41% of educators in the sample had a diploma or occupational certificate (that is, M+1 to M+3 qualification) while only 8% had Grade 12 or under (that is, M or less than M qualification). About 76% of educators were ordinary teachers while about 24% were either senior teachers or higher rank. Among male educators, 65% were ordinary teachers while 81% of the females were ordinary teachers: although there are more female educators than males, there are proportionately fewer female educators in senior positions.

Figure 4.11: Highest educational qualification of educators by province

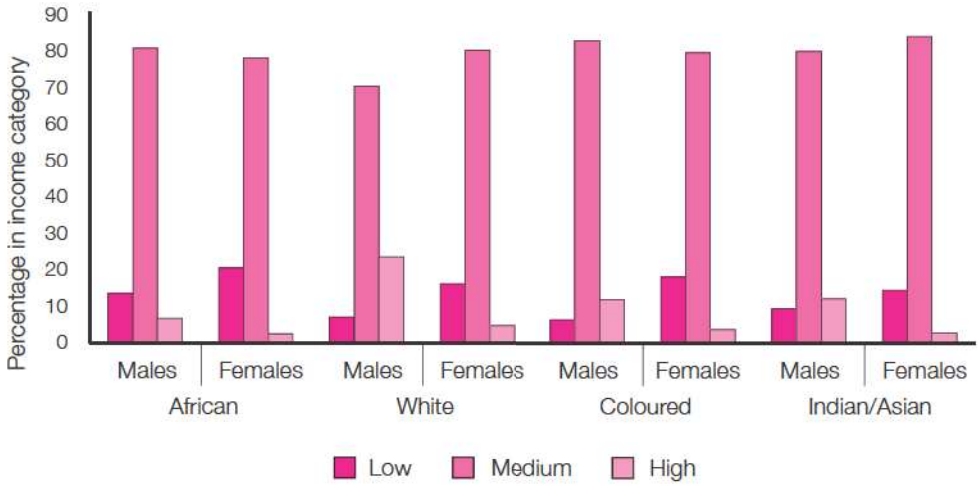


It can also be seen from Table 4.5 that over 38% of educators reported they had enough money for food, or for some extras, while only about 9% reported that they did not have enough money. The majority of educators (53.08%) said they had money for food but not enough money for other things. This appears to imply that the majority of educators believe they are not well-off financially. The income distribution shows that over three-quarters of the sample were in the medium-income category (defined as annual income of R60 000 – R132 000), while 17% of the sample was in the low-income category

(defined as annual income of less than R60 000). About 5% of the sample was in the high-income category (defined as R132 000 and over). A study by Lewin, Samuel and Sayed (2002) observed that educators earn a much higher income than other employed persons. The authors also noted that educators are much more highly educated than workers as a whole and that this largely explains their higher income. Most of the educators in the sample have substantial teaching experience, with about 70% having at least ten years' experience. About 94% of educators reported that they were employed by the DoE.

There are, however, disparities in this general pattern when the information is disaggregated by race and province. For example, Figure 4.12 shows that there are proportionately more female and male African educators in the low-income category compared with educators in other race groups. On the other hand the graph also shows that there are proportionately fewer male white educators in the medium-income category than male educators in other race groups.

Figure 4.12: Current annual gross income of educators by race



Regarding provincial disparity, Figure 4.11 indicates that Eastern Cape has the least proportion (44%) of highly qualified educators (defined as educators with a first degree or higher) followed by the Free State (46%) and Mpumalanga (47%). Conversely, the North West has the highest proportion of least qualified educators (defined as educators with Grade 12 or less) (13%) followed by the Free State (12%).

Housing subsidy and membership of medical aid fund

Although educators are generally well qualified and have many years of teaching experience, only 27% of educators in the sample reported they have a housing subsidy, 67.8% of the educators reported they were members of a medical aid fund, far higher than 11% of the general population (Shisana & Louw in press). As seen in Figure 4.13 and Table 4.5, males are more likely to have a housing subsidy than females, in all race groups. Indian, coloureds and whites are more likely to have a housing subsidy than Africans.

Table 4.5: Socio-economic factors by race, South African educators 2004

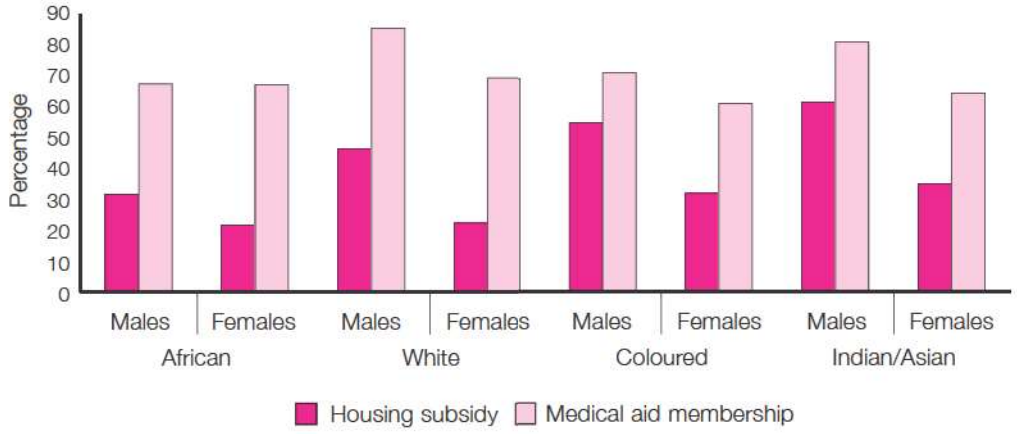
Variable	Characteristics							
	Race							
	African		White		Coloured		Indian	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Predominant housing type in area								
Formal	88.5	87.5–89.4	99.6	99.1–99.8	99.2	98.4–99.6	98.9	97.4–99.6
Traditional	10.6	9.7–11.6	0.3	0.1–0.9	0.7	0.3–1.5	0.8	0.3–2.3
Informal	0.9	0.8–1.2	0.1	0.0–0.3	0.1	0.1–0.3	0.3	0.0–1.7
Highest qualification								
First degree	47.5	46.1–48.8	68.9	65.4–72.3	46.1	42.2–49.9	73.6	68.2–78.4
Diplomas	43.9	42.7–45.3	29.0	25.9–32.4	39.3	36.3–42.4	18.9	15.0–23.6
Grade 12	8.6	7.9–9.3	2.0	1.5–2.7	14.6	12.0–17.7	7.4	5.4–10.3
Position in educational system								
Teacher	77.4	76.6–78.1	71.5	69.5–73.5	74.5	72.9–76.1	69.6	65.6–73.5
Senior teacher	9.5	8.9–10.1	15.1	13.6–16.6	12.9	11.4–14.6	12.3	9.4–13.9
Educational specialist	2.9	2.6–3.2	4.1	3.2–5.2	3.1	2.2–4.2	7.9	6.1–10.2
Principal/Deputy	10.3	9.8–10.8	9.3	8.3–10.5	9.5	8.5–10.6	10.1	8.5–12.0
Annual income								
Low	17.9	16.9–18.8	14.1	12.0–16.4	13.9	11.9–16.1	12.5	9.1–16.9
Medium	78.3	77.4–79.2	77.5	75.5–79.4	79.8	77.3–82.1	81.6	77.4–85.1
High	3.8	3.5–4.2	8.4	7.3–9.7	6.4	5.3–7.7	5.9	4.4–8.0
Do you have a housing subsidy								
Yes	24.9	23.7–26.1	27.2	25.0–29.5	39.8	37.0–42.7	44.3	39.0–49.7
No	75.1	73.9–76.3	72.8	70.5–74.9	60.2	57.4–63.0	55.7	50.3–60.9
Do you have medical aid								
Yes	67.3	66.1–68.4	72.8	70.3–75.1	64.7	62.1–67.2	70.6	65.7–75.1
No	32.7	31.6–33.9	27.2	24.9–29.7	35.3	32.8–37.9	29.4	24.9–34.3
Socio-economic status								
Not enough	10.3	9.5–11.1	2.8	2.1–3.6	3.7	2.8–4.8	2.2	1.2–3.9
Money for food	61.6	60.5–62.7	22.7	20.9–24.7	27.1	25.1–29.2	21.7	18.7–25.1
Have most	25.9	24.8–26.9	51.3	49.2–53.4	51.7	49.2–54.1	50.6	46.2–54.9
Some money	2.3	2.0–2.6	23.2	20.9–25.5	17.6	15.6–19.8	25.6	20.8–30.9

Table 4.6: Socio-economic factors by sex, South African educators 2004

Variable	Characteristics			
	Gender			
	Male		Female	
	Percentage	95% CI	Percentage	95% CI
Got post same area with closest family				
Same area	52.9	50.3–55.6	60.6	58.7–62.4
Move out	47.1	44.4–49.8	39.4	37.5–41.3
Was the post in				
City	13.7	11.8–15.9	16.7	15.1–18.4
Town	22.9	20.5–25.6	20.9	19.1–22.9
Village	13.6	11.8–15.7	9.9	8.9–11.1
Rural area	49.7	46.5–52.9	52.5	49.9–55.0
When you moved were you				
Married	11.8	10.1–13.7	27.3	25.7–29.0
Engaged	3.9	3.0–4.5	3.5	2.9–4.2
Single	84.4	82.2–86.3	69.2	67.4–70.9
In past ten years were you deployed				
Yes	24.4	22.3–26.7	21.2	19.7–22.7
No	75.6	73.3–77.7	78.9	77.3–80.3
Times in past ten years moved to other areas				
0	52.2	50.2–54.3	56.4	54.8–57.9
1	28.1	26.4–29.9	26.9	25.7–28.2
2	10.6	9.6–11.8	8.7	8.1–9.5
3	6.2	5.2–7.2	4.9	4.5–5.5
In one move since 1994, did member of family move with you				
Moved with	33.2	29.4–37.2	43.2	40.8–45.6
Stayed behind	40.5	37.1–44.0	36.2	33.9–38.6
No family	26.3	23.3–29.6	20.6	18.7–22.6
In most recent move, did member of family move with you				
Moved with	38.5	32.3–45.2	48.9	44.3–53.5
Stayed behind	49.5	42.6–56.4	40.5	36.1–45.1
No family	11.9	8.8–16.1	10.6	8.2–13.6

Variable	Characteristics			
	Gender			
	Male		Female	
	Percentage	95% CI	Percentage	95% CI
Predominant housing type in area				
Formal	90.7	89.6–91.7	90.9	90.1–91.7
Traditional	8.4	7.5–9.5	8.4	7.6–9.2
Informal	0.9	0.7–1.2	0.7	0.5–0.9
Highest qualification				
First degree	53.3	51.5–55.0	49.4	47.9–50.9
Diplomas	40.2	38.5–41.8	41.3	40.0–42.7
Grade 12	6.5	5.8–7.4	9.3	8.6–10.0
Position in educational system				
Teacher	65.2	63.9–66.4	81.5	80.7–82.2
Senior teacher	12.5	11.4–13.4	9.5	8.9–10.1
Educational specialist	4.1	3.6–4.7	2.8	2.5–3.2
Principal/ Deputy	18.3	17.2–19.4	6.2	5.8–6.7
Annual income				
Low	12.0	10.9–13.2	19.3	18.3–20.2
Medium	79.5	78.2–80.8	78.0	77.0–78.9
High	8.5	7.8–9.2	2.8	2.5–3.1
Do you have a housing subsidy				
Yes	35.9	34.3–37.7	23.0	21.9–24.1
No	64.1	62.3–65.8	76.9	75.9–78.0
Do you have medical aid				
Yes	69.6	67.9–71.1	66.9	65.8–68.1
No	30.4	28.9–32.0	33.1	31.9–34.2
Socio-economic status				
Not enough	6.7	5.9–7.5	9.5	8.8–10.3
Money for food	53.4	51.6–55.1	52.9	51.6–54.3
Have most	34.5	32.9–36.1	30.3	26.2–31.4
Some money	5.5	4.9–6.1	7.3	6.5–8.1

Figure 4.13: Percentage of educators with housing subsidy and members of medical aid fund



Number of dependent children

An aspect of economic dependency at the macro level is the burden of children and the elderly on the working population, and at the micro level, the number of dependants on a worker in individual households. A worker's ability to save and meet other financial obligations is partly affected by the number of dependants on that worker. Figure 4.14 shows that Western Cape had the highest proportion of educators who had 1–2 dependent children, followed by Northern Cape and Gauteng. On the other hand, Limpopo had the highest proportion of educators with 3–5 dependent children, followed by Eastern Cape. It is worth noting that this may be related to fertility levels in the provinces. Limpopo has the highest fertility levels in the country.

Figure 4.14: Number of children dependent on educators by province

Trade union membership and characteristics

The basic characteristics of educators who are members of a trade union are shown in Table 4.7. As many as 88% of educators reported they were members of a trade union. Members of a trade union were almost evenly distributed across race groups (the lowest proportion was among whites, at 80%). About 91% of educators who were members of a trade union were employed by the DoE. Furthermore, about 92% of educators who reported they were members of a union also reported they earned a gross annual income of R60 000 – R132 000 (that is, the medium-income category).

Table 4.7: Union members and characteristics

Characteristic	Percentage
Union member	
Male	89.9
Female	88.1
Race	
African	89.6
White	80.3
Coloured	84.7
Asian	86.8
Age group	
18–24	37.2
25–34	79.1
35–44	91.7
45–54	93.5
55+	88.0
Marital status	
Married	90.2
Never married	81.9
Separated	89.6
Divorced	92.6
Widowed	94.1
Highest qualification	
Ist degree or above	90.6
Diploma	86.9
Grade 12 or under	79.7

Characteristic	Percentage
Type of employment	
DoE	91.4
SGB	35.6
Have housing subsidy	96.8
Member of medical aid fund	95.4
Annual gross income	
Low	68.6
Medium	92.3
High	96.6

4.2.4 Summary

The demographic and socio-economic profile of educators in the sample indicates that educators are largely females. The majority of educators are married. Self reported socio-economic status and income distribution suggests that educators are generally well qualified, with many years of teaching experience, and are not well off financially. The majority of educators are members of a trade union. There are disparities in some of the demographic and socio-economic profile of educators by race and province.

4.3 HIV prevalence among South African educators

The specific objective of this section of the study was to investigate the HIV prevalence among educators by age, sex of respondent, marital status, race, locality and type of school, qualifications, learning area and teaching area. Once the HIV prevalence had been determined, the information was used to estimate the proportion of educators likely to die from AIDS in the near future. This is reported in Part 2.

The estimates of the HIV prevalence among educators take into account the full complexity of the sample design by using STATA procedure *Surveymean*. This analysis includes standard errors (SE), 95% confidence intervals (95% CI) and the coefficient of relative variation (CVr).

As a rule of thumb the Kish guideline of CVr of <20% is used as a reference threshold to determine the validity of prevalence estimates (Kish 1965). An estimate is considered imprecise if it has a very wide CI. If the CVr is relatively 'large' the estimate is considered to have low reliability.

Based on this very rigorous criterion described above, the validity of the HIV prevalence estimates are listed in Appendix 4. Valid estimates are HIV prevalence for males and females, all age groups, Africans, type of school, location of institution, African males and females, position at school and provinces (except the Western Cape). Borderline estimates are for whites, coloureds, Indian, other non-African males and females. For this reason, these estimates should be treated with caution.

The design effects were also calculated, which were less than 3.0 for the majority of the estimates, suggesting that overall the study was well designed to permit reliable estimation of the findings.

4.3.1 HIV prevalence by socio-demographic factors

Table 4.8 shows that of the 17 088 educators who gave a specimen for HIV testing, 12.7% (95% CI: 12.0, 13.54) were HIV positive. This percentage includes educators in all provinces, and people of all ages, sex and racial groups. The data was disaggregated by these socio-demographic variables as well as other variables of interest for education planning.

HIV prevalence by sex and age of educator

In this study, the male and female educators had similar HIV prevalence, 12.7%. However, to gain a better understanding of HIV prevalence in men and women it is crucial that analysis be done taking into account the age of the educator.

The results in this study show that HIV prevalence among educators was highest for those aged 25–34 years (21.4%), followed by those aged 35–44 (12.8%). Older educators (55 years and older) had the lowest HIV prevalence at 3.1%.

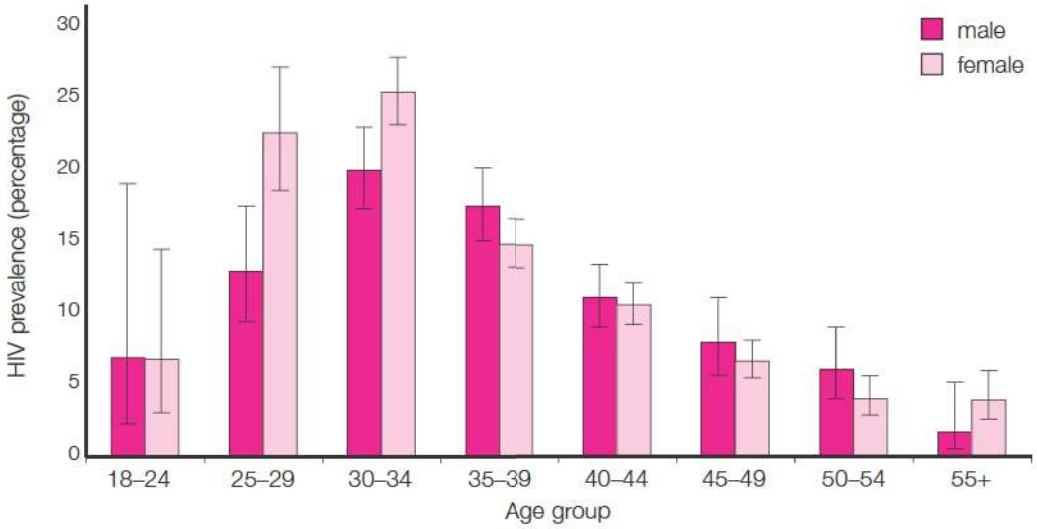
Table 4.8: HIV prevalence by various demographic characteristics of public sector educators, South Africa 2004

Characteristics	n	HIV positive (percentage)	95% CI
Total	17 088	12.7	12.0–13.5
Sex			
Men	5 455	12.7	11.6–13.9
Women	11 621	12.8	12.0–13.6
Race			
African	12 022	16.3	15.5–17.1
White	2 165	0.4	0.2–0.8
Coloured	2 309	0.7	0.4–1.3
Indian	533	1.0	0.5–2.1
Age			
<24	240	6.5	3.4–12.0
25-34	4 282	21.4	19.9–23.0
35-44	7 443	12.8	11.8–13.8
45-54	4 274	5.8	5.0–6.7
55 and above	842	3.1	2.1–4.6

Characteristics	n	HIV positive (percentage)	95% CI
Marital status			
Married, civil	3 329	7.9	6.9–9.1
Married, traditional (lobola/dowry)	635	15.4	12.5–18.9
Married, religious	3 288	5.5	4.5–6.7
Married, civil and traditional (lobola/dowry)	1 358	8.6	7.1–10.3
Married, civil and religious	1 931	7.6	6.2–9.2
Single, never married	4 589	22.9	21.5–24.4
Married, but separated	174	12.0	7.7–18.2
Divorced	967	11.2	9.0–13.9
Living together, but not married	95	12.2	6.5–21.9
Widow/widower	663	18.8	15.4–22.6
Other	24	14.7	5.5–33.5

Figure 4.15 presents the analysis by age and sex of educator. While there were no significant sex differences in HIV prevalence among educators, when data were disaggregated by five-year age groups, sex differences emerged except in young educators aged 18–24 years. In the latter group the HIV prevalence in men and women was 6.6% and 6.5%, respectively.

Figure 4.15: HIV prevalence by age and sex, South African public sector educators, 2004



The major differences in HIV prevalence of men and women were in the age groups of 25–29 and 30–34 years, where women had much higher prevalence than those of men, rising dramatically from 6.5% in the 18–24 age group, to 21.5% in the 25–29 age group and peaking at 24.2% in the 30–34 age group; and then declining sharply to 14.1%. Thereafter the decline was at a slower pace, reaching a low of 3.7% among educators aged 55 years and older; women exhibited a higher HIV prevalence in all age groups in the study.

Among the men in the study, the HIV prevalence increased rapidly from 6.6% to 12.3% by age 25–29 years, and continued to rise, peaking at age 30–34 years at a prevalence of 19%, compared to the 24.2% observed among women educators. From then on it continued to decline until age 55 years or older.

Table 4.9 compares the HIV prevalence by age and sex of educators and those derived from the general population in a study conducted by the HSRC (Nelson Mandela/HSRC Study of HIV/AIDS 2002). From the findings, although male educators had lower HIV prevalence than the males in the general population, and older female educators had lower HIV prevalence than females in the general population, the differences observed were not statistically significant (overlapping 95% confidence intervals). These results suggest that educators have similar HIV prevalences to that of the general population. However, it is important to note that the epidemic has progressed since 2002, hence caution is required in interpreting these findings.

Table 4.9: Comparison of HIV prevalence in South African educators with the general population

Male educators (2004)				Male general population (2002)			
Age	Prevalence (%)	Lower limit (%)	Upper limit (%)	Age	Prevalence (%)	Lower limit (%)	Upper limit (%)
25–29	12.3	9.0	16.7	25–29	22.0	14.6	31.9
30–34	19.0	16.5	21.9	30–34	24.1	16.8	33.3
35–39	16.6	14.3	19.2	35–39	18.4	11.6	27.8
40–44	10.5	8.6	12.9	40–44	12.4	7.8	19.4
45–49	7.6	5.4	10.5	45–49	11.9	7.1	19.4
50–54	5.8	3.8	8.6	50–24	5.4	2.8	10.3
55+	1.6	0.5	4.9	55+	7.0	2.9	15.8

Female educators (2004)				Female general population (2002)			
Age	Prevalence (%)	Lower limit (%)	Upper limit (%)	Age	Prevalence (%)	Lower limit (%)	Upper limit (%)
25–29	21.5	17.7	25.9	25–29	32.0	24.8	40.1
30–34	24.2	22.1	26.5	30–34	24.1	17.3	32.5
35–39	14.1	12.6	15.8	35–39	13.8	8.7	21.2
40–44	10.1	8.7	11.6	40–44	19.0	12.9	27.2
45–49	6.3	5.2	7.7	45–49	11.2	6.6	18.5
50–54	3.8	2.8	5.3	50–24	8.5	4.7	14.7
55+	3.7	2.4	5.7	55+	6.6	4.0	10.7

The age and sex distribution of HIV prevalence includes all racial groups; it is essential to disaggregate this information by race in order to obtain data for targeted planning. This was done below.

HIV prevalence by race and sex of educator

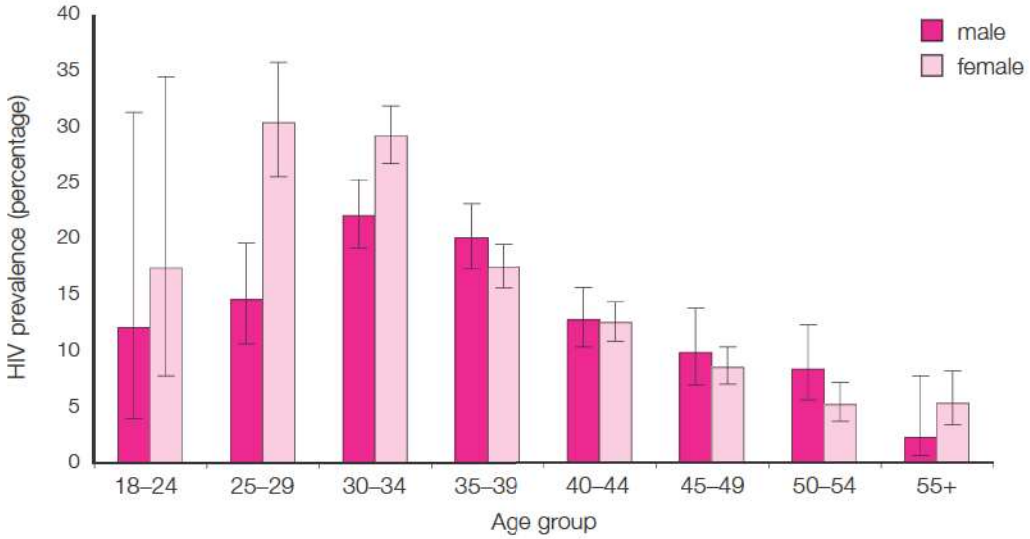
Major racial differences in HIV prevalence were observed. Africans had a prevalence of 16.3% compared to whites, coloureds and Asians who had a prevalence of less than 1% (see Table 4.8).

Having noted the extremely high HIV prevalence among African educators compared to other race groups, it became essential to conduct further analysis of the African educators. The results are presented in Figure 4.16. It was indicated in Figure 4.15 that there were no sex differences in HIV prevalence among men and women aged 18–24 years. However, once data were disaggregated by race and in this case focusing on Africans, a very different pattern emerged.

Young women educators had a much higher HIV prevalence of 17.4% compared with 12% among their men counterparts. The sex differences widened substantially at age 25–29 years, where women had a prevalence of 30.4% as contrasted with 14.5% among men in the same age group. Among women educators, HIV prevalence peaked at 25–29 years, but remained high at 29.2%, thereafter declining rapidly to 17.5% at ages 35–39 years and continuing to decline rapidly until reaching a low of 5.2% among women educators aged 50–54 years.

The curve for men rose slowly from 12% among those aged 18–24 years to 14.5% among those aged 25–29 years. It then rose very sharply, reaching a peak at 22.1% among men aged 30–34 years; thereafter it remained high at 20%, overtaking the women for the first time among men aged 35–39 years. From then on it declined rapidly until it reached a low of 2.2% among men aged 55 years and older.

Figure 4.16: HIV prevalence by age and sex in African educators, South Africa



HIV prevalence and marital status and sex of educators

Table 4.8 also presents HIV prevalence by marital status. The highest HIV prevalence was among educators who were single (22.9%). The widowers/widows came second at 18.8%, followed closely by those who were married in the traditional sense, by paying *lobola* or dowry. The lowest HIV prevalence by marital status was among educators who married through a religious ceremony, followed by those who had been married in a civil ceremony. Overall, married persons had the lowest HIV prevalence of 8.2% compared with a very high HIV prevalence percentage of 22.9% among the educators who were single, divorced, separated or widowed.

HIV prevalence by socio-economic status of educator

Socio-economic status of the educator was measured by educational level attained, income and household economic situation, and was found to be associated with high HIV prevalence. Specifically, the results showed that educators with a degree or higher had the lowest HIV prevalence at 10%. The ratio was significantly lower than in the two lower socio-economic groups. Those with a lower education, that is, who had attained Grade 12 or lower, had a prevalence of 13.9%, a figure that was different to but not significantly lower than that of those with a diploma or those who held an occupational certificate, 15.9% (see Table 4.10).

HIV prevalence by income of educator was further examined and revealed statistically significant differences: those with low income (below R60 000) had the highest HIV prevalence of 17.5%; those with medium income (of R60 000–R132 000) had an HIV prevalence of 12.1%; while those with high income (>R132 000) had the lowest HIV prevalence of 5.4%.

Further analysis showed that there was a significant association between HIV prevalence and household economy. Educators who reported that they did not have money for

basics such as food and clothes had the highest HIV prevalence compared to those who reported to have most of the important things, but few luxury goods. The prevalence was even greater when compared those who had some money for extra things.

Table 4.10: Overall HIV prevalence among educators by socio-economic status, South Africa 2004

Socio-economic status	n	HIV positive (percentage)	95% CI
Level of qualification			
First degree and above	8 551	10.0	9.1–10.9
Diplomas	7 094	15.9	14.8–17.0
Grade 12 and under	1 420	14.0	11.9–16.4
Annual income			
Low	2 915	17.5	16.0–19.2
Medium	13 231	12.1	11.3–12.9
High	813	5.4	4.0–7.4
Household economy			
Not enough money	1 253	15.5	13.3–18.0
Money for food etc	8 588	14.7	13.8–15.6
Have most important things	5 880	10.7	9.6–11.9
Some extra money	1 250	3.9	2.7–5.6

4.3.2 HIV prevalence by province and district

The analysis of HIV prevalence by province and district is a vital tool for planning for the future supply of educators at provincial and local levels.

HIV prevalence by province

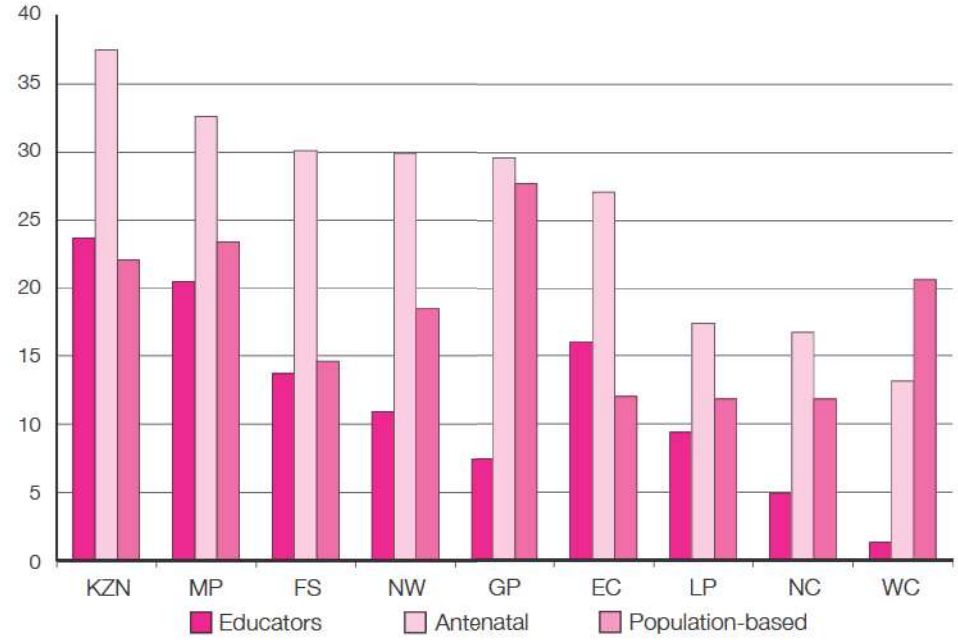
The study investigated the HIV prevalence of educators by province where they were teaching and found significant differences (see Table 4.11). Educators employed in KwaZulu-Natal and Mpumalanga had the highest HIV prevalence (more than 19%) when compared with all other provinces. The second group of provinces with high HIV prevalence (more than 10%, but under 19%) were Eastern Cape, Free State and North West. Those with HIV prevalence under 10% were Limpopo, Gauteng and Northern Cape. Western Cape had the lowest HIV prevalence at 1.1%.

Table 4.11: Overall HIV prevalence among educators by province, South Africa 2004

Province	n	HIV positive (percentage)	95% CI
WC	2 134	1.1	0.6–2.0
EC	1 855	13.8	12.0–15.8
NC	891	4.3	2.9–6.5
FS	1 152	12.4	10.1–15.0
KZN	3 627	21.8	19.8–23.9
NW	1 437	10.4	8.7–12.4
GP	2 772	6.4	5.4–7.7
MP	1 315	19.1	16.2–22.3
LP	1 905	8.6	7.3–10.1

It is important to compare the findings from this study with those derived from the general population and women attending antenatal care of a similar sex and age distribution. The most readily available data for comparison were those derived from the antenatal survey conducted annually by the Department of Health (2003) and the Nelson Mandela/HSRC study of HIV/AIDS (2002). The comparison presented below is among women aged 15–49 years in the first two samples and the 18–49 years group (there were no educators younger than 18 years) among women educators in this sample.

Figure 4.17: Comparison of HIV prevalence among women: educators, antenatal and population survey data, South Africa



The comparison between this educators' study and the population-based survey showed that in five of the provinces (KwaZulu-Natal, Mpumalanga, Free State, Eastern Cape and Limpopo) the estimated HIV prevalence among women was similar. In North West, Gauteng, Northern Cape and Western Cape provinces the educators had a much lower HIV prevalence than the general population. When HIV prevalence of the educators was compared to that of a sample of pregnant women attending antenatal care in public health clinics, the former was found to be much lower.

One of the objectives of this study was to estimate the HIV prevalence of educators in the district where the school is located. The ELRC requested that data be provided by district for the purpose of planning educator supply at a local level. The results are presented by province and district. Because of the small number of HIV-positive educators in each district, the districts are not named so as to preserve their anonymity.

Figure 4.18: District councils of South Africa

Source: HSRC GIS Centre

It is important to note that the HIV estimates presented by district are the best estimates obtained given the small district sample size. Some of the 95% confidence intervals surrounding these estimates are large, making the HIV prevalence estimates imprecise. However, the estimates were derived from a randomly selected sample, and a high response rate, hence selection bias is minimised.

Western Cape

In the Western Cape, a province where 1.1% of public sector educators were found to be HIV positive, analysis showed that the WC3 District sample did not have a single HIV-positive educator in the sample; WC2 District educators had a very low HIV prevalence of 0.3%, while WC5 District had the highest at 2.4%.

Overall, the Western Cape had very little variation in HIV prevalence among educators. There were no areas where HIV prevalence exceeded 20%.

Table 4.12: HIV prevalence among educators, Western Cape

Province	District	n	HIV positive (percentage)	95% CI
Western Cape	WC1	272	0.3	0.1–2.4
	WC2	411	1.4	0.6–3.3
	WC3	229	0	0
	WC4	317	1.4	0.5–3.8
	WC5	225	2.4	0.8–6.9
	WC6	680	1.1	0.4–2.8
Total		2 134	1.1	0.6–2.0

Eastern Cape

Unlike the Western Cape, where all districts had low HIV prevalence among educators and where there was little variation among districts, the Eastern Cape districts (Table 4.13) had a high HIV prevalence but they also varied substantially. The high HIV prevalence was driven largely by high prevalence observed in EC6 District, which had a prevalence of 22%, followed by a wide margin of 15.5% in EC4 District. The Eastern Cape district with the lowest HIV prevalence among educators was EC7 District, which had a prevalence of 5.8%, followed by EC1 District which had a prevalence of 6.4%. The rest of the districts had prevalence of between 12.3% and 14.7%.

Table 4.13: HIV prevalence among educators, Eastern Cape

Province	District	n	HIV positive (percentage)	95% CI
Eastern Cape	EC1	113	6.1	2.7–13.4
	EC2	244	12.5	8.7–17.8
	EC3	229	12.3	9.3–16.1
	EC4	172	15.5	11.7–20.3
	EC5	349	14.7	11.5–18.5
	EC6	362	22.1	17.6–27.2
	EC7	386	5.8	3.5–9.6
Total		1 855	13.8	12.0–15.8

Free State

All the Free State districts, except FS2 District Municipality, had HIV prevalence among educators that were higher than 12%. FS1 and FS5 District Municipality had higher prevalence than the remainder of the districts (Table 4.14).

Table 4.14: HIV prevalence among educators, Free State

Province	District	n	HIV positive (percentage)	95% CI
Free State	FS1	105	14.7	9.0–23.2
	FS2	331	8.2	5.4–12.3
	FS3	245	13.3	9.1–19.1
	FS4	258	12.9	8.5–19.1
	FS5	213	14.5	9.5–21.4
Total		1 152	12.4	10.1–15.0

Gauteng

Educators working in the Gauteng districts had an HIV prevalence lower than 10% (Table 4.15). The GP6 area educators had the lowest HIV prevalence of 3.4%, while the highest prevalence was observed in GP4 and GP1 District, which were higher than 9%, but lower than 10%.

Table 4.15: HIV prevalence among educators, Gauteng

Province	District	n	HIV positive (percentage)	95% CI
Gauteng	GP1	161	9.1	4.7–17.0
	GP2	490	5.3	3.4–7.9
	GP3	498	6.8	4.7–9.7
	GP4	474	9.1	6.5–12.5
	GP5	733	6.2	4.3–8.8
	GP6	416	3.4	1.9–6.0
Total		2 772	6.4	5.4–7.7

KwaZulu-Natal

KwaZulu-Natal educators had the highest HIV prevalence of 21.8%. Except for KZN11 District, which had the lowest HIV prevalence of 9.2%, all other districts had higher HIV prevalence than in any other province (Table 4.16). The majority of the districts had HIV prevalence higher than 20%. Two of these districts, KZN 6 and KZN7 had HIV prevalence of 30% or higher.

Table 4.16: HIV prevalence among educators, KwaZulu-Natal

Province	District	n	HIV positive (percentage)	95% CI
KwaZulu–Natal	KZN1	318	22.0	16.6–28.6
	KZN2	219	19.0	13.8–25.7
	KZN3	354	28.2	21.1–36.7
	KZN4	280	28.9	23.9–34.4
	KZN5	361	15.3	10.9–21.1
	KZN6	361	30.0	24.7–35.9
	KZN7	371	32.5	27.2–38.2
	KZN8	385	26.3	21.2–32.1
	KZN9	275	22.8	16.8–30.3
	KZN10	155	27.4	16.4–42.2
	KZN11	548	9.3	6.1–14.0
Total		3 627	21.8	19.8–23.9

Limpopo

Most of the Limpopo districts had low HIV prevalence among educators, four of them having HIV prevalence less than 7%. LP2 and LP3 Districts had high HIV prevalence among educators.

Table 4.17: HIV prevalence among educators, Limpopo

Province	District	n	HIV positive(percentage)	95% CI
Limpopo	LP1	280	6.4	3.8–10.5
	LP2	501	16.3	12.9–20.5
	LP3	254	12.4	8.7–17.4
	LP4	262	6.4	3.4–11.8
	LP5	378	6.6	4.5–9.7
	LP6	230	4.9	3.1–7.7
Total		1 905	8.6	7.3–10.1

Mpumalanga

Of the three districts in Mpumalanga, MP1 and MP2 had very high HIV prevalence. All three districts had HIV prevalence of educators exceeding 10%.

Table 4.18: HIV prevalence among educators, Mpumalanga

Province	District	n	HIV positive (percentage)	95% CI
Mpumalanga	MP1	326	24.8	18.3–32.8
	MP2	331	12.0	9.3–15.3
	MP3	489	22.2	18.3–26.7
Total		1 315	19.1	16.2–22.3

North West

North West Province had an HIV prevalence among educators of 10.4%, with only three district municipalities of NW1, NW3 and NW5 exceeding the provincial average of 10.4%. The rest were below the provincial average.

Table 4.19: HIV prevalence among educators, North West

Province	District	n	HIV positive (percentage)	95% CI
North West	NW1	170	11.7	7.8–17.2
	NW2	326	9.3	6.3–13.4
	NW3	295	12.4	8.6–17.5
	NW4	244	9.8	6.3–14.9
	NW5	231	13.0	9.5–17.6
Total		1 437	10.4	8.7–12.4

Northern Cape

Northern Cape districts, as with those in the Western Cape, had very little variation in HIV prevalence, ranging between a low of 3% in NC3 District to a high of 6.2% in NC4 District.

Table 4.20: HIV prevalence among educators, Northern Cape

Province	District	n	HIV positive (percentage)	95% CI
Northern Cape	NC1	168	3.9	1.7–9.0
	NC2	180	4.0	2.0–7.8
	NC3	261	3.0	0.9–9.0
	NC4	267	6.2	3.4–11.1
Total		891	4.3	2.9–7.5

In analysing areas with very high HIV and very low HIV prevalence among educators, the following pattern emerged: of the 54 districts analysed, only 11 districts in KwaZulu-Natal, Mpumalanga and Eastern Cape had HIV prevalence among educators that was higher than 20%. Eight of these 11 districts were located in KwaZulu-Natal (Table 4.21).

Table 4.21: Analysis of areas with high HIV prevalence

Province	District Municipality	n	HIV positive (percentage)	95% CI
KwaZulu-Natal	KZN1	318	22.0	16.6–28.6
	KZN3	354	28.2	21.1–36.7
	KZN4	280	28.9	23.9–34.4
	KZN6	361	30.0	24.7–35.9
	KZN7	371	32.5	27.2–38.2
	KZN8	385	26.3	21.2–32.1
	KZN9	275	22.8	16.8–30.3
	KZN10	155	27.4	16.4–42.2
Mpumalanga	MP1	326	24.8	18.3–32.8
	MP3	489	22.2	18.3–26.7
Eastern Cape	EC6	362	22.0	17.6–27.2

Another 11 districts had an HIV prevalence among educators that was less than 5%; these were found in the Western Cape, Northern Cape, Limpopo and one in Gauteng. These are presented below in Table 4.22.

Table 4.22: Districts with low HIV prevalence (under 5%)

Province	District municipality	n	HIV positive (percentage)	95% CI
Western Cape	WC1	272	0.3	0.1–2.4
	WC2	411	1.4	0.6–3.3
	WC3	229	0	0
	WC4	317	1.4	0.5–3.8
	WC5	225	2.4	0.8–6.9
	WC6	680	1.1	0.4–2.8
Northern Cape	NC1	168	3.9	1.7–9.0
	NC2	180	4.0	2.0–7.8
	NC3	261	3.0	0.9–9.0
Gauteng	GP6	416	3.4	1.9–6.0
Limpopo	LP6	230	4.9	3.1–7.7

Overall the metropolitan districts had low HIV prevalence. The WC6, GP6, EC7 and GP5 Districts had much lower HIV prevalence, under 7%. Only KZN11 and GP4 Districts had HIV prevalence of slightly more than 9% but lower than 10% (Table 4.23).

Table 4.23: HIV prevalence by metropolitan district

Province	District municipality	n	HIV positive (percentage)	95% CI
Gauteng	GP4	474	9.1	6.5–12.5
	GP5	733	6.2	4.3–8.8
	GP6	416	3.4	1.9–6.0
	KZN11	548	9.3	6.1–14.0
	WC6	680	1.1	0.4–2.8
Eastern Cape	EC7	386	5.8	3.5–9.6

4.3.3 Profile of teachers and HIV prevalence

Table 4.24 presents HIV prevalence by learning area. The detailed description of these areas is presented in Table 2.1, section 2.2. It also presents findings on whether educators teach those courses for which they were trained.

During the interview, educators were asked in an open-ended question what subject they were currently teaching. Using the DoE's taxonomy, the responses were grouped into current/future learning area, except for foundation phase. Many educators did not

respond by giving a particular subject, but said 'foundation phase' or 'all subjects' and thus 'foundation phase' was added to the subject groups. Foundation languages consist of the 11 official South African languages.

Table 4.24 suggests that most of the educators in the sample were teaching foundation phase as well as foundation languages. The next largest group are mathematics educators. economics and management educators were fourth in size. Science educators comprised a third of educators and about a fourth of foundation phase and foundation languages. The HIV epidemic has left almost no learning area untouched. Other than the observation that HIV prevalence was high in all groups except among technology educators, it was also found to be high among mathematics and science educators (12.9% and 12.6% respectively). It was also revealing that there was high HIV prevalence amongst the general subjects' educators, most of whom were African. However, it was also striking to learn that of all the subjects/learning areas, educators teaching additional languages had the highest HIV prevalence (23%). Further analysis indicates that this group is comprised of black educators mostly teaching in KwaZulu-Natal. The shortage of educators in certain subject areas, already a cause for a concern, will be exacerbated by the impact of HIV. Table 4.24 also indicates that the majority of educators teaching the foundation phase were not trained in these areas.

Table 4.24: HIV prevalence by learning area taught (trained in), South Africa 2004

Learning areas	n#Number teaching	HIV positive (percentage)	95% CI
Foundation phase	10 552 (3 871)	12.9 (12.7)	11.6–14.2 (10.7–14.9)
Foundation languages	9 922 (22 044)	11.2 (11.5)	10.0–12.6 (10.5–12.5
Additional languages	1 086 (2 215)	23.6 (24.0)	19.2–28.7 (20.1–28.4)
Arts and culture	2 777 (2 349)	13.2 (10.8)	9.7–17.6 (6.6–17.0)
Economics and management sciences	4 059 (3 108)	14.1 (15.3)	11.7–16.9 (12.3–18.9)
Social sciences	2 255 (8 860)	11.8 (11.8)	9.3–15.0 (10.0–14.0)
Life orientation	8 814 (6 167)	13.4 (11.3)	11.4–15.7 (8.6–14.7)
Mathematics	6 129 (7 978)	12.9 (13.8)	11.5–14.4 (12.4–15.4)
Natural sciences	5 752 (7 464)	12.6 (13.9)	10.3–15.2 (11.7–16.4)
Technology	5 429 (1 708)	7.4 (8.2)	4.7–11.7 (5.7–11.5)
Special	59 (298)	0.0 (11.9)	0.0 (4.1–30.5)
Other	233 (5 589)	13.8 (13.4)	11.9–16.1 (10.9–16.5)

Note: # Most educators gave multiple responses (teaching or trained in more than one learning area)

HIV prevalence by type of institution

To assess the type of institutions likely to be affected by HIV/AIDS, HIV prevalence by type of institution where the educator was teaching was analysed (Table 4.25). The results show that the prevalence of HIV is highest in combined schools (16.5%). The primary and secondary schools also had a high prevalence of slightly more than 12%. The special education schools were too few to permit estimation of the HIV prevalence.

HIV prevalence by position of the educator in the school

When examining HIV prevalence by position in the educational system (Table 4.25), results showed that teachers (14.1%) had a significantly higher HIV prevalence when compared to all other educators (12.7). Senior educators, educational specialists and principals or deputy principals had HIV prevalence under 10%; the differences among these three groups were not statistically significant.

HIV prevalence by years of experience in teaching

Table 4.25 presents data on HIV prevalence by the number of years an educator has had been teaching. The results show that the less experience educators had, the more likely they were to be HIV positive. Those with less than four years experience had an HIV prevalence of 21.1%; those with 5–9 years experience, had an HIV prevalence of 19.5%; but those with 15 years or more experience had a prevalence of less than 9%.

Table 4.25: Overall HIV prevalence by type of educational institution, position in educational system and years of teaching experience, South Africa 2004

Type of institution	n	HIV positive (percentage)	95% CI
Primary school	9 528	12.3	11.4–13.3
Combined	1 447	16.5	13.7–19.7
Secondary/high school	6 006	12.5	11.2–14.0
Position in educational system			
Educator teacher	12 669	14.1	13.2–15.0
Senior teacher	1 846	9.6	8.1–11.4
Education specialist	534	10.0	7.5–13.1
Deputy principal/Principal	1 709	7.3	6.0–8.8
Years of teaching experience			
0–4	2 031	21.1	19.1–23.3
5–9	2 724	19.5	17.8–21.4
10–14	4 484	14.8	13.5–16.2
15–19	2 712	8.8	7.6–10.2
20–24	2 416	7.0	5.9–8.3
25–29	1 494	5.4	4.1–7.1
30 +	1 105	2.6	1.8–3.8

The data suggest that the most experienced educators were less likely to be living with HIV and it was the younger and less experienced ones who carried the largest burden.

HIV prevalence by employer, union membership, having housing subsidy and medical aid

Table 4.26 presents findings on HIV status by employment situation, housing subsidy and medical aid. Educators employed by the DoE had a significantly higher HIV prevalence of 12.8% compared with educators employed by SGBs, whose prevalence was 9.2%.

HIV prevalence by union membership was also examined. Members who belonged to unions had a significantly lower HIV prevalence (12.5%) compared with those who did not belong to a union (14.5%).

Table 4.26: Overall HIV prevalence by educator's employment situation, having housing subsidy and member of medical aid fund, South Africa 2004

Employer	n	HIV positive (percentage)	95% CI
DoE	15 525	12.9	12.2–13.6
SGB	1 010	9.2	7.1–11.8
Union membership			
Member of union	13 151	12.5	11.8–13.3
Not member of union	1 821	14.5	12.7–16.6
Have housing subsidy			
Yes	4 728	10.5	9.3–11.7
No	12 242	13.6	12.8–14.4
Member of medical aid fund			
Yes	11 393	13.5	12.7–14.4
No	5 577	11.2	10.2–12.2

Educators who had a housing subsidy were significantly less likely to be HIV positive than those who did not have a subsidy. The opposite results were observed with regard to medical aid. Those who were members of a medical aid scheme were more likely to be HIV positive than those who were not members.

4.4 Determinants of HIV/AIDS

The main aim of this section of the report is to present data on the key factors that might be driving the HIV/AIDS epidemic in the educational sector by demographic variables. In particular, sexual behaviour is examined by age, sex of the respondents, race, qualifications, locality, and position in school. Such information is helpful in understanding the sexual behavioural practices of specific groups of educators, which

underlie the epidemic and hence suggest possible areas of intervention to prevent and control the further spread of HIV infections in this sector.

4.4.1 Number of sexual partners

Having multiple sexual partners is a major risk factor for HIV/AIDS. For this reason, the sexual behaviour of educators was investigated, and revealed that about one in five educators reported not to have had a sexual partner in the previous 12 months. A larger proportion of whites than other racial groups reported not being in a sexual relationship in the past year.

Most South African educators reported to have one current sexual partner. About 10% of Africans reported to have two or more sexual partners in the past year followed by coloureds, about 4% (Table 4.27).

Table 4.27: Number of sexual partners in the past 12 months by race, South African educators 2004

Variable	Total	Percentage of sexual partners			
Race	n	no partner	1 partner	2 partners	>2 partners
African	14 349	20.6	69.9	6.8	2.7
White	2 736	25.7	72.3	1.5	0.4
Coloured	2 670	21.1	74.4	2.8	1.7
Asian	619	23.7	74.3	1.0	1.0

When data were disaggregated by race and sex of the educator (Table 4.28) it became clear that African males had a statistically significant higher rate of self-reported multiple sexual partnerships (15.5%) in the past year than all other sex and race groups. They also had much higher self-reported rates of more than two sexual partners (7.7%) than other sex and race groups. Coloured and white male educators had the second highest self-reported rate of multiple partners and coloured males had the second highest rate of more than two partners at nearly 4% in the past year. Slightly more than 4% of white male educators reported to have two sexual partners in the past year (Table 4.28).

Table 4.28: Number of sexual partners in the last 12 months by race and sex, male South African educators 2004

Variable	Total	Percentage of sexual partners							
Race	n	no partner		1 partner		2 partners		>2 partners	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI
African	4 704	11.4	10.2–12.6	65.4	63.6–67.2	15.5	14.3–16.8	7.7	6.7–8.9
White	594	19.3	15.7–23.4	75.3	70.1–79.8	4.3	2.4–7.6	1.2	0.6–2.4
Coloured	972	10.3	7.7–13.6	81.7	77.4–85.4	4.3	3.0–6.1	3.7	2.5–5.4
Asian	223	15.1	10.4–21.3	80.3	73.0–86.0	2.2	0.6–7.8	2.4	1.1–5.3

Table 4.29 presents the same information, but for females. Overall the rates of self-reported multiple partnership for women are significantly lower than those reported by men. Only 2.7% of African female educators reported to have two sexual partners in the past year, a figure not significantly different from that of coloured female educators. Overall the rates of self-reported multiple partnership for women are significantly much lower than those reported by men.

Table 4.29: Number of sexual partners by race and sex, female South African educators 2004

Variable	Total	Percentage of sex partners							
Race	n	no partner		1 partner		2 partners		>2 partners	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI
African	9 663	25.5	24.4–26.6	71.5	70.4–72.6	2.7	2.3–3.2	0.3	0.2–0.5
White	2 139	28.4	26.0–31.1	70.3	67.6–72.8	1.2	0.8–1.9	0.1	0.0–0.4
Coloured	1 697	29.3	26.2–32.5	69.0	65.7–72.0	1.6	1.0–2.6	0.2	0.1–0.7
Asian	396	28.2	24.3–32.5	71.0	66.7–74.9	0.5	0.2–1.6	0.3	0.0–2.2

From these results, it is evident that a significant proportion of male educators in contrast to female educators had multiple partners, which is a risk factor for sexually transmitted infections and HIV/AIDS (Table 4.28 and 4.29).

4.4.2 Awareness of HIV status

Table 4.30 presents the findings on awareness of HIV status by sex of the respondent. The study results reveal that the majority of South African educators (81%) knew where to obtain VCT services. Male and female educators were equally likely to know where VCT services were provided, but few used them. Although 81% knew where VCT services were provided, only 59% of educators had had an HIV test in their lifetime and of these 92.6% were told of their test results. Indians (68%), and coloureds (67%) had higher rates of HIV testing than whites (63.4%) and Africans (56.2%). Female educators were more likely than male educators to report having being informed of their HIV status.

Table 4.30 also shows that a small proportion of educators obtained their HIV testing through VCT. The results reveal that only 46% had counselling before undergoing HIV test, with more women (47%) than men (43%) doing so. Even fewer had counselling after they had an HIV test (30%). These results suggest that a large proportion of educators did not obtain their HIV testing through VCT services.

Table 4.30: Awareness of HIV status

Percentage knowing where to obtain voluntary counselling and HIV testing by sex of respondent									
	Male			Female			Total		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Yes	5 315	80.0	78.7 – 81.3	11 541	81.5	80.5 – 82.5	16 856	81.0	80.2 – 81.9
No	1 225	20.0	18.7 – 21.3	2 390	18.5	17.5 – 19.5	3 615	19.0	18.1 – 19.9
Percentage who ever had HIV test and were informed of the results by sex of respondent									
	Male			Female			Total		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Yes	3 382	90.4	89.2 – 91.5	7 751	93.6	93.0 – 94.2	11 133	92.6	92.1 – 93.2
No	364	9.6	8.5 – 10.8	549	6.4	5.8 – 7.0	913	7.4	6.8 – 8.0
Percentage counselled before undergoing the HIV test by sex of respondent									
	Male			Female			Total		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Yes	1 534	43.4	41.1 – 45.7	3 758	47.4	45.8 – 49.0	5 292	46.1	44.7 – 47.6
No	2 214	56.6	54.4 – 58.9	4 535	52.6	51.0 – 54.2	6 749	53.9	52.4 – 55.3
Percentage counselled after the HIV test by sex of respondent									
	Male			Female			Total		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Yes	1 014	29.0	27.0 – 31.0	2 483	31.2	29.7 – 32.7	3 497	30.5	29.2 – 31.8
No	2 688	71.0	69.0 – 73.0	5 745	68.8	67.3 – 70.3	8 433	69.5	68.2 – 70.8

4.4.3 Condom use

Table 4.31 presents the results of condom use by important demographic variables in a sample of participants (n=15 013) that reported condom use with their regular partner at last sexual act. There were no differences in condom use by sex of educator at last sexual act. It was found that 32.0% of males had used a condom compared to 32.0% of females. Further analysis by sex controlling for age, race, province, position in the school and income revealed differences.

Table 4.31: Condom use with regular partners during last sexual act by demographic characteristics of public educators, South Africa, 2004

	Male			Female			Total		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Total	4 431	32.0	30.4–33.7	10 582	32.2	30.8–33.7	15 013	32.2	31.0–33.3
Age									
18–24	41	71.7	52.8–85.1	98	51.9	40.8–62.8	139	58.0	48.3–67.2
25 – 34	1 444	45.8	42.74–48.9	2 461	40.0	37.5–42.6	3 905	42.2	40.2–44.2
35 – 44	2 493	29.4	27.2–31.7	4 368	32.4	30.5–34.3	6 861	31.3	29.8–32.9
45 – 54	1 181	22.7	20.0–25.7	2 360	24.8	22.6–27.2	3 541	24.1	22.3–26.0
55 +	234	15.6	11.0–21.8	327	15.7	11.5–21.1	561	15.7	12.4–19.6
Race									
African	3 925	36.3	34.5–38.2	6 705	38.5	37.0–40.0	10 630	37.7	36.5–38.9
White	435	10.8	7.5–15.2	1 462	10.0	8.3–11.9	1 897	10.2	08.5–12.1
Coloured	835	14.9	12.2–18.1	1 150	13.4	10.3–17.2	1 985	14.0	11.7–16.7
Indian	184	18.4	13.0–25.3	271	13.6	9.6–19.0	455	15.5	12.5–19.1
Locality type									
Urban form	2 151	25.8	23.3–28.4	4 130	24.4	22.3–26.7	6 281	24.9	23.0–26.8
Urban inform	392	29.9	23.4–37.3	602	32.4	27.6–37.5	994	31.4	26.9–36.3
Non–urban	2 832	35.8	33.7–38.1	4 842	37.5	35.6–39.4	7 674	36.9	35.4–38.4
Province									
WC	700	16.5	13.7–19.9	1 105	17.5	13.6–22.3	1 805	17.2	14.2–20.6
EC	533	40.7	34.8–46.9	1 223	41.3	36.9–45.7	1 756	41.1	37.4–44.9
NC	288	17.1	12.2–23.5	449	17.4	13.1–22.6	737	17.3	13.2–22.3
FS	365	32.0	26.7–37.7	543	31.2	26.4–36.4	908	31.5	27.4–36.0
KZN	1 056	37.1	33.6–40.8	1 994	35.0	32.2–38.0	3 050	35.8	33.3–38.4
NW	466	35.6	30.4–41.2	793	37.5	33.5–41.6	1 259	36.8	33.6–40.1
GT	732	27.4	23.6–31.6	1 675	24.8	22.1–27.7	2 407	25.6	23.2–28.2
MP	399	29.5	24.2–35.4	784	30.4	26.0–35.3	1 183	30.1	26.4–34.1
LP	859	30.4	27.2–33.8	1 049	31.8	28.8–34.9	1 908	31.1	28.9–33.4
Qualifications									
Degrees	2 911	30.5	28.2–32.9	4 782	31.0	29.2–32.7	7 693	30.8	29.2–32.3
Diploma	2 148	33.7	31.3–36.1	4 013	33.5	31.4–35.6	6 161	33.5	31.9–35.2
Matric or less	332	35.6	29.8–41.7	806	33.8	29.9–38.0	1 138	34.3	31.1–37.8

	Male			Female			Total		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Position									
Principal	1 001	20.0	17.3–23.2	507	29.5	24.6–35.0	1 508	23.2	20.7–26.0
Specialist	213	27.9	21.6–35.2	258	29.3	23.8–35.6	471	28.7	24.5–33.3
Senior Educator	711	28.8	25.0–32.9	904	25.3	22.2–28.8	1 615	26.8	24.3–29.5
Educator	3 386	36.3	34.5–38.6	7 788	33.1	31.6–34.6	11 174	34.1	32.9–35.5
Income									
Low	587	42.4	38.0–47.6	1 723	34.1	31.3–37.1	2 310	36.4	33.9–38.9
Medium	4 286	31.4	29.9–33.6	7 562	31.8	30.3–33.5	11 848	31.8	30.5–33.1
High	507	21.9	17.9–26.4	246	24.4	18.8–31.1	753	22.7	19.3–26.4
Institution									
Primary	2 259	30.1	27.9–32.4	5 880	29.2	27.6–30.9	8 139	29.5	28.0–30.9
Combined	2 638	33.8	31.3–36.4	2 900	36.3	33.6–39.0	5 538	35.1	33.1–37.2
Secondary	474	30.1	25.5–35.1	774	35.1	30.6–40.0	1 248	33.3	29.5–37.2
Special	5	0		19	27.2	19.1–37.0	24	20.7	15.2–27.7
Household status									
Not enough money	308	37.5	31.3–44.1	704	37.4	33.2–41.8	1 012	37.4	33.8–41.2
Money for food	2 711	34.2	32.0–36.3	4 755	36.6	34.8–38.4	7 466	35.7	34.3–37.1
Few luxuries	2 039	29.2	26.6–31.9	3 301	26.8	24.7–29.1	5 340	27.7	25.9–29.6
Some extra money	317	22.8	17.8–28.7	792	16.4	13.5–19.7	1 109	18.2	15.6–21.2

Note: Only respondents who were sexually active during the last 12 months were used in the analysis

There was an association between condom use and age, with the younger male and female educators having higher condom use compared to their older counterparts. For example, males between 18–24 (71.1%) were more likely to use condoms compared to females (51.9%) of the same age. Among respondents who were between 25–34 there was a slight difference between males (45.7%) and females (40.0%). The results showed that the older the respondents the less likely they were to use condoms. Among the respondents aged 45–54 (males 22.7% and females 24.8%), less than 25% used a condom at last sexual act. This number was even lower for respondents 55 and older (males 15.6% and females 15.7%).

Condom use at last sex with a regular partner among African females (38.4%) and males (36.3%) was higher when compared to other groups. Whites were the lowest users of condoms at last sex; among females only 9.9% used condoms and among males 10.7% reported using condoms. There were also slight differences in condom use by sex of educator among all the groups except for African males who reported slightly higher rates of condom use compared to females.

Females and males from non-urban areas reported high condom use at last sex with a regular partner (males 35.8% and females 37.4%) when compared to those living in urban formal (males 25.7% and females 24.4%) and urban informal areas (males 29.8% and females 32.3%).

The highest condom use at last sex with a regular partner was among educators in the Eastern Cape (males 40.6% and females 41.2%) followed by KwaZulu-Natal at 37.1% for males and 35.0% for females.

Condom use at last sex with a regular partner by qualification showed slight differences in the groups that had a degree, a diploma or a matric, varying between 30–35% for the different qualifications. The group with the highest condom use was males with a matric or less at 35.5%.

When rank was taken into consideration, respondents whose position was teacher (36.5% males and 33.0% females) reported high condom use at last sex with a regular partner compared to other ranks such as senior teacher, specialist and principal. Respondents who were in the low-income group (42.7% males and 34.1% females) had high condom use compared to the groups within middle- and high-income groups. Respondents who reported not to have enough money (37.5% males and 37.4% females) and those who had just enough money for food (34.1% males and 36.6% females) had high condom use compared to the groups with few luxuries and some extra money who had rates less than 30%. Data were examined to assess whether educators who knew their HIV status prior to this study used condoms during their past sexual encounter with their regular partners, and it was found that only 32.4% did so. This analysis does not take into account whether they were HIV positive or not.

The next level of analysis is based on stratification of HIV status as determined in this study.

Table 4.32: Condom use at last sex with regular partners amongst HIV-positive and HIV-negative South African educators, 2004

Variable	Percentage of condom use with regular partner					
HIV Test	HIV positive			HIV negative		
	Yes	No	Don't remember	Yes	No	Don't remember
Know HIV status*	58.9	40.5	0.7	28.8	70.8	0.4
Don't know HIV status	51.6	48.1	0.3	28.4	71.4	0.3

*Note: * Educator got an HIV test result within the last three years*

The results in Table 4.32 indicate that 58.9% of educators who knew prior to this study they were HIV positive used a condom with their regular partner at last sex. This means that 41% of educators who knew that they were HIV positive did not use a condom at last sex with their regular partner. If their partners were HIV positive, it is possible that they may have both consented to unprotected sex. However the risk of contracting STIs remains. What was not known was the HIV status of their partner. Of those who were

HIV positive and knew it, only 29.8% used a condom with their regular partner each time they had sex in the past year; in addition 26.5% had never used a condom in the past year despite their knowledge of their HIV-positive status (Table 4.33). Consistency of condom use is low. This is of particular concern, especially for those who know their HIV status to be positive.

Table 4.33: Frequency of condom use with regular partner in the past year amongst those who are HIV-positive and HIV-negative South African educators, 2004

Variable	Percentage of condom use with regular partner in the past year									
HIV Test	HIV positive					HIV negative				
	Every time	Almost every time	Some-times	Never	Don't know	Every time	Almost every time	Some-times	Never	Don't know
Know HIV status*	29.8	7.3	36.4	26.5	0	14.2	3.3	26.7	55.6	0.1
Don't know status	26.1	5.7	33.9	34.2	0.3	14.6	2.9	23.6	58.7	0.1

*Note: * Educator got an HIV test result within the last three years*

Condom use at last sex with a non-regular partner given prior knowledge of HIV status was then examined. A very large proportion of educators who had prior knowledge of their HIV status (77.3%) used a condom at last sex with a non-regular partner, which is considerably higher than 32.4% among educators who used a condom at last sex with a regular partner.

Table 4.34: Frequency of condom use in the past year with regular partner by awareness of HIV status (all educators), South African educators, 2004

Variable	Percentage condom use with regular partner in the past year				
HIV Test	Every time	Almost every time	Sometimes	Never	Don't know
Know HIV status*	16.3	3.7	27.4	52.4	0.1
Don't know HIV status	16.6	3.5	24.8	55.0	0.1

*Note: * Educator got an HIV test result within the last three years*

Finally, the frequency of condom use in the past year with non-regular partners given knowledge of own HIV status was examined. Results showed that 59.4% of educators who knew their HIV status used a condom every time with a non-regular partner in the past year (Table 4.35). This again is significantly higher than 16.3% observed among educators who were in a similar position but had sex with a regular partner (Table 4.34). It is important to note the comparison just described is based on educators who knew their HIV status prior to being tested in this study. HIV test results were not given to participants in this study.

Table 4.35: Frequency of condom use in the past year with non-regular partner by awareness of HIV status (all educators) South African educators, 2004

Variable	Percentage condom use with non-regular partner in the past year				
HIV Test	Every time	Almost every time	Sometimes	Never	Don't know
Know HIV status*	59.4	6.5	15.3	18.4	0.5
Don't know HIV status	54.9	8.6	17.8	18.2	0.5
Variable	**Percentage condom use with non-regular partner in the past year (HIV-negative respondents)**				
HIV Test	Every time	Almost every time	Sometimes	Never	Don't know
Know HIV status*	56.9	6.2	16.1	20.0	0.8
Don't know HIV status	45.7	16.5	15.7	22.1	0.0
Variable	**Percentage condom use with non-regular partner in the past year (HIV-positive respondents)**				
HIV Test	Every time	Almost every time	Sometimes	Never	Don't know
Know HIV status*	64.2	7.1	11.6	17.1	0.0
Don't know HIV status	69.9	0.0	15.8	14.2	0.0

*Note: * Educator got an HIV test result within the last three years*

4.4.4 Consistent condom use

This study found that condom use was more consistent in casual relationships as compared to steady relationships. In casual or non-regular sexual relationships in the past 12 months, 55% reported consistent (every time) condom use with one non-regular partner and 66% with two or more non-regular partners; 22% had never used a condom with one non-regular partner and 7.5% with two or more non-regular sexual partners.

Of those who were in steady or regular sexual relationships in the past 12 months, 16% reported consistent (every time) condom use with one regular partner and 34% with two or more regular partners and 56% had never used a condom with one regular partner and 20% with two or more regular sexual partners (see Table 4.36).

Table 4.36 : Relationship status and consistency of condom use

	Count by number of partners	Consistency of condom use in past 12 months (percentage)[1]			
		Every time	Almost every time	Sometimes	Never
Regular partner[2]	0=1 002				
	1=15 234	15.9 (15.0–16.8)	3.3 (2.9–3.7)	24.9 (23.9–25.9)	55.9 (54.6–57.1)
	2 and more=548	33.6 (29.0–38.4)	9.1 (6.8–12.0)	37.1 (32.5–42.0)	20.3 (16.6–24.6)
Non–regular[3]	0=15 350				
	1=1 029	54.8 (51.1–58.4)	7.5 (5.7–9.9)	15.8 (13.2–18.9)	21.9 (18.8–25.3)
	2 and more=348	65.7 (58.8–72.0)	8.5 (5.8–12.2)	18.4 (14.1–23.7)	7.5 (4.8–11.4)

Notes:
1 Of the respondents who had had at least one partner
2 Of 16 897 who had sex in last year, 113 had an unknown number of partners, n = 16 784
3 Of 16 897 who had sex last year, 170 had an unknown number of partners, n = 16 727

Labelling stage variables

Consistent condom use with steady partners was associated with being HIV positive, having more sexual partners, personally knowing more people who had died of AIDS, a high HIV risk perception, having more knowledge about HIV/AIDS and recalling a condom message from the media. Factors not related to consistency of condom use with regular sexual partners were having attended life-skills training or HIV/AIDS education, having been diagnosed with an STI in the past three months and having ever been told HIV test results.

For those who had non-regular sexual partners, consistency of condom use was associated with more awareness of condom efficacy, having had more sexual partners in the past 12 months, ever been told HIV test results and having been diagnosed with an STI in the past three months. Factors not related to consistency of condom use with non-regular sexual partners were HIV/AIDS knowledge, HIV risk perception, having attended life-skills training or recalling an HIV/AIDS and condom message from the media.

Commitment stage variables

For both regular and non-regular sexual partners, more awareness of condom use efficacy, more condom use (HIV risk) self-efficacy, higher intentions to use condoms and less embarrassment to obtain condoms were significantly associated with consistent condom use in the past 12 months. This was the same for women in a steady sexual relationship. The use of an injectable contraceptive reduced consistent condom use. Condom use self-efficacy was higher among men (M=11.02) than women (M=10.8) but the difference was not significant.

Enactment stage variables

To be able to obtain male condoms without paying for them (public source) was significantly related to consistency of condom use for both regular and non-regular sexual

partners. Private availability of male condoms and availability of male condoms at the workplace (school) were associated with consistent condom use with regular but not with non-regular partners. Alcohol or drug use before last sex and high-risk drinking did not negatively influence condom use at last sex or condom use consistency with both regular and non-regular sexual partners.

Socio-demographic variables

Being African and being single were significantly associated with consistent condom use with both regular and non-regular sexual partners. More women than men were consistently using a condom with a regular sexual partner, while more men than women were consistently using a condom with non-regular sexual partners. Being in a junior position at school, low income, rural residence and less religious involvement of the educator were associated with more consistent condom use with a regular but not with a non-regular sexual partner.

Table 4.37: Consistent condom use by regular or steady partner and casual or non-regular partner in the past 12 months

	Steady partner			Casual partner		
	OR	95% CI	p	OR	95% CI	p
Labelling stage variables						
Knowledge of HIV/AIDS (15 items, range 0–15) (high vs. low)	1.2	1.1–1.4	0.001	ns[1]		
Number of sexual partners in past 12 months (1 vs. 2 or more)	1.9	1.6–2.3	<0.001	1.8	1.3–2.5	<0.001
HIV risk perception (3 items, range 3–17)	1.2	1.1–1.40	0.001	ns		
Cues to action						
Attended training on life skills education	ns			ns		
Attended training on HIV/AIDS education	ns			ns		
Condom message recalled best from media (out of 8 items)	1.1	1.0–1.3	0.09	ns		
Number of persons personally know who you think or know have died of AIDS in the past two years (<=3 vs. > 3)	1.4	1.2–1.6	<0.001	NA[2]		
Been diagnosed with an STI in past 3 months	ns			0.5	0.2–0.7	0.05
Had ever HIV test results told	ns			0.5	0.3–1.0	0.05
HIV status (positive)	2.4	2.0–2.7	<0.001	NA		
Commitment stage variables						
Efficacy of condom use (1 item)	2.5	1.7–3.7	<0.001	6.3	2.4–16.1	<0.001
Would take male condoms from a container for own personal use in full view of colleagues	2.3	2.0 – 2.6	<0.001	1.2	1.4 – 2.5	< 0.001

	Steady partner			Casual partner		
	OR	95% CI	p	OR	95% CI	p
HIV risk (condom use) self–efficacy (4 items, range from 4 –12) (<= 10 vs. 10+)	3.8	3.2 – 4.4	<0.001	4.0	2.9 – 5.5	< 0.001
Is using an injectable contraceptive, like Depo-provera	0.5	0.4–0.7	<0.001	NA		
Intentions to use condoms (1 item)	2.6	2.3 – 3.1	<0.001	1.6	1.1 – 2.4	0.01
Enactment stage variables						
Know of a place in area/community where can obtain male condoms privately without other people knowing	1.2	1.1 – 1.4	0.008	ns		
Know of a place in educational institution where can obtain male condoms	1.3	1.1 – 1.4	<0.001	ns		
Can obtain male condoms without having to pay for them	1.7	1.3 – 2.1	<0.001	2.8	1.4 – 5.8	0.004
Communication about sex and HIV/AIDS (5 items, range 5–15) (not calculated, was highly skewed)						
Alcohol or drug use before had sex last time	0.75	0.6 – 1.0	0.02	ns		
High–risk drinking (based on AUDIT)	0.7	0.5 – 0.8	0.001	ns		
Demographic and socio–economic variables						
Geolocality (rural)	1.3	1.1 – 1.6	0.002	NA		
Gender (female)	1.3	1.2 – 1.4	<0.001	0.6	0.4 – 0.8	<0.001
Race (black vs. non-black)	3.7	3.1 – 4.5	<0.001	2.3	1.5 – 3.5	<0.001
Position in school (senior vs. junior)	0.7	0.6 – 0.8	<0.001	ns		
Education (high vs. low)	ns			ns		
Income (med vs. low) (high vs. low)	0.8 0.6	0.7 – 0.9 0.4 – 0.8	0.007 < 0.001	ns		
Marital status (single/divorced/separated/ widowed vs. married)	4.7	4.2 – 5.3	<0.001	1.3	1.0 – 1.7	0.07
Religious involvement (2 items, scores range 2–9) hi vs. low	0.9	0.8 – 1.0	0.01	ns		

Notes:
1 always =1; almost every, sometimes, never, do not know = 0 (ns= not significant)
2 NA: the number in the cell was too small to calculate the OR

4.4.5 HIV/AIDS knowledge

Table 4.38 presents findings relating to knowledge of HIV among educators. The level of knowledge was high among both female and male educators although a few of the educators did not have accurate information or had gaps in knowledge. These areas include the mode of transmission such as through sneezing, anal sex, oral sex, and breast milk. A few educators lacked knowledge of ARVs.

The majority of respondents (94.7% males and 95.9% females) knew that HIV could not be transmitted through using eating utensils used by someone with AIDS. The majority of educators (males 96.5% and females 96.4%) did not believe that having sex with a virgin could cure HIV. However there were a small number of educators who believed this myth (1.9% males and 2.2% females). The respondents were also aware of behaviours that increase the risk of infection. For example, 97.6% males and 97.4% females knew that having multiple partners increases the risk of infection with HIV. On another risk-knowledge question, 90.2% of males and 90.7% females indicated that a woman could get HIV through having anal sex with an HIV-positive man. Around 8% of both male and female respondents did not know that HIV could be transmitted through anal sex with an HIV-positive person. The majority of respondents knew that a person could look healthy while they have HIV (males 95.5% males and 95.0%). They also knew that one could be protected from HIV by using condoms correctly every time (95.6% males and 95.7%). Respondents (males 98.6% and 98.7%) were aware that HIV could be transmitted through contact with infected blood.

Table 4.38: HIV/AIDS knowledge by sex, South African educators 2004

Variable	True	False	Don't know			
Sex	%	95% CI	%	95% CI	%	95% CI
A person can get HIV by using a cup or plate that has been used by a person with HIV/AIDS						
Male	3.1	2.6–3.7	94.7	94.0–95.4	2.2	1.8–2.6
Female	2.5	2.2–2.9	95.9	95.5–96.3	1.6	1.3–1.9
A person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV						
Male	3.5	2.9–4.1	93.2	92.3–93.9	3.4	2.9–4.0
Female	2.9	2.6–3 .3	92.5	91.9–93.0	4.6	4.2–5.1
Having sex with a virgin can cure HIV/AIDS						
Male	2.0	1.6–2.5	96.5	95.9–97.0	1.5	1.2–1.9
Female	2.2	1.9–2.6	96.5	96.0–96.9	1.3	1.1–1.5
Having sex with more than one partner can increase a person's chance of being infected with HIV and still look healthy						
Male	97.6	97.2– 98.1	1.9	1.6– 2.4	0.4	0.3–0.7
Female	97.5	97.1– 97.8	2.2	2.0–2.6	0.3	0.2–0.4
A person can be infected with HIV and still look healthy						
Male	95.6	94.9– 96.1	3.0	2.5– 3.5	1.5	1.2–1.8
Female	95.1	94.6– 95.5	3.1	2.7– 3.4	1.9	1.6–2.2
People can protect themselves from HIV by using a condom correctly every time they have sex						
Male	95.7	95.0– 96.3	2.5	2.1– 3.0	1.8	1.5–2.3
Female	95.7	95.3– 96.2	2.3	2.0– 2.7	2.0	1.7–2.2

Variable	True	False	Don't know			
Sex	%	95% CI	%	95% CI	%	95% CI
Coughing and sneezing do not spread HIV						
Male	74.7	73.2– 76.0	15.9	14.9– 17.1	9.41	8.6–10.3
Female	71.7	70.7– 72.7	17.7	16.9– 18.6	10.58	9.9–11.3
You can get HIV through contact with infected blood						
Male	98.7	98.3–98.9	0.9	0.7–1.2	0.5	0.3–0.7
Female	98.8	98.51–98.98	0.8	0.7–1.0	0.4	0.3–0.6
A woman can get HIV if she has anal sex with a man who is HIV positive						
Male	90.3	89.3–91.2	1.8	1.4–2.2	8.0	1.2–8.8
Female	90.8	90.2–91.3	1.4	1.2–1.7	7.8	7.3–8.4
A woman who has been raped has the right to receive immediate HIV-preventive treatment						
Male	97.6	97.0–98.1	0.6	0.5–0.9	1.8	1.33–2.3
Female	97.3	96.9–97.6	0.9	0.7–1.1	1.9	1.60–2.2
A person can get HIV from oral sex (mouth-to-penis or mouth-to-vagina)						
Male	72.4	71.0–73.8	11.2	10.3–12.2	16.4	15.2–17.6
Female	77.3	76.4–78.1	7.0	6.5–7.5	15.7	15.0–16.4
HIV can be transmitted from mother to child through breastfeeding						
Male	79.5	78.3–80.8	8.8	8.0–9.7	11.7	10.7–12.7
Female	84.9	84.1–85.6	6.3	5.8–6.8	8.9	8.3–9.5
Patients with TB also have HIV						
Male	17.19	16.0–18.5	70.8	69.3–72.2	12.1	11.1–13.0
Female	19.87	19.0–20.8	67.6	66.5–68.7	12.5	11.9–13.3
HIV-positive persons tend to get TB more easily						
Male	94.1	93.4–94.8	2.2	1.8–2.7	3.7	3.2–4.3
Female	94.8	94.3–95.2	1.4	1.2–1.6	3.8	3.5–4.3
Once one has started taking ARV treatment for HIV/AIDS one has to take it forever						
Male	83.8	82.6–84.9	2.8	2.4–3.3	13.4	12.4–14.5
Female	82.4	81.4–83.3	2.2	1.9–2.5	15.5	14.6–16.4

With regard to the spread of HIV, 15.9% males and 17.7% females believed that HIV could be spread through sneezing versus 74.6% males and 71.7% females who did not believe this; 9.4% males and 10.5% females indicated that they do not know if HIV can be spread by sneezing. On the question of HIV being transmitted through oral sex,

a few respondents said they did not know (16.3% males and 15.6% females). A small percentage responded false to this statement (11.1% males and 7.0% females) and 72.4% males and 77.3% females said it was true that HIV could be transmitted through oral sex. A small number of respondents did not know that HIV could be transmitted through breastfeeding (11.6% males and 8.8% females compared to 8.8% of males and 6.3% females who responded false to this question). There were more educators (79.5% males and 84.8% females) who knew about mother-to-child HIV transmission risk associated with breast milk.

Lastly in relation to ARVs, the majority (83.7% males and 82.3% females) knew that once one was on ARVs one would have to take them forever, compared to 2.8% males and 2.2% females who responded false. Compared to the group who responded false, the percentage of those who did not know was higher (13.4% males and 15.4% females).

4.4.6 Same-sex relationships

Same sex relationships among educators appear not to be very common. Only 4.6% (n=227) of men reported to have sex with men only (MSM) in contrast to 0.85% of women (n=79) who reported to have sex with women. An even smaller proportion of men and women reported to have sex with both men and women (0.9% and 0.7% respectively). HIV prevalence in these groups was assessed and no significant difference between MSM (14.4%) and non-MSM (12.7%) was found. Among females there were very large differences, 20.2% of women educators who had sex with other women were HIV positive, and yet the prevalence was 12.6% among those who had sex with men only. However, the numbers of females in this category are small, hence caution is warranted in interpreting these findings.

Table 4.39: Same-sex relationships and HIV prevalence among educators, South Africa 2004

	Male			Female		
	n	HIV Prev-alence %	95% CI	n	HIV Prev-alence %	95% CI
Sex with men only	227	4.64	(3.98–5.4)	10 690	98.6	(98.3–98.9)
Sex with females only	5 737	96.5	(95.87–97.03)	79	0.85	(0.66–1.1)
Bisexual	44	0.90	(0.62 1.3)	55	0.70	(0.5 1.0)
Sex with men only – yes	26	14.4	(9.8–20.8)	1 091	12.8	(11.9–13.8)
Sex with men only – no	457	12.7	(11.5–14.1)	12	14.7	(7.7–26.2)
Sex with females only – yes	558	12.8	(11.6–14.0)	10	20.2	(11.1–34.0)
Sex with females only – no	20	13.2	(8.1–20.9)	907	12.6	(11.7–13.6)
Both males and females – yes	4	11.0	(4.0–26.6)	7	14.8	(6.1–31.8)
Both males and females – no	473	12.8	(11.6–14.1)	906	12.7	(11.7–13.7)

4.4.7 Age mixing

One of the frequently cited drivers of the HIV/AIDS epidemics is age mixing, that is the phenomenon where older persons have sex with younger persons (UNAIDS 2000). In this study the size of the problem among South African educators was investigated. The overwhelming majority of educators had partners who were within ten years of their age. But when the analysis was done by sex of the respondent, 14.1% of the men had a partner who was ten years younger than themselves, while only 0.5% of women had partners who fell in the same age range, within ten years. These results suggested that more older men tend to have sex with much younger women.

Table 4.40: Extent of age mixing among South African educators and HIV prevalence, 2004

Sex	More than ten years older than oneself (percentage)	Age difference within ten years (percentage)	More than ten years younger than oneself (percentage)
Men			
Age mixing	0.2	85.7	14.1
HIV prevalence	9.7	12.4	16.5
Women			
Age mixing	4.7	94.8	0.6
HIV prevalence	8.9	12.3	8.5

An attempt was made to establish the HIV status of the men and women taking into account the phenomenon of age mixing. The idea was to determine if the HIV-positive older males tended to have female partners who were younger. Among male educators, those with partners who were more than ten years younger than themselves were more likely than those with partners who were within ten years of their age to be HIV positive (16.5% versus 12.4%). The situation among women educators was different. Women whose partners were more than ten years younger or older than themselves were more likely to be HIV positive than women who had partners who were within their same age range.

4.5 Residence, migration, mobility and HIV status

The aim of this section is to examine residence, migration and mobility as risk factors for HIV transmission among educators in South Africa.

This study collected background information on residence and mobility of educators to provide insight into understanding the link between residence, mobility and HIV status, Table 4.41 presents an overview of residence and mobility profile of educators by race, sex and other demographic variables.

Table 4.41: Residence, migration and mobility by race and sex and other demographic variables, South African educators, 2004

Variable	Characteristics							
	Race							
	African		White		Coloured		Indian	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Got post same area with closest family								
Same area	56.8	54.9–58.7	63.1	57.5–68.4	67.7	60.9–73.9	67.2	58.9–74.5
Move out	43.2	41.3–45.0	36.9	31.6–42.5	32.3	26.1–39.1	32.8	25.5–41.2
Was the post in								
City	10.3	9.1–11.6	60.2	53.9–66.3	36.3	29.5–43.7	42.9	33.8–52.6
Town	18.7	16.9–20.7	34.2	28.8–40.0	45.9	39.3–52.8	41.4	31.7–51.8
Village	12.2	11.0–13.4	2.8	1.4–5.3	4.4	2.9–6.8	6.7	3.1–13.9
Rural area	58.8	56.1–61.4	2.8	1.6–4.7	13.3	9.3–18.6	8.9	5.1–15.3
When you moved were you								
Married	22.3	20.9–23.7	15.6	12.2–19.7	18.6	14.5–23.9	36.7	28.4–45.9
Engaged	3.0	2.5–3.6	8.7	6.1–12.3	4.6	2.8–7.4	8.3	4.9–13.5
Single	74.7	73.2–76.2	75.7	70.5–80.2	76.8	70.9–81.7	54.9	46.4–63.3
In past ten years were you deployed								
Yes	22.7	21.3–24.2	14.5	10.9–19.0	24.1	19.2–29.8	23.1	16.5–31.4
No	77.3	75.8–78.7	85.5	80.9–89.2	75.9	70.2–80.8	76.9	68.6–83.5
Times in past ten years moved to other areas								
0	52.1	50.5–53.7	61.8	58.7–64.8	69.6	65.6–73.3	57.4	51.7–62.9
1	29.8	28.5–31.2	19.6	17.6–21.8	17.5	14.8–20.7	24.3	19.8–29.4
2	9.6	8.9–10.3	9.7	8.3–11.4	6.7	5.5–8.1	9.7	7.00–13.3
3	5.7	5.2–6.3	5.3	4.2–6.6	3.1	2.4–4.2	3.9	2.6–5.9
In one move since 1994, did member of family move with you								
Moved with	36.2	33.8–38.7	65.2	58.1–71.8	50.8	44.2–57.4	49.4	38.0–60.8
Stayed behind	41.5	39.2–43.8	11.8	8.4–16.3	25.1	20.9–29.8	25.7	18.9–34.0
No family	22.3	20.5–24.2	23.0	17.0–30.3	24.1	18.7–30.4	24.9	16.9–35.1
In most recent move, did member of family move with you								
Moved with	40.6	36.3–45.0	74.7	66.7–81.3	44.8	34.6–55.5	46.2	29.6–63.7
Stayed behind	50.3	45.9–54.8	11.2	6.9–17.8	33.3	25.3–42.3	39.7	24.1–57.7
No family	9.1	7.0–11.7	14.1	8.8–21.8	21.9	15.2–30.6	14.1	5.1–33.5

The table indicates that African educators were more likely (43%) than other race groups (less than 40%) to move to another area to take up first posting after initial training, and in general, male educators were more likely (46%) to do so than female educators (40%). African educators (67%) were more likely to be posted to a village or rural area than educators from other race groups (7–26%). Also male educators were more likely (60%) to be posted to a village or rural area than female educators (57%).

While over three-quarters of African, white and coloured educators were single at the beginning of their teaching career in a new environment, in contrast, slightly more than half (58%) of Indian/Asian educators were single at the beginning of their teaching career in a new environment. Single educators, at the beginning of their teaching career, in a new environment, are predominantly males (84%) – only 12% of male educators were married at the time compared to 27% of female educators.

Although nearly similar proportions of African, coloured, and Indian/Asian educators were redeployed in the past ten years to work in an area away from their family, African educators were more likely to be frequently redeployed away from their family in the last ten years. As seen in the table, this was the case for 48% of African educators, compared with 30% of coloured educators. In general, male educators were more likely to be redeployed more frequently than female educators – about 47% of male educators were redeployed at least once in the past ten years compared with 42% of female educators.

Of educators who moved since 1994, African educators were more likely to leave their family behind compared to white and coloured educators – of those who moved at least three times, nearly one-half (49%) of African educators left their family behind; in contrast, less than 40% of educators from other race groups who moved at least three times left their family behind. Male educators were more likely to leave their family behind when they moved than female educators – of male educators who moved since 1994, 40% left their family behind whereas the corresponding proportion for females was 35%.

Residence and HIV status

In this study educators residing in rural areas and those working in rural schools were found to have significantly higher HIV prevalence than educators residing in urban areas and teaching in urban schools. Educators whose residence was further than 10km away from home also had a slightly higher HIV prevalence rate than educators who travelled less than 10km to their school (see Table 4.42) but the differences were not significant.

Table 4.42: Residence and HIV status, South African educators, 2004

	HIV positive		
	n	Percentage	95% CI
Geolocality of residence			
Urban	933	9.7	8.9–10.6
Rural	1 111	16.9	15.8–18.0
Geolocality of school			
Urban formal	421	6.3	5.4–7.4
Urban informal	155	13.9	11.5–16.6
Rural	1 464	16.8	15.8–17.8
Distance from residence to school			
Near (within 10km)	1 130	12.2	11.3–13.1
Far (more than 10km)	917	13.5	12.5–14.6

The large difference in HIV prevalence between urban (10%) and rural (17%) residence can largely be explained by racial differences in HIV prevalence (of African educators 16.3% were HIV positive and other racial groups it was less than 1%) and in residence, that is, African educators lived predominantly in rural areas as compared to the other racial groups. Nine out of ten (92.3%) African educators resided in rural areas, while only 3.8% of coloured, 3.1% white and 0.9% Asian educators lived in rural areas. In addition, the highest HIV prevalence was in the age group between 25 to 34 years (21.4%), and this age group also had a higher representation in the rural areas (33.2%) as compared to urban areas (28%).

Migration

Most educators (93%) completed their education before 1994 (range 1943–1993). For those who completed their education prior to 1994, most (58.1%) got a post in the area where their closest family was located, and fewer (41.9%) moved to another area to take up their first posting.

Table 4.43 presents details of the relationship between migration and HIV. Migration after completion of training prior to 1994 was significantly associated with high HIV prevalence. Migration after completion of training, in particular to a rural area, was associated with higher HIV prevalence than taking up a post in the same area as the closest family. Being married or engaged at the completion of training and in subsequent moves was associated with lower HIV prevalence than being single or having the family staying behind when moving. The number of moves did not make any difference in terms of being HIV positive. Transfers or redeployment were not associated with higher HIV prevalence amongst the educators.

Table 4.43: Migration and HIV status, South African educators 2004

	HIV positive		
	n	Percentage	95% CI
Migration after completion of training prior to 1994			
Yes	464	23.5	21.4–25.8
No	547	18.9	17.3–20.6
Migration after completion of training after 1994			
To urban area	276	13.4	11.7–15.4
To rural area	739	25.3	23.6–27.1
Marital status at beginning of teaching career			
Married or engaged	178	13.9	11.9–16.1
Single	832	23.3	21.7–24.9
In first move since 1994			
Family moved with me	102	10.4	8.4–12.8
Family stayed behind	161	15.2	12.8–17.8
No family on one's own at the time	93	15.2	12.3–18.7
In second move since 1994			
Family moved with me	30	6.6	4.5–9.8
Family stayed behind	95	15.6	12.7–19.2
No family on one's own at the time	32	10.7	7.5–15.0
In third move since 1994			
Family moved with me	36	6.5	4.6–9.1
Family stayed behind	79	15.4	12.2–19.2
No family on one's own at the time	19	11.5	7.4–17.6
In most recent move since 1994			
Family moved with me	17	4.5	2.3–7.5
Family stayed behind	43	12.9	9.4–17.5
No family on one's own at the time	11	10.7	5.6–19.5
Transferred or redeployed in past ten years			
Yes	217	21.4	18.7–24.4
No	759	20.8	19.3–22.5

	HIV positive		
	n	Percentage	95% CI
Number of times moved in past ten years			
0	1 247	12.9	12.1–13.8
1	375	13.3	11.8–14.8
2	117	11.3	9.3–13.7
3	56	10.2	7.7–13.4
4 and more	35	9.8	6.9–13.6

Mobility and HIV status

Table 4.44 presents findings on temporary absences from home and HIV status. Having stayed away from home for more than one month altogether in the past 12 months was significantly associated with HIV. The more frequent nights stayed away from home per week were significantly associated with HIV status (see Table 4.44). Those who always slept at home had the lowest HIV prevalence (8.6%), whilst those who stayed away one to two nights per week had a significantly higher HIV prevalence (16.5%), and an even higher prevalence was indicated for those who stayed away from home much longer (six or more nights per week, 27.6%). These results clearly suggest that mobility was strongly associated with increased risk of HIV among educators.

Table 4.44: Mobility and HIV status

	HIV positive		
	n	Percentage	95% CI
In past 12 months been away from home for more than one month			
Yes	328	17.8	15.8–20.0
No	1 710	12.1	11.4–12.9
Number of nights per week usually stay away from home			
None	203	8.6	7.2–10.4
1–2 nights	77	16.5	12.8–21.0
3–4 nights	87	16.7	13.5–20.5
5 nights	122	20.5	19.9–24.7
6 and more nights	107	27.6	23.0–32.7

Logistic regression analyses between HIV status and socio-behavioural variables

Multiple logistic regression analysis was conducted between socio-economic status variables, sexual behaviour and HIV status (see Table 4.45). The purpose of this analysis was to determine whether the relationship among socio-demographic variables and HIV was not confounded by sexual behaviour. Earlier, it was observed that the HIV prevalence among males and females was 12.7% and 12.7% respectively, and that the relationship

was confounded by age and race. However, when both age and race were included in the logistic regression model, the results showed that there was no significant association between HIV status and sex of the respondent (p-value = 0.649).

Table 4.45: Logistic regression between socio-economic status, sexual behaviour and HIV status

	OR	Std.Err.	p	95% CI
Female (vs. male)	1.07	0.16	0.649	0.8–1.4
African (vs. non–African)	33.97	22.06	0.000	9.5–121.6
18–24 yrs	0.40	0.41	0.373	0.1–3.0
25–35 yrs	4.55	1.61	0.000	2.3–9.1
36–49 yrs[1]	3.20	1.09	0.001	1.6–6.2
Single (vs. married)	2.74	0.35	0.000	2.1–3.5
Mobility (nights away weekly)	1.06	0.03	0.020	1.0–1.1
Urban informal (school)	1.28	0.37	0.396	0.7–2.2
Rural (school)[2]	1.47	0.23	0.016	1.1–2.0
Income (below R 60 000/annum)	1.42	0.21	0.017	1.1–1.9
No. of sexual partners in past 12 months	0.94	0.16	0.701	0.7–1.3
HIV/AIDS stigma	1.05	0.05	0.286	1.0–1.1
Chronic illness diagnosed in past 5 years	1.02	0.02	0.274	1.0–1.1

Notes:
1 Reference category '50 years and above'
2 Reference category 'urban formal'

In a bivariate analysis, the results had shown that HIV was much more prevalent among Africans than in other race groups. The results of the logistic regression analysis further confirms the bivariate results; Africans were more likely than other races to be HIV positive (OR=34).

Educators aged 25–35 years were 4.5 times more likely to be HIV positive than those that were 50 years and older, while those aged 36–49 were 3.2 times more likely than those 50 years and older to be HIV positive. These results indicate that age was significantly independently associated with HIV status.

Bivariate analysis indicated that single educators had higher HIV prevalence than married educators. When other socio-economic and demographic variables as well as sexual behaviour were statistically controlled for, the results showed that marital status was still significantly associated with HIV. Based on the regression analysis, single people were 2.7 times more likely to be HIV positive than married people.

While the bivariate analysis showed that being away from home for more nights was strongly associated with high HIV status, when controlling for sexual behaviour,

demographics and socio-economic factors, the relationship between mobility and HIV diminished, but still remained statistically significant.

Educators earning less that R60 000 per annum were 1.4 times as likely as those earning more to be HIV positive.

Further analysis suggests that health status, HIV/AIDS stigma and number of sexual partners in the past 12 months were not independently related to HIV infection. They were moderated by other variables within the model.

4.6 Alcohol use among South African educators

The aim of this part of the study was to identify the prevalence and impact of alcohol use amongst public educators in South Africa.

In this study the term 'low-risk alcohol use' is used to refer to drinking that is within legal and medical guidelines and is not likely to result in alcohol-related problems. 'High-risk or misuse' of alcohol is a general term for any level of risk, ranging from hazardous or harmful drinking to alcohol dependence. 'Harmful use' is defined as a pattern of drinking that is already causing damage to health. The damage may be either physical (for example, liver damage from chronic drinking) or mental (for example, depressive episodes secondary to drinking) (Babor, Caetano, Casswell, Edwards, Giesbrecht, Graham et al. 2003).

4.6.1 Alcohol use by sex, race, age and marital status

It was found that three-quarters of public educators (75%) reported that they had abstained from alcohol in the past 12 months. Twenty per cent of the educators were low-risk drinkers, and 5.3% high risk-drinkers using the AUDIT scores (high-risk was defined as 8 and more scores on the AUDIT). Male educators (15%) were significantly more likely than female educators (0.7%) to be higher risk. Across different races, women were low-risk drinkers (below 2%).

The following statistics were therefore calculated for men only.

Of all racial groupings, male coloured educators (18%) and male African educators (16%) reported the highest levels of high-risk alcohol use. White male educators were most frequently low-risk drinkers (71%) as compared to male educators in all other racial groups (see Table 4.46). Those male educators aged 25–44 years, reported the highest levels of high-risk drinking (15.9–16.4%) as compared to 45–54 year-olds (12.5%). The prevalence of high-risk drinking was similar between married or co-habiting and single or separated or divorced or widowed male public educators (14.7 and 15.9% respectively).

Table 4.46:Alcohol use by South African educators in public schools by sex and race, 2004

	Abstainers (0)			Low–risk drinkers (1–7)			High–risk drinkers (8 and above)		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Total	14 315	74.8	73.6–75.9	4 798	20.0	18.8–21.1	1 190	5.3	4.9–5.73
Sex									
Men	3 120	53.6	51.9–55.3	2 217	31.4	29.9–33.0	1 069	15.0	13.9–16.2
Women	11 097	84.9	83.5–86.1	2 573	14.5	13.2–15.8	120	0.7	0.6–0.9
Race									
African men	2 571	57.2	55.3–59.1	1 288	26.9	25.3–28.5	807	15.9	14.6–17.3
White men	122	21.9	17.8–26.8	445	71.9	66.7–76.6	35	6.2	4.2–8.9
Coloured men	379	42.3	37.5–47.2	397	39.8	35.4–44.4	208	17.9	15.1–21.1
Asian men	124	55.5	46.6–64.1	82	38.0	30.1–45.8	16	6.5	3.8–10.9

4.6.2 Alcohol use of male educators by socio-economic status

Male educators in secondary schools had lower levels of high-risk drinking (14.2%) than educators in primary schools (15.9%) and combined schools (16.9%). Educators teaching in schools located in urban formal areas (15.5%), and in particular informal urban areas (23.1%), had higher high-risk drinking levels than educators teaching in schools located in non-urban or rural areas (13.7%).

Low-risk drinking increased with higher levels of income, qualification and economic household situation, while high-risk drinking increased with lower income and lower qualifications (Table 4.47).

Table 4.47:Alcohol use of male educators by socio-economic status, South Africa 2004

	Low-risk drinkers (1-7)			High-risk drinkers (8 and above)		
	n	%	95% CI	n	%	95% CI
Annual income						
High	241	37.4	32.9–42.2	49	7.5	5.5–10.1
Medium	1 752	31.5	29.8–33.2	869	15.5	14.2–16.8
Low	211	26.8	23.4–30.5	151	17.6	14.8–20.9

	Low-risk drinkers (1-7)			High-risk drinkers (8 and above)		
	n	%	95% CI	n	%	95% CI
Highest qualification						
First degree	1 285	33.6	31.4–35.8	464	12.0	10.7–13.5
Diplomas	813	29.6	27.4–31.8	515	18.1	16.3–20.0
Up to Grade 12	116	25.5	21.2–30.3	88	19.9	15.9–24.5
Economic household situation						
Some money for extra things	170	39.5	33.6–45.7	52	12.6	9.0–17.4
Have most of the things	934	35.7	33.1–38.4	394	14.4	12.8–16.2
Have money for food and clothes	1 006	29.0	27.1–31.0	563	16.1	14.5–17.7
Not enough money for basics	96	22.5	18.2–27.6	59	12.0	9.2–15.7

4.6.3 High-risk alcohol use of male educators by province

The percentage of high-risk drinkers among male educators was above 20% in five provinces (Northern Cape: 24%; Free State: 21%; North-West: 21%, Mpumalanga: 21%, and Gauteng: 20%) and much lower in the Eastern Cape (8%) and KwaZulu-Natal (12%).

Table 4.48: High-risk drinking among male educators per province, South Africa 2004

	High-risk drinkers (8 and above)		
Province	n	%	95% CI
WC	129	13.9	11.2–17.0
EC	56	7.5	5.3–10.3
NC	90	23.9	19.0–29.6
FS	102	21.1	17.5–25.3
KZN	151	11.6	9.6–14.0
NW	121	21.0	17.7–25.3
GT	181	20.4	9.6–14.0
MP	97	20.5	17.7–24.7
LP	142	15.4	16.7–24.7
Total	1 069	15.0	13.9-16.2

It was not possible to analyse high-risk drinking by district because of the small number of educators falling within this group.

4.6.4 Alcohol use and health-related quality of life, absenteeism from work and HIV status among male educators

It is crucial to examine alcohol use and its relation to quality of life. The rationale is that high-risk drinking may influence the health status of educators, which has an impact on quality of education. Compared with educators who are non-drinkers or low-risk drinkers, high-risk drinkers reported higher numbers of unhealthy days in the past month (Table 4.49).

Table 4.49: Alcohol use of male educators by unhealthy days, South Africa 2004

Characteristic	Mean unhealthy days in past month	Std. error	95% CI	Deff
High–risk drinking	5.30	0.05	3.6–7.1	1.23
Low–risk drinking	1.79	0.10	1.6–1.9	1.21
Abstinent	1.36	0.89	1.3–1.5	1.90

The next level of analysis was designed to assess the relationship between alcohol use and absenteeism. The aim was to assess whether alcohol increased the chances of educators to be absent from school. High-risk drinkers had more days absent from work in 2003 than non-drinkers or low-risk drinkers (see Table 4.50), suggesting that heavy alcohol use contributed to absenteeism from schools.

Table 4.50: Alcohol use and self-rated absenteeism from work in 2003

Self-rated number of days absent from work in 2003[1]	Abstinent			Low-risk drinkers			High-risk drinkers		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
0–4 days	1 782	56.9	54.7–59.1	1 229	32.1	30.1–34.3	404	10.9	10.0–12.2
5–19	1 179	49.5	47.1–52.0	826	31.8	29.5–34.2	543	18.7	16.9–20.6
20 and more days	122	51.9	42.9–60.9	82	24.4	18.6–31.3	71	23.7	17.9–30.6

1 Absenteeism was calculated by the total number of working days (full days and half-days added together) absent in 2003

The data was then examined to see if there was an association between alcohol or drug use and HIV status before having had sexual intercourse the last time. Having had alcohol or drugs before last sex was significantly associated with being HIV positive, in particular among men (see Table 4.51).

Table 4.51: Alcohol or drug use before last sex and HIV status

	Drink alcohol or use drugs before last sex					
	HIV positive			HIV negative		
	n	%	95% CI	n	%	95% CI
Total						
Yes	108	18.5	15.2–22.4	652	81.5	77.7–84.8
No	1 575	12.3	11.9–13.6	11 619	87.3	86.4–88.2
Men						
Yes	95	20.1	16.9–25.3	429	79.2	74.7–83.1
No	489	12.1	10.9–13.4	3 911	87.9	86.6–89

4.7 TB prevalence

TB is spread through the air when a person with contagious TB coughs, sneezes, laughs, and so on, which releases TB bacteria in the air. It remains in the air for hours and can be transmitted when the person inhales the bacteria. Most people infected with TB bacteria develop a latent form of TB infection, which seldom develops into active TB. The World Health Organization (WHO) estimates that each person with active TB disease will infect on average between 10–15 people every year (WHO 2004). HIV infection increases the risk of reactivation of latent TB infection. However, about half of TB cases in endemic settings are attributable to recent TB transmissions – irrespective of the HIV status (Corbett, Steketee, ter Kuile, Latif, Kamali & Hayes 2002).

A study on knowledge of transmission of AIDS and TB found that causes and transmission were not understood and that there were misconceptions of how TB is transmitted. Commonly found misconceptions included beliefs that TB can be transmitted through eating together, sharing plates and other objects or having sex (Wijngaarden & Fletcher 2001). TB cannot be spread by hugging or sharing utensils with someone who has TB and infections through breaks in the skin is extremely rare.

The objective of TB testing was to determine the proportion of public educators who had active TB, and to examine the impact of TB on absenteeism and attrition of public educators. All study participants were questioned on previous TB treatment, contact with existing TB patients, current TB signs and symptoms, and perceptions about TB transmission and disease.

4.7.1. Method

Sputum investigation is the standard method of TB case finding and diagnosis, as there are no reliable blood tests available. Sputum collection from healthy individuals was considered problematic and usually requires induction of a cough, produced after inhalation of mobilised fluids that are subsequently expelled as sputum. A decision was

taken to use a procedure considered appropriate by the South African MRC. The MRC has developed a simplified and safe procedure to collect sputum specimens from non-symptomatic individuals; it was used extensively in household TB prevalence surveys (Gatner, Gartig & Kleeberg 1977). This method employs inhalation of a sterile 15% saline solution that induces a cough and enables sputum to be collected. The mobilised saline inhalation technique has proved to be a safe and effective method of inducing sputum and was used extensively by the MRC in several TB prevalence surveys carried out in Southern Africa between 1977 and 1990. It is currently also used by the MRC in TB health-monitoring programmes for staff and students. Cost implications however, precluded the use of this method. In addition, every person diagnosed with TB would have had to be informed and referred for treatment. This would mean that participants would also have to be informed of their HIV status. The cost of doing VCT for both TB and HIV would have been prohibitive given the sample size used in the study.

Because of this, a simpler self-reported measure was selected, giving an indication of previous diagnosis of TB within the last five years, diagnosis within the last year and on treatment, and having a cough that lasted more than two weeks.

4.7.2 Results

The results showed that of the 19 843 persons who responded to this question 0.92% (95% CI:0.8, 1.1) educators reported to have been diagnosed to have TB in the last five years. The study also found that 3.24% (95% CI:3.0, 3.6) of educators experienced a cough that lasted for more than two weeks, an indication that they might have TB. However, this may overestimate the proportion of people with TB because a small percentage actually received treatment for TB; the study found that 0.5% (95% CI:0.4, 0.7) of the public educators were on treatment for TB within the previous year.

Below are findings comparing the perceptions of HIV-positive and HIV-negative educators about TB.

Knowing someone with TB

In relation to TB the study found that about 66.9% of both male and female participants knew someone personally who had TB and 10.5% of educators had been in contact with someone who had TB. When an analysis on knowing someone with TB was conducted by sex there were no significant differences. There were slightly more males compared to females who knew someone with TB. When race groups were compared the results showed that African (70.2%) and coloured educators (71.9%) were more likely to report knowing someone who had TB compared to the other race groups. Only 41.5% of white educators reported knowing someone with TB.

When HIV status was taken into consideration the result showed that HIV-positive males (75%) were more likely than HIV-negative males (69.6%) to know someone with TB ($p<.01$). Among females there were no significant differences. Analysis by race did not show any significant differences within each race group.

Hugging someone with TB

To determine if educators would interact with someone with TB several questions were posed on the level of interaction that respondents would be prepared to engage in with someone with TB. The results showed that the majority (78.4%) of participants said that they would hug someone with TB. There was no significant difference between males and female (p=0.3). When participants were compared by race it was evident that the coloured educators (84.3%) were more likely to respond positively to this question, followed by the African teachers (79.9%). In this case it was observed that the race groups who indicated higher exposure to people with TB (coloured and African educators) also indicated willingness to have contact such as a hug with someone with TB. The results were similar for males and females regardless of HIV status.

Kissing someone with TB

The majority of educators (69.4%) were not willing to kiss someone with TB. Analysis by sex of respondent showed that slightly more males (72.1%) compared to females (68.2%) responded negatively to this question. Analysis by race group showed that Asian (79.2%) and white educators (76.0%) were more likely than other races (69 % among Africans) not to kiss someone with TB, indicating that social distance is important in determining interaction with someone with TB. Analysis by HIV status revealed similar results in that, regardless of HIV status, the majority of female participants (68.4%) as an example indicated that they would not kiss someone with TB. Only a small proportion of female participants (22.9%) indicated that they would kiss someone with TB; among those who were HIV-negative the percentage was 22.9% and among those HIV-positive it was 22.8%.

Having sex with someone who has TB

With regard to having sex with someone who has TB the study found that over 60% of participants indicated that they would not have sex with someone with TB. A minority of participants (27.8%) both male and female indicated that they would have sex with someone with TB. When data from males and females was analysed the results showed that 28.8% males compared to 27.3% females would have sex with someone who has TB. There were no differences in the proportion of educators willing to have sex with TB person regardless of sex or race the respondent.

Sharing meals with someone who has TB

With respect to whether the educators were willing to share meals with someone with TB, there were no significant differences among HIV-negative and HIV-positive educators (p=0.34). Forty-five percent (45.3%) of participants, both males and females, said they would share a meal. Analysis by race showed very slight difference among race groups. The highest number was among coloured educators (55.9%) who said they would share a meal compared to other race groups where the figures were between 40% and 45%. Among the groups that said they were not willing to share a meal, the group with the highest number of no answers were Asian (54.0%), white (50.7%) followed by African educators (49.7%). There were no significant differences in the proportion of educators willing to share a meal with a person with TB. This was true whether the data was analysed by sex or race of the respondent.

The limitation of questions asked to measure social distance towards TB contact is that they do not differentiate between active and latent TB. Although HIV infection greatly increases the risk of reactivation of latent TB infection, about half of TB cases in endemic settings are attributable to recent TB transmissions – irrespective of the HIV status (Corbett et al. 2004). Nevertheless, it was important to assess the perceptions of educators on the spread of TB. Overall, there was little stigma associated with TB. Educators were more than willing to hug someone with TB, eat with the person, but the majority were reluctant to kiss or to have sex with someone with TB.

4.8 Sexually transmitted infections and HIV

A total of 224 (1.3%) educators out of a total of 16 917 respondents to the STI questions admitted to having being diagnosed with an STI in the last three months and the same percentage noticed sores or ulcers on their genitalia in the last three months. Genital warts were reported by 69 (0.4%) out of 16 870 people that responded to this question. Of the 5 293 men who responded to the question about whether they had an abnormal discharge from their penises in the last three months, 58 (1.1%) admitted to such symptoms. The association between STIs and HIV infection among educators is shown in Table 4.52. It clearly shows that a person with an STI is approximately twice as likely to be HIV positive compared to educators who do not report STI symptoms.

Table 4.52: Prevalence of HIV by self-reported history of having a sexually transmitted infection

STI symptoms	Percentage HIV positive	95% CI
Diagnosed with an STI in the last three months	23.1	17.5–29.9
Not diagnosed with an STI in the last three months	12.7	12.0–13.4
Sores/ulcers on genitals in the last three months	27.5	21.6–34.4
No sores/ulcers on genitals in the last three months	12.7	12.0–13.4
Abnormal penile discharge in the last three months	28.7	17.0–44.1
No abnormal penile discharge in the last three months	12.6	11.5–13.8
Genital warts	23.5	14.7–35.5
No genital warts	12.7	12.0–13.5

The reported prevalence of STIs in this study is low and lower than what was reported in the Mandela/HSRC Study of HIV/AIDS (2002). However, the absolute levels must be interpreted with caution because of 'acceptability reporting' bias that makes people tend

to underreport STIs. Of more interest is the relationship between STIs and HIV, which is unlikely to be affected by underreporting bias.

Since the beginning of the HIV/AIDS epidemic there has been a substantial and growing body of evidence of the strong relationship between STIs and HIV infection. Because HIV is itself an STI, acquisition of HIV obviously shares many of the same risk factors as any other STI (for example, lack of condom use, multiple partners, and so on) and hence it is not surprising that someone with an STI is also more likely to have HIV than a person who does not have an STI.

However, the relationship is stronger than simply sharing risk factors because the presence of an STI increases the risk of transmitting and acquiring HIV. Ulcers or sores on the genitalia act as portals of entry and exit for HIV and even genital discharge diseases increase the probability of transmission of HIV because the inflammation of the genital tract promotes viral shedding. There is also evidence that a person who is HIV infected and has an STI such as genital herpes, will suffer more severe and more frequent outbreaks of genital ulcers.

4.9 Health status of South African educators

One of the research questions involved determining reasons for attrition, including as a result of illness. Surprisingly, 10.6% of public educators reported to have been hospitalised over the previous 12 months, implying that at least this number were absent from school due to illness.

Educators were found to have visited health practitioners very frequently, with 59.8% having been to a health practitioner the previous five months or less, 15.8% in the previous six months, suggesting that 75% of educators had seen a healthcare practitioner within the last six months.

A self-reported measure was used to estimate the size of the population of educators who suffered from chronic conditions that may affect their health and may contribute to absenteeism. High rates of high blood pressure (15.6%), stomach ulcer (9.1%), arthritis (6.6%) and diabetes (4.5%) were reported. The prevalence of self-reported high blood pressure and diabetes among educators seemed higher (blood pressure: 15.6% and diabetes: 4.5%) than among the general population (which included 65 years and older) (blood pressure: 13.3% and diabetes: 3.1%) from the Demographic and Health Survey in 1998 (MRC 1998) (see Table 4.53).

Table 4.53: Size of population of educators suffering from chronic conditions that may affect health and may contribute to absenteeism

Diagnosed with the disease in the previous five years	Estimate (percentage)	95% CI
Diabetes	4.5	4.2–4.9
Cancer	0.8	0.6–0.9
Asthma	3.5	3.3–3.9
High blood pressure	15.6	15.0–16.3
Heart disease	2.0	1.8–2.2
Arthritis	6.6	6.2–7.0
Lung or breathing problems	2.9	2.7–3.2
Anaemia	3.7	3.3–4.0
Stomach ulcer	9.1	8.6–9.6
Cataracts	1.3	1.1–1.5

4.9.1 Educator health-related productivity

A recent expert panel recommended absenteeism, presenteeism, and employee turnover/replacement costs as key elements of workplace health-related productivity measurement (Loeppke, Hymel, Lofland, Pizzi, Konicki, Anstadt, Baase, Fortuna, Scharf 2003). In this study absenteeism was measured with two items: (1) self-reported absenteeism (full days) in the past 12 months; and (2) self-reported attendance interruptions (half days absent from work) in the past 12 months. Both items were added together to get a summative days of absence from work score. Because the distribution of the number of days absent was skew, the score was dichotomised into ten days or less and over ten days.

To measure presenteeism the two items of 'unhealthy days' from the CDC Health-Related Quality of Life (HRQOL-4) measure were used, namely the number of days during the previous 30 days in which the respondent's physical or mental health was not good. The sum of these two measures results in the total number of 'unhealthy days' (ranging from 0 to 30 days) (CDC 2000). A large amount of absenteeism would be attributable to the educators rating their physical or mental health as not good.

Health-related productivity and health status

All chronic conditions including being HIV positive, tobacco use and high-risk drinking were associated with higher rates of self-rated absenteeism. The proportion of educators missing over ten days was highest among those who had been diagnosed with TB in the past five years (30.2% 95% CI: 23–38), high-risk drinking (25.6% 95% CI: 23–29), lung or breathing problem (23.6% 95% CI:20–28), heart disease (22.5% 95% CI: 18–28), diabetes (20.2% 95% CI: 17–24), cancer (19.6% 95% CI:14–27), and anaemia (19.3% 95% CI: 16–23). Among HIV-positive educators, 17.1% (95% CI: 15.4–19) reported missing over ten days compared to 13.8% (95% CI: 13–14.6) of HIV-negative educators. The burden of

absenteeism in the educator labour force (measured in total days absent) was highest due to high blood pressure, followed by use of tobacco, being HIV positive, stomach ulcer, arthritis or rheumatism and high-risk drinking. The pattern was similar for unhealthy days (see Table 4.54).

Table 4.54: Absenteeism and presenteeism (unhealthy days) by eight common chronic illnesses (seven self-reported illnesses and HIV status) and substance use, 2003

Characteristic		Count	Educators absent >10 days (%)	95% CI	Educators with >5 unhealthy days (%)	95% CI
HIV status	Positive	2 007	17.1	15.3–19.0	12.2	10.8–13.8
	Negative	14 714	13.8	13.0–14.6	13.6	12.8–14.3
Diabetes (diagnosed in past 5 years)	Yes	903	20.3	17.0– 24.1	20.9	17.9–24.4
	No	18 868	13.4	12.7–14.1	12.5	11.9–13.1
Cancer	Yes	148	19.6	13.7–27.2	24.9	17.7–33.9
	No	19 527	13.6	12.9–14.3	12.7	12.1–13.4
TB	Yes	175	30.2	23.2–38.3	25.0	18.9–32.3
	No	19 477	13.5	12.8–14.2	12.7	12.1–13.4
High blood pressure	Yes	3 324	16.0	14.5–17.5	19.1	17.6–20.8
	No	16 487	13.3	12.6–14.1	11.8	11.2–12.5
Heart disease	Yes	418	22.5	18.0–27.9	28.6	23.8–34.0
	No	19 208	13.5	12.8–14.2	12.5	11.9–13.2
Arthritis or rheumatism	Yes	1 314	16.8	14.4–19.4	24.8	22.1–27.7
	No	18 332	13.4	12.7–14.1	12.0	11.4–12.7
Asthma	Yes	733	19.0	15.8–22.7	23.3	19.9–27.0
	No	18 925	13.5	12.8–14.2	12.5	11.9–13.2
Lung or breathing problems	Yes	601	23.6	19.8–27.4	33.9	29.7–38.4
	No	19 016	13.4	12.7–14.1	12.3	11.7–12.9
Stomach ulcer	Yes	1 806	18.8	16.7–21.0	23.8	21.7–26.1
	No	17 850	13.2	12.4–13.9	11.8	11.2–12.5
Cataracts	Yes	251	18.5	13.6–24.5	27.7	21.1–35.5
	No	19 282	13.6	12.9–14.3	12.7	12.0–13.3
Anaemia	Yes	724	19.3	16.1–22.9	28.5	25.1–32.2
	No	18 891	13.5	12.8–14.2	12.3	11.7–12.9
High–risk drinking	Yes	1 176	25.6	22.7 – 28.7	17.9	15.4– 20.7
	No	18 710	13.1	12.5 – 13.9	12.7	12.1–13.4
Current tobacco user	Yes	2 529	17.1	15.4–19.0	17.1	15.5–18.8
	No	16 202	13.3	12.6–14.1	12.5	11.8–13.1

Health-related productivity and work-related variables (workplace morale, intention to quit, job satisfaction, and job stress)

Low morale at the educational institution, intention to quit teaching, low job satisfaction and high job stress were significantly associated with higher number of self-rated absenteeism and decreased presenteeism (unhealthy days) (see Table 4.55).

Table 4.55: Health-related productivity and work-related variables (workplace morale, intention to quit, job satisfaction, and job stress) in 2003

Characteristic		Count	Educators absent >10 days (%)	95% CI	Educators with >5 unhealthy days in past month (%)	95% CI
Morale of educators at school	High	7 066	10.8	10–12	8.0	7–9
	Medium	3 468	13.5	12–15	11.5	10–13
	Low	3 097	19.8	18–22	21.2	19–23
	It varies	6 475	14.7	14–16	16.2	15–17
Intention to quit teaching	Yes, very often	6 001	18.6	17–20	18.1	17–19
	From time to time	5 412	14.3	13–16	16.0	15–17
	No, never	8 723	10.4	10–11	8.1	7–9
Job satisfaction	Low	1 031	23.0	20–27	30.6	27–35
	Medium	8 682	15.7	15–17	16.7	16–18
	High	10 422	11.5	11–12	8.6	8–9
Job stress	Low	4 285	10.9	10–12	8.4	8– 9
	Medium	7 239	14.0	13–15	12.0	11–13
	High	8 607	15.1	14–16	16.2	15–17

Health-related productivity and educator support

This study was interested in identifying factors such as educator support, which would increase health-related productivity among educators. A nine-item educator support index measured support in relation to the educator's role as educator (four items) and for AIDS work or education (five items), for example, 'I have the support of the school governing body for AIDS work/education.'

Clearly, educators who perceived that they had more support from the DoE, SGB, learners' parents, union and religious groups in the community in their role as educator and for AIDS work/education reported significantly less absenteeism and less 'unhealthy days' (see Table 4.56).

Table 4.56: Educator support and absenteeism and presenteeism (unhealthy days)

Characteristic		Count	Educators absent > 10days (%)	95% CI	Educators with > 5 unhealthy days in past month (%)	95% CI
Educator support	Low	2 359	18.4	16–21	17.3	16–19
	Medium	7 011	14.6	13–16	15.0	14–16
	High	10 334	12.2	11–13	10.0	10–11

To get some indication of what type of support educators would want, educators were asked in an open-ended question about what support the DoE should provide in terms of the care of ill teachers and learners. The most frequent responses were: (1) treatment and medication (55.6%); (2) financial support (grants, medical aid) (54.3%); followed by (3) emotional support (home visits, moral support) (36.4%); (4) other material support (for example, food) (27.1%); (5) assistance/support to schools (substitute teachers/workshops) (25.1%); (6) combat stigma and discrimination (17.9%); (7) home schooling/care centres (17.3%); and (8) other (8.4%).

From these findings it seems health-related productivity, as measured in absenteeism and decreased presenteeism (unhealthy days) among educators, is related to a range of chronic conditions. The highest burden of absenteeism in the educator labour force was probably due to the high prevalence of high blood pressure, use of tobacco, being HIV positive, stomach ulcer, arthritis or rheumatism and high-risk drinkers and associated high rates of absenteeism. In addition, low morale at the educational institution, intention to quit teaching, low job satisfaction and high job stress were significantly associated with higher number of self-rated absenteeism and decreased presenteeism (unhealthy days). However, support from different sources (in general, in terms of HIV/AIDS, financial, medical treatment) seems to help to increase health-related productivity of educators. In addition, job satisfaction should be increased and job stress decreased by addressing the different items of these scales in workplace programmes in order to further improve health related productivity.

4.10 Violence in educational institutions

One of the hypothesised causes of attrition is violence experienced in and around the school premises. For this reason it was included as a factor to be considered in studying attrition. The results show that school violence was common. The three major forms of violence experienced by educators in the past 12 months included instances where a learner or educator had been found carrying weapons onto the educational institution (22%), a person was assaulted (18%) and a fight involving weapons (14%) (see Table 4.57).

Table 4.57: Violence experienced or occurred in educational institution in the past 12 months

	n	%	95% CI
1. Learners and/or educators have been found carrying weapons onto your institution's premises	4 600	22.3	20.8–23.8
2. Someone was assaulted at your institution or on the way to the institution	3 627	18.4	17.1–19.8
3. A fight involving weapons took place at your institution's premises	2 881	14.4	13.0–15.4
4. Awareness of gangs operating at your institution	1 945	9.1	8.1–10.2
5. Someone else was sexually harassed at your institution	1 119	5.1	4.7–5.7
6. A person was raped at your institution	798	3.9	3.5–4.4
7. A person was shot at your institution or on the way to the institution	489	2.8	2.3–3.4
8. A person was killed at your institution	343	1.9	1.5–2.5

The eight items on violent events experienced in the educational institution were computed to a violence index and used in the analysis.

More violence was experienced in urban schools than in rural schools, more in secondary schools than other schools, and the violence index score was highest in Western Cape (M=1.2), KwaZulu-Natal (1.0) Mpumalanga (M=0.9) provinces and lowest in Eastern Cape (0.4), Limpopo (0.6) and Northern Cape provinces (0.7) (see Table 4.58).

Table 4.58: Violence index by locality, type of school, province

	M	SE	95% CI
Geolocality of school			
Urban	0.99	0.049	0.9–1.1
Non-urban or rural	0.60	0.028	0.6–0.7
Type of school			
Primary	0.61	0.03	0.5–0.7
Secondary	0.87	0.03	0.8–0.9
Combined	0.75	0.04	0.7–0.8
Special school	0.70	0.05	0.6–0.8

	M	SE	95% CI
Province			
WC	1.19	0.11	0.9–1.4
EC	0.43	0.07	0.3–0.6
NC	0.66	0.10	0.5–0.9
FS	0.86	0.10	0.7–1.1
KZN	0.96	0.07	0.8–1.1
NW	0.63	0.06	0.5–0.7
GT	0.82	0.06	0.7–0.9
MP	0.91	0.11	0.7–1.1
LP	0.58	0.05	0.5–0.7

Violent events at the educational institution seemed to have had an impact on the morale and intention to leave the education profession. Educators with a higher violence index score rated the morale at their school as lower than those with a low violence score, and educators with a higher violence score more often thought of leaving the education profession (see Table 4.59).

Table 4.59: Violence index by self-rated morale at educational institution and intention to leave the education profession

	M	SE	95% CI
Morale at school			
High morale	0.49	0.025	0.4–0.5
Neither high nor low morale	0.72	0.031	0.7–0.8
Low morale	1.30	0.061	1.2–1.4
It varies from time to time	0.88	0.035	0.8–0.9
Intention to leave education profession			
Yes, very often	1.04	0.04	0.9–1.1
From time to time	0.96	0.04	0.9–1.0
No, never	0.50	0.02	0.4–0.5

4.11 Potential attrition of educators

One of the key objectives of the study was to determine the attrition rate among educators and the reasons for it.

A powerful predictor for attrition can be measured with the intention to leave or quit the service as an educator. Educators were asked, 'Have you ever considered leaving the education profession?' and the response options were: 1) yes, very often, 2) from time to time, and 3) no, never.

Less than half of educators (45.4%) indicated that they had 'never' considered leaving the profession. Of those who had considered leaving, 24.9% considered leaving 'from time to time' and 29.3% considered leaving the education profession 'very often'.

Intention to leave the education profession and socio-demographics and learning areas

Although the majority of educators intended to leave, specific groups of educators were more likely to leave than others. These were non-Africans, males, those aged 25–49 years, those teaching in secondary schools, those with higher qualifications, those earning medium to high income, those teaching technology, economics and management and natural sciences (see Table 4.60).

It is important to note that among those who were less likely to leave were those with lower educational qualifications as well as those educators who were older and likely to retire five years from the study period.

Table 4.60: Intention to leave by socio-demographics and learning areas

	n	%
Race		
African	7 301	49.8
White	1 937	70.5
Coloured	1 863	71.2
Indian/Asian	426	69.7
Sex		
Male	4 092	60.9
Female	7 456	51.4
Age group		
18–24	133	50.2
25–35	3 651	58.4
36–49	6 420	55.7
50 and more	1 654	41.7

	n	%
Type of school		
Primary	6 048	51.4
Combined	4 540	51.6
Secondary	919	59.3
Special school	10	36.4
Position in school		
Junior	8 555	54.1
Senior	2 802	56.3
Educational qualification		
Low	704	37.5
Medium	4 344	49.0
High	6 495	61.7
Annual income		
Low	1 487	40.0
Medium	9 437	57.6
High	563	56.1
Learning area currently teaching		
Foundation phase	4 817	44.5
Foundation languages	5 400	53.8
Additional languages	480	45.2
Arts and culture	1 558	53.9
Economics and management	2 480	62.3
Social sciences	1 414	58.1
Life orientation	4 478	49.9
Mathematics	3 353	53.4
Natural sciences	1 882	61.0
Technology	332	65.9
Special	30	59.2
Other	4 396	54.5

Intention to leave and HIV status, work load and locality

In examining intention to leave by HIV status and HIV morbidity, the results show that HIV-negative educators were more likely than HIV-positive educators to want to leave the profession. The work load (in terms of number of learners in a class and formal contact teaching hours) seemed not to be related to intention to leave the education profession. Educators who live in urban areas were more likely than those who lived in rural areas to want to leave the profession.

Table 4.61: Intention to leave by HIV status, locality and job experience, South African educators, 2004

	N	%
HIV status		
HIV positive	997	48.7
HIV negative	8 569	54.9
Geolocality of residence		
Urban	7 958	63.4
Rural	3 574	42.0
Distance from school to residence		
>10 km	4 844	57.7
<10 km	6 703	51.9
No of learners in class		
45 and more	5 901	54.1
<45	5 401	55.9
Formal contact teaching hours/week		
35 and more	5 405	51.7
<35	5 583	57.9
Job satisfaction		
Low	825	90.3
Medium	6 257	73.2
High	4 036	37.7
Job stress		
Low	1 667	35.6
Medium	3 332	52.0
High	6 336	66.0

Table 4.61 presents data which gives indications of reasons educators want to leave the education profession. Three key reasons for intention to leave the profession were distance from school, low job satisfaction and high job stress.

Job satisfaction and job stress and intention to leave

Job satisfaction and job stress were further analysed in regard to intention to quit the teaching profession.

Principal component analyses found six factors for job satisfaction ([1] career advancement and recognition, [2] peer support, [3] teaching structure, [4] discipline and respect, [5] community enhancement, and [6] job security) and three factors for job stress ([1] problems with teaching methods and administration, [2] problems with education system, and [3] low socio-economic status) (see details in Job satisfaction scale in Appendix 1).

The highest factors on the job satisfaction scale were community enhancement (2.93); followed by peer support (2.84), discipline and respect (2.61), and the lowest factors were job security (2.12), followed by teaching structure (2.13) and career advancement and recognition (2.39).

Educators were most likely to want to leave the profession because of poor teaching structure (1.95), lack of job security (2.02) and lack of career advancement and recognition (2.20).

The means of factors of career advancement and recognition (.44), teaching structure (.41), and discipline and respect (.29) differed most for intention and no intention to leave (see Table 4.62). Discriminant analysis found among the factors of job satisfaction that of those who intended to leave 64.3% were correctly classified, while 75.5% who did not intend to leave were classified correctly.

Table 4.62: Factors of job satisfaction and intention to leave teaching

	Intention to leave M (item)	No intention to leave M (item)	Total M (item)[1]
1. **Career advancement and recognition** (Teaching provides possibilities for promotion; Teaching provides ample career development opportunities; I have the opportunity to participate in decision-making on my institution's policies; I receive recognition for my work as an educator)	2.20	2.64	2.39
2. **Peer support** (I get along well with my colleagues; My colleagues and I support each other; My colleagues and I are united in our dedication towards teaching)	2.79	2.91	2.84

→

	Intention to leave M (item)	No intention to leave M (item)	Total M (item)[1]
3. **Teaching structure** (working hours/load/ policies) (My workload is not too high; I am satisfied with the content of the policies that affect my job; Teaching offers reasonable working hours (despite extra-curricular activities)	1.95	2.36	2.13
4. **Discipline and respect** (My learners respect me as an educator; Most of my learners are well-disciplined)	2.49	2.78	2.61
5. **Community enhancement** (Teaching provides me with opportunities to assist in shaping the future of young people; Teaching provides me with opportunities to empower people with meaningful knowledge and information)	2.91	2.96	2.93
6. **Job security** (Teaching provides me with job security; I am afraid that I will be forced to take up a teaching position in an area/ school/college where I do not want to teach)	2.02	2.25	2.12

1 Total item means range from 1 to 3 (the higher the score, the higher the job satisfaction)

The highest factor for job stress was low socio-economic status (2.73), followed by problems with teaching methods and administration (2.48), and problems with the educational system (2.11).

In regard to intention to leave, problems with teaching methods and administration (2.63) were clearly the main factor with, to a lesser extent, problems with the educational system. The means of factors of problems with teaching methods and administration (.35) and problems with educational system (.34) differed most for intention and no intention to leave. Although low socio-economic status was rated as a high job stress it did not distinguish between those intending and not intending to leave (see Table 4.63).

Discriminant analysis found among the factors of job stress that of those who intended to leave 66.9% were correctly classified, while 58.2% who did not intend to leave were classified correctly.

Table 4.63: Factors of job stress and intention to leave teaching

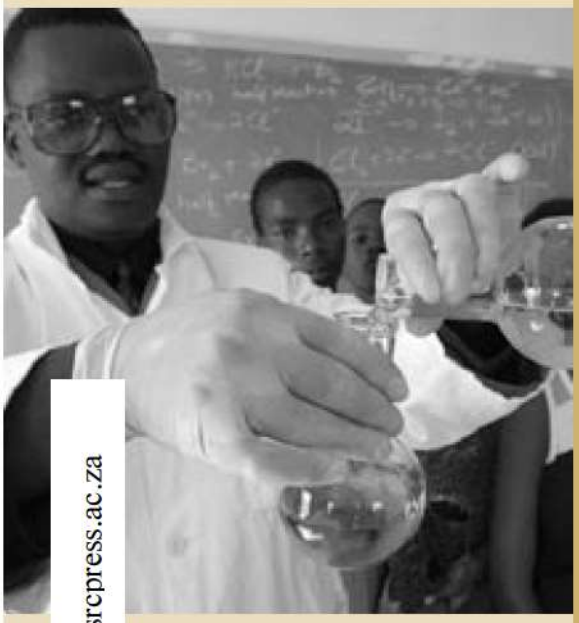
	Intention to leave M (item)	No intention to leave M (item)	Total M(item)[1]
1. **Problems with teaching methods and administration** (I experience stress arising from the implementation of new curricula, pass requirements and reporting systems; I experience stress with the preparation/ assessment involved in applying the OBE approach)	2.63	2.28	2.48
2. **Problems with educational system** (Performing tasks not in my job description; I experience negative attitudes towards the education department)	2.26	1.92	2.11
3. **Low socio-economic status** (I earn an inadequate salary; The teaching profession needs more status and respect from the community)	2.74	2.72	2.73

1 Total item means range from 1 to 3 (the higher the score, the more stress)

A large number of educators (55%) intended to leave the education profession. The reasons for this intention differed according to race, sex, age group, and type of school, educational level, HIV status and location of residence of educators.

Educators' decision to leave was not affected by the number of self-rated learners in a class, the self-rated formal teaching hours per week and the type of position in the school. A disturbing fact that emerged was that two-thirds of technology, natural sciences, economics and management educators intended to leave. Reasons for wanting to leave the education profession included low job satisfaction (in particular, lack of career advancement and recognition, the teaching structure in terms of working hours/load/ policies, and lack of discipline and respect) and job stress (in particular: problems with teaching methods and administration and problems with the educational system). If low satisfaction and job stress can be addressed potential attrition can be reduced.

Section five: Discussion of the findings



- Profile of educators
- Prevalence of HIV
- Condom use
- Knowledge of HIV transmission
- Alcohol use
- Health status and health-related productivity
- Potential for attrition

5. Discussion of the findings

The observed design effects (deff and deft) suggest that the study was properly designed. This observation, coupled with the high response rate (97% for questionnaires and 80% for specimen) and low coefficient of relative variation (CVrs) for nearly all the prevalence figures gives confidence on the observed findings. Below is a discussion of the findings, starting with the demographic profile of the educators, followed by a discourse on the HIV prevalence, health status, behavioural determinants, alcohol use and potential attrition of educators and reasons thereof.

5.1 Profile of educators

South African educators in the public sector were predominantly women, African, older than 34 years, married, and the majority had diplomas or degrees and rated themselves as not well off financially. SGBs paid a small percentage of educators. With respect to employment benefits, the majority of educators had medical aid and most had no housing subsidy. Most educators were members of unions; the rates of union membership were high regardless of race, sex of respondent, marital status and educational qualification. The rate of union membership was lower in young educators (18–24 years), those paid by SGBs and those with low income.

The dominance of females among South African educators in the public sector mirrors one aspect of gender roles in the society. In many societies, certain occupations are regarded as traditionally male, while 'caring' occupations such as nursing and teaching are traditionally female.

The majority of educators had at least ten years' teaching experience. They generally had high educational qualifications but not necessarily in the learning areas they were teaching. More teachers were teaching the foundation phase, economics and management, life orientation and technology learning areas than were trained in these areas. Many educators were trained in learning areas in which they did not teach. Specifically, there were more educators trained in foundation languages, additional languages, social sciences, mathematics and natural sciences than they were teaching, suggesting that the training is not aligned to the teaching needs. (This matter will be taken further in the human resource report to be completed in July 2005).

5.2 Prevalence of HIV

5.2.1 Overall HIV prevalence

The observed findings suggest that HIV/AIDS seriously affects South African educators: the true figure lies somewhere between 42 809 and 47 804. When the HIV prevalence of educators was compared to the general population – controlling for age and sex – male educators had lower prevalence compared to the general population. Older female educators also had a lower HIV prevalence, but none of these differences were statistically significant, suggesting that the HIV prevalence among educators is similar to that of the general population. When comparing the educators with health professionals, the differences were also not statistically significant (12.7% among educators compared with 14.7% among professionals in the public health sector (Shisana et al. 2003). These

results suggest that the HIV prevalence among South African public educators may reflect that of the community in which they live.

When comparing these findings with those observed in other countries in Africa, it appears that the prevalence of HIV among South African educators is much higher than that observed in Senegal (0.5%), Nigeria (5.8%) and Ghana (9.2%) but similar to that observed in Cameroon (11.8%). In all these countries except Ghana, the HIV prevalence among educators is also similar to the national HIV prevalence (Tamukong 2004). Since educators in South Africa are responsible for imparting knowledge to learners on HIV prevention as part of the life skills programme, one would have expected them to have a much lower HIV prevalence than the general population. What these findings suggest is that the life skills programme might have not contributed to sexual behaviour change among educators and hence they have a similar risk of acquiring HIV as the general population. Clearly knowledge is not sufficient to influence behaviour change. Self-efficacy in safe sex practices is crucial when attempting to understand behaviour change. This is discussed further below.

5.2.2 Gender differences in HIV prevalence

Overall, the HIV prevalence did not vary by sex of the educator; this was the case even after controlling (through multiple logistic regression) for other socio-demographic, socio-economic and sexual behaviour variables. However, differences were observed when the analysis was restricted to women and men aged 25–34 years. The HIV prevalence among educators aged 25–29 (female: 21.5%, 95%CI: 17.7,25.9; male: 12.3%, 95%CI: 8.9,16.6) and those aged 30-34 (female: 24.2%, 95%CI: 22.1,26.5; male: 19.4%, 95%CI: 16.5,21.9) differ by sex and age of the educator. Clearly in the younger age groups, there were significant differences by sex of the educator. This distribution is similar to the epidemiological curve observed in the general population of South Africa (Nelson Mandela/HSRC Study of HIV/AIDS 2002). This is expected because men and women in these age groups are at the height of their reproductive period. Non-marital pregnancy was more common among African and coloured women than among whites and non-existent among Indian women educators. The study also found that the level of marital pregnancy at each reproductive age was higher than the corresponding level of non-marital pregnancy. In the absence of microbicides that kill the HIV virus while preserving the sperm, women are likely to continue to risk acquiring HIV in the process of trying to conceive, and men are also likely to continue to become infected while attempting to impregnate their partners. Given the observed findings that single people had a significantly higher rate of HIV (22.9%) than married persons (8.2%), it would be advisable for single people to avoid non-marital pregnancy.

Gender is considered to be key in containing the spread of HIV. The combination of biology, gender construction, socio-economic status and behaviour contribute to high rates of HIV in women (Shisana & Davids 2004). This study found high rates of HIV in women aged 25–34 years compared to their male counterparts. As observed earlier, women are a majority within the education sector and if more women continue to be infected this will negatively affect the supply of education in South Africa. For this reason, there is a need to understand the gender dimension that may account for high HIV prevalence in this group. First it is known that women are biologically more susceptible to HIV infection than men, mainly because of their biological make-up (International

Council of Nurses, WHO and UNAIDS 2000). Second, gender and socio-economic disparities contribute to high rates of HIV infection. These are explored further below.

Young women had a higher estimated HIV prevalence despite the observation that they reported to have lower rates of multiple sexual partners than their male counterparts. This result suggests that infection happens for women within a single sexual relationship where either trust or ignorance of HIV status of the partner may interfere with condom use. Another possibility is that while the women might be faithful to one partner the other partner may not be faithful to them as reported by men in this study. Because of gender construction in our society that disempowers women in negotiating safe sex, younger women are at increased risk of HIV. Ackerman and De Klerk (2002) also note that social factors such as the high rate of rape, the unfavourable economic position of women, and the inability to insist on condom usage make South African women unable to negotiate the timing of sex and the conditions under which it occurs. The phenomenon of men having multiple partners also suggests that women and men have different norms that determine their behaviour. Even among educated communities women's and men's sexuality is viewed differently. Having multiple partners is generally more acceptable for men than women. Traditionally a man's need for sex and the right to more than one partner have been sanctioned or accepted in many African cultures (Manuh 1998).

Other practices that are acceptable for men include age mixing of sex partners. It is acceptable for men to have younger sexual partners but this practice is frowned upon for females. The results suggest the majority of educators in this study had partners who were within ten years of their age. However when the analysis was done by sex of the respondent, the results showed that 14.1% of the men had a partner who was ten years younger than themselves compared to 0.6% of women. This result suggests that older men tend to have sex with much younger women, which implies that there are power dynamics in sexual relations which increase risk of infection among younger women. But it is also possible that older men who have younger female sexual partners increase their risk of HIV because HIV is more prevalent in younger women. Luke (2003) examined more than 45 quantitative and qualitative studies in sub-Saharan Africa and found that relationships with older partners and those that involve economic transactions are common and that these asymmetries are associated with unsafe sexual behaviours and increased risk of HIV infection. Although the reasons that adolescent girls engage in sexual relationships with older men are varied, receipt of financial benefits is a major motivation. Encouraging people to have sexual relations with partners in their age group could break this vicious cycle.

Gender disparities were evident among educators. Women educators were more advantaged than men in the following areas: they were more likely than men to get a post in the area near their families; to get a post in the city; to be married at the start of their career; less likely to be redeployed; and less likely to move to different areas in the past ten years, and when they moved they were more likely than men to move with their family.

There were areas, mainly in the economic sphere, where women were disadvantaged, which may increase their vulnerability to HIV: they were less educated than their male counterparts; they were more likely to be employed in the lower ranks and much less likely to be principals or deputy principals – hence they were more likely to earn less

money than male educators; they were less likely to have a housing subsidy or to have medical aid. The roles and responsibilities of women with regard to domestic work, carried over and above their education responsibilities, were more than those of men; specifically, more women than men were likely to take care of a family member who had HIV/AIDS or who died from AIDS.

In examining the data on behaviours that increase women's risk of HIV the study found the following: in the group with the highest HIV prevalence (persons aged 25–34 years), women were less likely than men to report having used a condom during the last sexual act. This is not a surprise since male condoms can only be worn by males and female condoms are not accessible due to cost. In addition, women were more likely than men to report not having a sexual partner and less likely to have multiple partners in the past 12 months, suggesting it is the sexual behaviour of their male partners which increases their risk for HIV infection.

5.2.3 Racial differences in HIV prevalence

There were major differences in HIV prevalence by race. The highest prevalence was among Africans; 16% were found to be HIV positive. The prevalence among other racial groups was less than 1%. It is important to note that the relative high CVr values for whites, coloureds and Indians (0.31, 0.29 and 0.39) resulted from the very low prevalence rate (r) values, suggesting that the prevalence of HIV among these groups should be interpreted with caution. It could be that other race groups knew their HIV status and hence did not give a specimen for HIV testing. Further analysis showed that there was a marginally significant association between knowing own HIV status prior to this study and giving a specimen for HIV testing in the current survey. Those who did not give a specimen were slightly more likely (93%) than those who did to know their HIV status already (whether positive or negative). This observation is consistent throughout the races except among Indian/Asians. This analysis shows that the observed racial differences on HIV cannot be explained by differential willingness to give a specimen for HIV testing.

The differences in age distribution among the different racial groups may also account for why African educators had higher HIV prevalence than other racial groups. African educators were more likely to be aged between 25 and 34 years (30.3% among males and 25.5% among females) compared to coloureds (22.6% males and 21.4% females), Indian (15.5% males and 21.9% females) and whites (15.1% males and 19.1% females). African educators were more concentrated in the high HIV-risk ages of 25–34 years than other racial groups, which makes them more vulnerable to HIV because the age group of 25–34 years is when many enter serious sexual relationships, leading to reproduction.

The observed HIV prevalence in Africans is similar to that of the general population but those for whites, coloureds and Indians differ from those of the general population (Nelson Mandela/HSRC Study of HIV/AIDS 2002). In the education population study, Africans had an HIV prevalence of 16% compared to 18.4% in the general population; other racial groups had prevalences under 1%. In the general population, among people aged 15–49 years, whites had an HIV prevalence of 6.2%, coloureds 6.6% and Indians 1.8%. This suggests that exposure to risk differs substantially by race. Some of the reasons for the observed differences may lie in exposure to risk factors. Upon completion of their education Africans were more likely than other races to get jobs away from family and

also to get jobs in rural areas. Furthermore, staying away from home overnight was more common among Africans than other racial groups and this was found to be related to HIV status. The study found that there was a strong relationship between mobility and HIV prevalence, particularly migration to rural areas.

5.2.4 HIV status and socio-economic status

Africans were more likely than other racial groups to belong to the low socio-economic strata: they were more likely to have no money for basic needs such as food; to earn less; to have lesser qualification; and to be on the bottom end of the teaching profession. Specifically, HIV prevalence was highest among junior educators and lowest among senior educators, education specialists and principals or deputy principals. In addition, educators who had low socio-economic status had a much higher HIV prevalence when compared to those in the high socio-economic group. The difference was substantial. Educators earning more than R132 000 per annum had a prevalence of 5.4% and those earning R60 000 or less per annum had a prevalence of 17.5%. Even after controlling for other socio-economic and sexual behaviour variables through logistic regression, income was still related to HIV status. Low socio-economic status increases vulnerability to HIV because the power to negotiate safe sex is related to economic power and also access to prevention information and healthcare is limited as a result of less income. The findings support the earlier observation that links poverty with vulnerability to HIV (Colvin 2000; Mitton 2000). Africans may be at the bottom end of the socio-economic ladder as a result of apartheid, with its bantu education system that provided inferior education to Africans.

5.2.5 Rural differences in HIV prevalence

In the general population, HIV prevalence is lower in rural areas but higher in urban areas (Nelson Mandela/HSRC Study of HIV/AIDS 2002). However, in the education population the reverse was found. This is probably because educators placed in rural areas may have a higher disposable income compared to adults living in these rural areas, and given that they are less likely to move with their spouses or regular partners, they are likely to have multiple sexual partners. This matter is discussed further below.

5.2.6 Migration and HIV

Migration and mobility have long been identified as risks to HIV infection and also facilitate the spread of HIV in Southern Africa (see for example, Lurie, Williams, Zuma, Mkaya-Mwamburi, Garnett, Surm, Sweat, Gittelsohn & Karim 2003). Main factors increasing the vulnerability of mobile populations are, in particular, the obligation to travel regularly and live away from spouses, and separation from socio-cultural norms that regulate behaviour in stable communities, as well as work in isolated environments with limited recreation, easy access to commercial sex workers, drugs and alcohol and a sense of anonymity which allows for more sexual freedom. These are just a few factors that might be relevant for educators who are mobile or migrating. This study found that educators residing in rural areas and those working in rural schools had higher HIV prevalence than educators residing in urban areas and teaching in urban schools. Educators whose residence was further than 10 km away from home also had a slightly higher HIV prevalence than those who travelled less than 10 km to their school, but the

differences were not significant. Teachers in poorer rural areas fall in the high-income group by local standards, possibly resulting in them being seen as a desirable group with whom to have sexual relationships. This suggests that income may be an additional risk factor: higher income earners are able also to buy sex and alcohol for example. This risk factor was also found by Shisana, Zungu-Dirwayi, Toefy, Simbayi, Malik and Zuma (2004), suggesting that the affluent groups in society may be at risk not only because of the power to buy luxuries, but also to attract risks such as multiple partners and so on.

5.2.7 HIV prevalence: differences by type of school: primary, secondary or combined

Comparing the HIV status of educators at primary, combined and secondary/high schools, HIV prevalence was highest (16.5%) among educators teaching in schools which combined primary and secondary education compared to those that separated these. However, this is confounded by race and province. These combined schools are mostly found in the Eastern Cape and North West provinces, and they are located in African schools.

5.2.8 HIV prevalence: differences by learning area

Investigation also extended to the extent of the problem of HIV among educators teaching different learning areas. The observed HIV prevalence among educators teaching the different learning areas was more than 10% except for technology educators whose prevalence was 7.4% and those teaching additional languages, whose prevalence was 23.3%. Most of the latter were of African origin. It is important to note that economics and management science, mathematics and science educators are as likely to be living with HIV as any other educators from other learning areas, except the two mentioned above.

5.2.9 HIV prevalence: differences by length of teaching experience

Further analysis of HIV prevalence, which took into account educators' working experience, showed that the prevalence was highest among educators with the least teaching experience (0–4 and 5–9 years) and lowest among those who had been teaching for more than 15 years. As younger educators leave the system because of HIV/AIDS-related illness and older educators retire because of aging and other reasons such as health or moving to better jobs, the supply of educators will be affected.

5.2.10 HIV prevalence: differences by province and district

The HIV prevalence was highest in KwaZulu-Natal and Mpumalanga and lowest in the Western Cape and Northern Cape provinces. Comparing the provincial HIV estimates derived from women in the education study with those from antenatal clinic attendees and the population data, the estimates for educators were far lower than those of pregnant women. In five provinces (KwaZulu-Natal, Mpumalanga, Free State, Eastern Cape and Limpopo) they were similar to the general population based on household surveys; the rest had far lower HIV prevalence than compared to the population in those provinces. These findings suggest that more resources for HIV prevention, treatment and care would be needed for KwaZulu-Natal and Mpumalanga to reduce the impact of HIV on the education system.

To determine the areas warranting targeted interventions it was essential to estimate HIV prevalence by district council. The results revealed that the very high HIV prevalence (=>20%) was found in only 11 out of 54 districts, located in KwaZulu-Natal (8), Mpumalanga (2) and Eastern Cape (1). The districts with the lowest HIV prevalence were Western Cape and Northern Cape where the prevalence was less than 5%. The metropolitan district councils had HIV prevalence of less than 10%. The observation that it is not all districts that have extremely high HIV prevalence helps in planning strategies for mitigating the impact of HIV/AIDS. The low prevalence in the Western Cape, Northern Cape and metropolitan councils needs to be further analysed to understand what is being done that contributes to lower HIV infections among educators in these areas. This analysis will be presented in the forthcoming July 2005 report.

5.3 Condom use

It is of concern that condom use seems to be common only in young educators. Similar findings have been reported in the general population (Nelson Mandela/HSRC Study of HIV/AIDS 2002). HIV is said not to discriminate against age or race; however there seem to be complacency in relation to condom use among individuals of certain age groups and race groups. This study found that generally the younger respondent male and female had high condom use compared to their older counterparts.

There are broader issues around prevention and age. Until recently HIV was associated with the youth (15–24 years), and consequently HIV prevention campaigns have generally neglected to include the older age groups, leading to an assumption that HIV is not common in this age group. Divorce, separation and early widowhood introduce new sexual partners to people who may not be aware of the dangers of unprotected sex in the era of HIV/AIDS. Unless there are interventions directed at older educators there is a possibility that there may be a rise in the HIV rates in this group. The findings in this study lend support to this hypothesis and this is supported by findings in the general population survey that found unexpectedly high HIV prevalence among the ages 40–44 (16.4%) and 45–49 (11.5%) years of age (Connolly, Shisana, Colvin & Stoker 2004).

A comparison of condom use by race showed that among African females (38.4%) and males (36.3%) condom use was higher when compared to other groups. Whites were the lowest users of condoms at last sex; among females only 9.9% used condoms and among males 10.7% reported using condoms at last sex with a regular partner. The Nelson Mandela/HSRC study of HIV/AIDS (2002) found an HIV prevalence of 6.2% among whites in South Africa, a rate that is considered high when compared to whites in other countries. If prevention messages are not targeted to the groups with low prevalence of HIV, there could be a rise in HIV rates also among these groups. This has been the case in Eastern Europe where there has been a rise in HIV rates in countries like Estonia, Latvia, the Russian Federation and Ukraine where the epidemic is driven by intravenous drug use and of late in Russia, where there is an increase in heterosexually transmitted infections (UNAIDS 2004).

An interesting finding in this study was the difference in condom use between educators working in urban and non-urban schools. Condom use was high among females and males working in non-urban schools (males 35.8% and females 37.4%) when compared

to those working in urban formal (males 25.7% and females 24.4%) and urban informal schools (males 29.8% and females 32. 3%). This may be confounded by the high HIV prevalence among educators in rural areas. For example, Maharaj (2004) found in KwaZulu-Natal that condom use is much higher among urban, more educated individuals than among their rural, less educated counterparts. While the rates are still low for all the locality types, accessibility seems to be improving as individuals from urban informal and non-urban areas have higher reports of condom use. This is supported by the provincial findings. The highest condom use at last sex among educators was reported in the Eastern Cape (males 40.6% and females 41.2%) followed by KwaZulu-Natal (at 37.1% for males and 35.0% for females). Both these provinces have a large proportion of rural schools. Condom use is generally high in populations that have high HIV prevalence (as seen in the Nelson Mandela/HSRC study of HIV/AIDS [2002]). This is likely because those who are HIV positive tend to use condoms more than those who are HIV negative, as also observed in this study.

Education is often associated with condom use among men and women. Lagarde, Auvert, Chege, Sukwa, Glynn, Weiss, Akam, Laourou, Carael & Buve (2001a) found varying associations between higher education level, condom use and sex of the respondent, based on self–report. In Cameroon and Zambia, men with higher levels of education were more likely to use a condom; in Benin and Kenya it was the higher education level of the female partner that influenced the use of a condom (Lagarde et al. 2001b). Education level may also increase response to condom and prevention messages. Their findings suggest that educated women may be more empowered to negotiate condom use. A study in Kenya found that educated women were more able to negotiate condom use when compared to women with lesser education. The present study did not find highly significant differences among the different levels of education represented by the respondents. Condom use by qualification showed slight differences in the groups that had a degree, a diploma or a matriculation qualification. Condom use at last sexual act was between 30–35% for the different qualifications. The group with the highest condom use within the same range was the males with a matriculation or less at 35.5%.

Another difference was that individuals in the low ranks and income reported slightly higher rates of condom use than the other groups. When rank was taken into consideration, the study shows a negative association between condom use and position in the educational system. Similar negative associations were seen between socio-economic status and condom use. This finding may suggest that there is perception that HIV is a disease of those that do not have enough, or the poor and those groups with high income may not be taking precautions to protect themselves. A recent study on marital status found an association between wealth and the risk of HIV (Shisana, Zungu-Dirwayi, Toefy, Simbayi, Malik & Zuma 2004).

5.3.1 Consistency of condom use

Without taking into account the HIV status of educators, this study found evidence that relationship status was strongly associated with rates of condom use, that is, 56% reported consistent (every time) condom use with a non-regular partner and 15% with a regular partner, while 58% reported to have never used a condom in the past 12 months with a regular and 19% with a non-regular partner. Across a number of studies Sheeran et al. (1999) found that the mean percentage of respondents who always used a condom with

their steady partner was 17, whereas the mean percentage in the case of respondents with casual partners was 30. Similarly, an average of 52% of respondents with steady partners reported never using a condom compared with 40% of respondents with casual partners.

Being HIV positive and consistently using a condom was associated with non-regular sexual partners but not with regular partners. The latter is cause for concern. Knowledge of HIV/AIDS and perceived threat of HIV infection showed small associations with condom use, which is consistent with other research (Camlin & Chimbwete 2003; Sheeran et al. 1999, Van Rossem, Meekers & Akinyemi 2001). HIV risk perception was only associated with consistent condom use with a non-regular and not a regular partner. In a large rural adult sample in Uganda, in females condom use with the last casual partner was not significantly associated with increased risk perception, while, among males who reported ever having had casual sex, they were around twice as likely to perceive themselves at risk in comparison with men without such experiences (Kengeya-Kayondo, Carpenter, Kintu, Nabaitu, Pool & Whitworth 1999).

From the seven cues to action investigated in this study most (five) showed a small correlation with condom use, as was also found in a meta-analysis study (Sheeran et al. 1999). In this study 48% of the educators indicated that they knew of persons personally who they think or know have died of AIDS in the past two years. This is much higher than among a South African women national sample of 17.3% ('Personally knew a person with HIV/AIDS') from 1998 (DoH 2002) and among a national sample from 2002 (31.0% among women and 35.2% among men) (Shisana & Simbayi 2002). In this study, multivariate analysis showed that knowing someone who had died from AIDS was significantly associated with consistent condom use with a regular but not with a non-regular sexual partner, while Camlin and Chimbwete (2003) found, in the 1998 South African Demographic and Health Survey (DHS) women sample on the basis of multivariate analysis, that personally knowing someone with HIV/AIDS was not related to condom use at last sex, suggesting that behaviour has changed since then.

Condom use efficacy, HIV risk (condom use) self-efficacy and intentions to use condoms with a new sexual partner were medium or strong predictors for consistent condom use with both regular and non-regular sexual partners, which is in support of other studies (Sheeran et al. 1999).

Alcohol or drug use did not influence or increase condom use in this study (with non-regular sexual partners), which was also found in a population-based study in Zimbabwe (Adetunji & Meekers 2001) and in six European countries (Traeen, Stigum, Hassoun, Zantedeschi & The European NEM Group 2003).

There were sex of respondent differences in condom use as found in other studies (Sheeran et al. 1999); men were more likely to report using a condom with a non-regular partner than women. A strong association was found between being single and condom use with a regular partner. Small negative associations were obtained between condom use and economic status, while other studies find small positive associations (Sheeran et al. 1999). Religious involvement had a low negative association with condom use with a steady partner, a finding supported by other studies (Sheeran et al. 1999).

5.4 Knowledge of HIV transmission

This study found that a high proportion of teachers knew about HIV (nature and transmission routes), a finding that is similar to another recent study among secondary school teachers in South Africa (Peltzer & Promtussananon 2003). In another study, low HIV/AIDS knowledge was found among a rural sample of school teachers in South Africa five years ago (Peltzer 2000). In the educators' study, there was a small proportion that did not have accurate knowledge on HIV. With regard to the spread of HIV, 15.9% males and 17.7% females believed that HIV could be spread through sneezing and 9.4% males and 10.5% females indicated that they did not know if sneezing could spread HIV. On the question of HIV being transmitted through oral sex, 6.3% males and 15.6% females did not know that HIV could be transmitted through oral sex and 11.1% males and 7.0% females responded with false to this statement. A small proportion did not know that HIV can be transmitted through breastfeeding (11.6% males and 8.8% females) and 8.8% of males and 6.3% females responded false to this question. These results are of concern because teachers are tasked by the DoE to teach learners about HIV prevention. Findings from another study suggest that most educators seem to be doing so given the finding that 85.9% of 12–14 year old learners and 75.7% of the learners aged 15–24 years show that their primary source of information on HIV/AIDS over the previous year (2001) was from school (Nelson Mandela/HSRC Study of HIV/AIDS 2002). It is acknowledged that knowledge itself is not enough on its own to change sexual behaviour; however, it is important when combined with enablers such as access to condoms and self-efficacy.

5.5 Alcohol use

We found that three-quarters of educators (75%) reported that they had abstained from alcohol in the past 12 months, suggesting that the use of alcohol among educators may not be as high as it is believed. These findings are lower than those reported in a similar population study in Zimbabwe. In a sample of educators, Eide et al. (1999) found that 38.6% of male educators and 8.2% of female educators reported drinking every day or at least weekly. In this study 20% of the educators were found to be low-risk drinkers, and 5.3% high risk-drinkers. The results suggest that problem drinking is limited to a small proportion of educators. Among the proportion of alcohol users who can be classified as high-risk drinkers, male educators (15%) were significantly more high-risk drinkers than female educators (0.7%). Across different races, women were less likely than male counterparts to be high-risk drinkers (below 2%). These findings are similar to those found in the general population that males are more likely to use alcohol when compared to females (Shisana, Zungu-Dirwayi, Toefy & Simbayi 2004).

Of all racial groupings, male coloured educators (18%) and male African educators (16%) reported the highest levels of high-risk alcohol use. White male educators were low-risk drinkers (71%) when compared to male educators in all other racial groups. It is of concern that coloured and African male teachers had the highest level of high-risk alcohol use. This may be a reflection of the culture of alcohol use in these communities. Age was another variable that showed an association to alcohol. It seems that the younger the educator was, the more likely they were to use alcohol in a risky way. For example, the age groups 25–44 years of male educators reported the highest levels of high-risk drinking (15.9–16.4%) as compared to 45–54 year-olds (12.5%). There is therefore a need to address issues of alcohol use among certain race groups and age groups as risky

alcohol use is associated with numerous other problems such as health problems and social difficulties and also increases vulnerability to HIV.

An interesting finding is that male educators in secondary schools had lower levels of high-risk drinking (14.2%) compared to educators in primary schools (15.9%) and combined schools (16.9%). It is not clear why this is the case. It is possible that teachers at high schools may be put under more pressure to abstain as an example to their students who are more likely to report use of alcohol to authorities compared to younger pupils. Another possibility is that teachers at high schools underreported the problem for the same reason. Locality seems to also play a role in alcohol use. Educators teaching in schools located in urban formal areas (15.5%) and in informal urban areas (23.1%) had higher high-risk drinking levels than educators teaching in schools located in non-urban or rural areas (13.7%). This can be a result of several factors, including access to alcohol, social environment and possible pressures associated with urban life. Therefore educators in urban areas, especially informal-urban areas, may need more support and improved working conditions.

Working conditions, stress and alcohol use all impact on the quality of life. High-risk drinking may influence the health status of educators, which has an impact on supply and quality of education. In this study high-risk drinkers had more days absent from work in 2003 than non-drinkers or low-risk drinkers, suggesting that heavy alcohol use contributes to absenteeism from schools.

Linked to the environment is the question of income. It is known that alcohol use is high among low-income groups and this mirrored among the educators. Low-risk drinking increases with higher levels of income, qualification and economic household situation, while high-risk drinking increases with lower income and lower qualification. The results suggest that educators with low income and qualification are potentially risky alcohol users when compared to those with high income. Alcohol use, especially risky alcohol use, is therefore an important issue to address if quality of life of the educator and education is to be improved.

5.6 Health status and health-related productivity

With regard to the health status of educators, it appears that it is poorer than that of the general population, especially when one considers that 10.6% had been hospitalised in the previous 12 months, a figure that is higher than the 7% observed in the 2002 general population,[1] and that 75% reported that they had visited a health practitioner in the six months prior to the study. The most frequently reported diagnosis educators received in the last five years prior to the study were high blood pressure (15.6%), stomach ulcer (9.1% and diabetes (4.5%), which are among other conditions related to stress. The low percentage of educators reporting to have TB is likely due to stigma. In a face-to-face interview, few would want to report a history of TB (and other HIV/AIDS-related illnesses) when they already know their HIV-positive status because TB is a co-factor of HIV/AIDS. It would be tantamount to disclosing their HIV status to the interviewer. This was not foreseen at the beginning of the study. This might have led to an underestimation of TB and other HIV/AIDS-related illness.

1 Further analysis of the data collected as part of the Nelson Mandela/HSRC study of HIV/AIDS (2002).

5.6.1 Health-related productivity

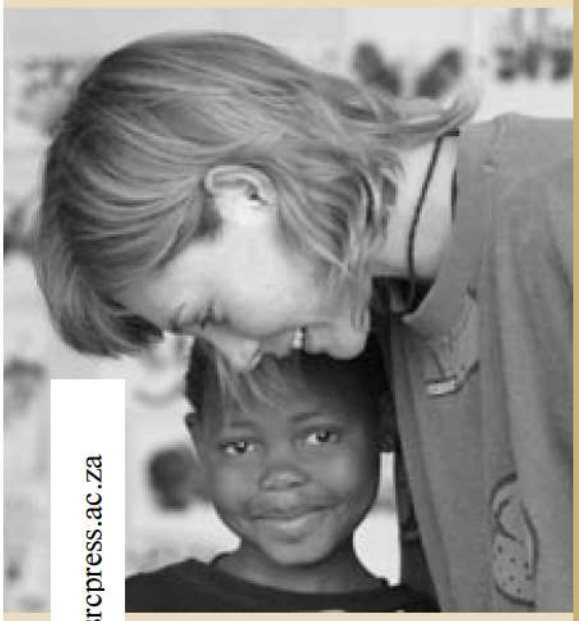
Health-related productivity measured in absenteeism and decreased presenteeism (unhealthy days) among educators is related to a range of chronic conditions. The highest burden of absenteeism in the educator labour force is probably due to the high prevalence of high blood pressure, use of tobacco, being HIV positive, stomach ulcer, arthritis or rheumatism and high-risk drinkers and associated high rates of absenteeism. In addition, low morale at the educational institution, intention to quit teaching, low job satisfaction and high job stress were significantly associated with higher number of self-rated absenteeism and decreased presenteeism (unhealthy days). However, support from different sources (in general, in terms of HIV/AIDS, financial, medical treatment) seems to help to increase health-related productivity of educators. In addition, job satisfaction should be increased and job stress decreased by addressing the different items of these scales in workplace programmes in order to further improve health related productivity.

5.7 Potential for attrition

A large number of educators (55%) intend to leave the education profession. There are some differences in terms of wanting to leave regarding race, sex, age group, type of school, educational level, HIV status and location of residence of educators. The number of self-rated learners in a class, the self-rated formal teaching hours per week and the type of position in the school did not influence the decision to leave. What is important is that two-thirds of technology, natural sciences, economics and management educators intend to leave, which is cause for concern. Some of the reasons for wanting to leave the education profession include low job satisfaction (in particular: lack of career advancement and recognition, the teaching conditions in terms of working hours/load/policies, and lack of discipline and respect) and job stress (in particular: problems with teaching methods and administration and problems with the educational system). If low satisfaction and job stress can be addressed, in particular, as indicated here, potential attrition can be reduced.

Violence at the educational institution seemed to have had an impact on the morale and intention to leave the education profession. Educators with a higher violence index score rated the morale at their school as lower than those with a low violence score, and educators with a higher violence score more often thought of leaving the education profession School violence has also been identified as an continuing problem in South African schools by Zulu, Urbani, van der Merwe and van der Walt (2004), impacting deleteriously on the culture of teaching and learning in their schools.

Section six: Conclusions



6. Conclusions

This is the first comprehensive study of demand for and supply of educators in the public sector that takes into account the effects of HIV/AIDS, TB, alcohol use and health status and is based on data collected from a representative sample of educators on such a large scale. It comprises three components: (1) epidemiological profile of educators (HIV/AIDS, TB, and health status); (2) workplace policies; and (3) human resources. Nested in each of these three components are a series of sub-studies, all forming part of a much larger study of demand for and supply of educators in the public education system. The final report integrating all the three components, together with nested sub-studies, is expected to be completed in June 2005. This report presents component 1 results, which address two objectives: (1) the magnitude of the problems of HIV/AIDS, TB, alcohol use and health status of educators by various demographic, geographical and educational variables; and (2) the determinants that increase the risk of HIV/AIDS in educators. It also partially addresses a human resource objective; a more comprehensive analysis of human resources will be presented in a separate report. All these form part of the conceptual model for studying demand for and supply of educators in the public education system.

The study set out to determine the prevalence and determinants of HIV and TB amongst South African educators by age, sex of educator, race, qualifications, locality type, learning area and the phase/band of active teaching. In addition, the study aimed to estimate the rate of attrition among educators and reasons thereof.

From the results of the study, the following conclusions are made:

HIV prevalence: The HIV prevalence among educators is high and is similar to that of the general population. The study revealed that the HIV prevalence among public sector educators was 12.7%; the highest prevalence was among Africans, where 16% were found to be HIV positive. The prevalence among other racial groups was less than 1%. Single educators were 2.7 times more likely to be HIV positive than married people.

Educators who have low socio-economic status had a much higher HIV prevalence when compared to those in the high socio-economic group. It was highest among teachers and lowest among senior educators, education specialists and principals or deputy principals.

The HIV prevalence of educators by different learning areas was more than 10%, except for technology educators, whose prevalence was 7.43%, and those teaching additional languages, whose prevalence was 23.3%. Those with less teaching experience had higher HIV prevalence than those with more than 15 years of teaching experience.

Educators residing in rural areas and those working in rural schools were found to have significantly higher HIV prevalence than educators residing in urban areas and teaching in urban schools

The HIV prevalence was highest in KwaZulu-Natal and Mpumalanga and lowest in the Western Cape and Northern Cape. Of the 54 district councils, only 11 districts had high HIV prevalence of (=>20%) – in KwaZulu-Natal (8), Mpumalanga (2) and Eastern Cape (1). The districts with the lowest HIV prevalence were Western Cape and Northern Cape where the prevalence was less than 5%. The metropolitan district councils had HIV prevalence of less than 10%.

Awareness of HIV status: Only 59% of educators had had an HIV test in their lifetime and of these 92.6% were told of their test results. Indians (68%) and coloureds (67%) had higher rates of HIV testing than whites (63.4%) and Africans (56.2%).

Determinants of HIV: With respect to determinants of HIV, the epidemic seem to be driven by multiple sexual partnership (particularly among men), low condom use, having sexual partners who are younger (among men), migration and mobility (spending nights away from home). Gaps in knowledge of HIV transmission exist; specifically, these are in the areas of oral sex, breastfeeding, and incorrect information on sneezing.

Health status: The study revealed that 10.6% of educators reported to have been hospitalised within the last 12 months prior to the study. The most frequently reported diagnoses educators received in the last five years were high blood pressure (15.6%), stomach ulcer (9.1%), arthritis (6.6%) and diabetes (4.5%). A self-reported measure was used to estimate the size of the population of educators who suffered from chronic conditions that may affect their health and may contribute to absenteeism. Less than 1% of educators reported to have been diagnosed to have TB in the last five years prior to the study. The study also found that 3.24% of educators experienced a cough that lasted for two weeks, an indication that they might have had TB. However, this may overestimate the proportion of educators with TB because a small percentage (0.5%) reported to have received treatment for TB within the past year.

Absenteeism: All chronic conditions, including being HIV positive, tobacco use and high-risk drinking, were associated with higher rates of self-rated absenteeism. The proportion of educators missing over ten days of school was highest among educators who had been diagnosed with TB in the past five years (30.2%), high-risk drinking (25.6%), lung or breathing problem (23.6%), heart disease (22.5%), diabetes (20.2%), cancer (19.6%), and anaemia (19.3%). Among HIV-positive educators, 17.1% reported missing over ten days compared to 13.8% of HIV-negative educators. The burden of absenteeism in the educator labour force (measured in total days absent) is highest due to high blood pressure, followed by use of tobacco, being HIV positive, stomach ulcer, arthritis or rheumatism and high-risk drinking.

Low morale at the educational institution, intention to quit teaching, low job satisfaction and high job stress were significantly associated with higher number of self-rated absenteeism and decreased presenteeism (unhealthy days).

Educators who perceived that they had more support – from the DoE, SGB, learners' parents, unions and religious groups in the community – in their role as educator and for AIDS work/education reported significantly less absenteeism and less 'unhealthy days'.

When asked in an open-ended question about what support the DoE should provide in terms of the care of ill teachers and learners, the most frequent responses were treatment and medication (55.6%), financial support (grants, medical aid) (54.3%), and were followed by emotional support (home visits, moral support) (36.4%), other material support (for example, food) (27.1%), assistance/support to schools (substitute teachers/ workshops) (25.1%), combat stigma and discrimination (17.9%) and home schooling/care centres (17.3%).

Alcohol use: Alcohol consumption patterns seem to differ by race. The overwhelming majority of educators (75%) abstained from drinking alcohol in the past 12 months. Male educators (15%) were significantly more high-risk drinkers than female educators (0.7%). Of all racial groupings, male coloured educators (18%) and male African educators (16%) reported the highest levels of high-risk alcohol use.

High-risk drinkers had more days absent from work in 2003 than non-drinkers or low-risk drinkers suggesting that heavy alcohol use contributes to absenteeism from schools.

Having had alcohol or drugs before last sex was significantly associated with being HIV positive, in particular among men.

Violence at schools: One of the hypothesised causes of attrition is violence experienced in and around the school premises. The three major forms of violence experienced by educators in the past 12 months included instances where a learner or educator had been found carrying weapons onto the educational institution (22%), a person was assaulted (18%) and a fight involving weapons (14%). More violence was experienced in urban schools than in rural schools, more in secondary schools than other schools, and the violence index score was highest in Western Cape, KwaZulu-Natal, and Mpumalanga provinces and lowest in Eastern Cape, Limpopo and Northern Cape provinces. Violent events at the educational institution seemed to have had an impact on the morale and intention to leave the education profession. Educators with a higher violence index score rated the morale at their school as lower than those with a low violence score, and educators with a higher violence score more often thought of leaving the education profession.

Potential attrition: A powerful predictor for attrition can be measured with the intention to leave or quit the service as an educator. Less than half of educators (45.4%) indicated that they had 'never' considered leaving the education profession. Of those who had considered leaving, 24.9% considered leaving 'from time to time' and 29.3% considered leaving the education profession 'very often'. Non-Africans, males, those aged 25–49 years, those teaching in secondary schools, those with higher qualifications, those earning medium to high income, and those teaching technology, economics and management and natural sciences, are most likely to leave the teaching profession. In examining intention to leave by HIV status and HIV morbidity, the results show that HIV-negative educators were more likely than HIV-positive educators to want to leave the profession. Reasons for wanting to leave the education profession include low job satisfaction (in particular: lack of career advancement and recognition, the teaching structure in terms of working hours/load/policies, and lack of discipline and respect) and job stress (in particular: problems with teaching methods and administration and problems with the educational system).

Section seven: Recommendations

- Behaviour change and HIV prevalence
- Increase HIV prevention knowledge
- Target districts with high HIV prevalence
- Improve self-efficacy skills
- Prevent transmission of HIV from those already HIV positive
- Discourage migratory practices
- Establish workplace health programme
- Eliminate gender disparities
- Reduce alcohol misuse
- End violence in schools
- Potential attrition
- Database management

7. Recommendations

The study was commissioned by the ELRC, comprising the DoE and the unions, mainly because of lack of adequate information for planning in the education sector. The unions and the DoE had separate but overlapping terms of reference for the study. Through discussion it was possible to combine the terms of reference for the study into one comprehensive research investigation that was agreeable to all parties. For this reason, the recommendations are specific to either or both parties and yet their implementation would require participation of the key relevant stakeholders from parties, the Council and tertiary institutions, donor agencies and, at times, domestic and international scientists.

1. Behaviour change and HIV prevalence

The key behavioural determinants of HIV infection were lack of condom use given HIV-positive status, multiple partnerships, alcohol use and age mixing. Efforts are needed, particularly targeting consistent condom use amongst all educators in all age groups and race groups as well as marital statuses, especially with non-regular sexual partners. Condom use messages need to be reinforced through media and training targeting especially married and female educators promoting condom use efficacy and HIV risk (condom use) self-efficacy. It is recommended that the DoE, working with unions and NGOs, develop HIV prevention programmes targeted to educators, given that they are a captive audience. There should be attention to educate them about the risk introduced by lack of condom use if the HIV status of the partner is unknown, dangers of high-risk drinking and the risk of age mixing not only for the older partner but also the younger ones. The messages should not only be about using condoms, faithfulness and abstaining but should increasingly address the issue of serial monogamy and HIV testing before engaging in unprotected sex with a partner whose HIV status is unknown to an educator, and having sexual partners within one's age group.

2. Increase HIV prevention knowledge

Having noted the gap in knowledge of HIV transmission in certain areas, it is recommended that the DoE, with participation of the unions, design educational campaigns that place more emphasis on anal sex and oral sex in prevention campaigns to ensure that this form of sex is not considered to be safe because it is not mentioned frequently as part of awareness-raising. Such a programme would be possible if it can be established as part of a workplace programme. Given the high rate of educators who frequently visit health practitioners, it is possible to begin such a programme as part of normal health care. The services of scientists in helping to design evidence-based interventions would prove useful.

3. Target districts with high HIV prevalence

The observed high HIV prevalence among educators, which was found to be concentrated in 11 districts, is reason enough for the DoE to intensify targeted efforts and improve conditions that make the transmission or spread of HIV infection favourable and to encourage translation of knowledge into behaviour change. Priority for HIV prevention should go to these districts found to have HIV prevalence of 20% or more. Given the

high awareness and knowledge of HIV transmission modes and easy access to condoms observed in this study, it does not appear that it is lack of HIV-prevention knowledge nor poor access to condoms that hinder behaviour change; what is needed are skills necessary to translate knowledge to safe sex. This could be achieved through building skills in self-efficacy.

4. Improve self-efficacy skills

Educators are responsible for teaching life skills designed to prevent HIV infection in learners; it is crucial that they be given the skills to prevent themselves from becoming infected. It is therefore recommended that the DoE and unions work together to design an education programme that will equip educators with skills to negotiate safe sex. These two stakeholders may work closely with NGOs to design such a programme, which would focus on encouraging educators to seek voluntary counselling and testing of couples to know their HIV status, negotiate safe sex and stay in monogamous relationships. These are sensitive issues and need to be managed by professional counsellors. The unions and the DoE should establish a monitoring and evaluation system to assess whether this proposed skills-building programme leads to behaviour change and hence lower HIV infections.

5. Prevent transmission of HIV from those already HIV positive

To prevent new HIV infections, it is recommended that the DoE work closely with unions, NGOs and scientists to design an intervention programme to prevent HIV transmission among HIV-positive educators. One such effective intervention that could be adapted for South African HIV-positive educators was tested in the USA (Kalichman, Rompa, Cage, DiFonzo, Simpson, Austin, Luke, Buckles, Kyomugisha, Benotsch, Pinkerton & Graham 2001). This intervention would be designed to assist educators living with HIV/AIDS to reduce their HIV transmission risks and enable them to effectively disclose their HIV status to their partners and consistently use condoms with their regular and non-regular partners. The group intervention would use a highly interactive approach that includes educational, motivational, and behavioral skills building components. The intervention would be gender sensitive and would also take into account sexual orientation of the educator. To ensure its relevance, the content of the intervention would be developed jointly with educators who are currently living with HIV/AIDS. Implementation of this recommendation is crucial because the study found that only 58.9% of educators who knew that they were HIV positive used a condom the last time they had sex with their regular partners and even so, condom use with a regular partner was found to be inconsistent (only 29.8% used a condom every time). While it is not known whether their sexual partners were HIV positive, it is of concern that 70% of these HIV-positive educators may become re-infected with HIV or with other STIs and hence exacerbate their condition. They are also more likely to pass the virus to their uninfected partners.

6. Discourage migratory practices

The long and/or frequent absences from home and family or stable relationships may contribute to increased risk of educators acquiring HIV infection. For this reason, it is recommended to the DoE and the unions to develop a structured programme for deployment of educators to specific areas; this would entail a deliberate effort to place teachers near their homes rather than leaving it to chance. In addition, it is recommended that the tertiary institutions could increase intake of education students from rural area to mitigate the shortage and reduce the chances of urban teachers getting jobs in rural areas. It is also recommended that the DoE should provide financial and other incentives for them to work in those rural areas where they have family roots. Furthermore, the number of work-related nights that educators spend outside their homes should be reduced.

7. Establish workplace health programme

Prolonged illness associated with HIV and other chronic diseases is likely to erode the gains in improving quality of education. Before the educators die from AIDS and other chronic diseases it is expected that they will not work to their fullest potential. The study has shown that absenteeism due to illness is already high. This suggests that healthy educators will be forced to take additional teaching responsibilities and this might create more stress. This could be so given that 15.5% of educators were previously diagnosed by a health practitioner to have hypertension and 9.9% to have stomach ulcers. It is therefore recommend that the DoE and donor agencies establish and manage a workplace programme specifically to provide a comprehensive prevention and treatment programme for all illnesses (including HIV/AIDS and TB) but ensuring confidentiality for educators. Such a programme would include stress reduction involving counselling, assessment of workload and adjustment thereof, blood pressure and diabetes screening and treatment. A programme such as this may have several benefits: First, it may help educators reduce stress; second, provide a 'one stop' comprehensive prevention and treatment centre near the school where teachers can easily access it; third, reduce absenteeism from school since there will be no need to miss school to see a healthcare provider unless the educator is ill; fourth, it will help monitor adherence to treatment for TB and HIV/AIDS; and fifth, access to drugs that can prolong life will be important in improving the quality of life of educators.

8. Eliminate gender disparities

To reduce gender disparities and reduce the rate of spread of HIV it is recommended that the DoE, the tertiary institutions and unions join hands with civil society to create a social environment that discourages men from engaging in risky behaviour that puts them and consequently women at risk of HIV. Despite the observation that the South African Constitution prohibits gender discrimination, South Africa remains a patriarchal society, where women continue to be treated as subservient to men. In addition, harmful practices such as marital rape and marrying young girls to older men continue unabated. To change such practices, it is crucial to involve traditional and religious leaders to lead a campaign to change the traditional practices and stereotypes that increase vulnerability of men and women to HIV. These practices include discouraging older males from having

sex with female youth, changing the beliefs that for men to be macho they must have multiple partners, and discouraging domestic sexual violence, including marital rape.

9. Reduce alcohol misuse

With respect to alcohol use, it is recommended that the DoE, working closely with unions, develop an alcohol prevention campaign targeting male educators to reduce high-risk drinking. This may significantly reduce the number of unhealthy days and absenteeism of male public educators from work. Such an intervention may entail a few words or written information about the risks of drinking may prevent hazardous or harmful alcohol use in the future. Depending on the severity of their high-risk drinking, high-risk drinkers need: (1) simple advice; (2) simple advice plus brief counselling and continued monitoring; and (3) referral to a specialist for diagnostic evaluation and treatment. The DoE should consider implementing workplace alcohol prevention programmes to include both primary and secondary prevention. Primary prevention aims to keep alcohol problems from developing, and secondary prevention seeks to reduce existing problems. Primary prevention often is more cost-effective than secondary prevention. Many employers offer employee assistance programmes (EAPs) as well as educational programmes to reduce employees' alcohol problems.

10. End violence in schools

The study found that violence at school was common, with the problem differing by province. Educators with a higher violence index score rated the morale at their school as lower than those with a low violence score, and educators with a higher violence score more often thought of leaving the education profession. This suggests that violence may be the reason for an educator to leave the education institution. Therefore, it is recommended that the DoE should work together with the South African Police Service to increase security at schools for the teachers.

11. Potential attrition

One of the major concerns observed in this study is the large percentage of educators who indicated their intention to leave the education service (56.2%). However, not all educators who indicate they intend to leave may indeed quit. The decision is probably more complicated than that. This matter will be taken up in more detail in the human resource report.

At this stage it is worth noting that those with skills are the ones who intend to leave the profession. The reasons for wanting to leave were low job satisfaction and job stress. Low job satisfaction can be addressed through negotiation on conditions of service between the DoE and the labour unions in the ELRC. The issues requiring resolution are: lack of career advancement and recognition and the teaching structure in terms of working hours/load/policies. Concerns related to mode of discipline of students require in depth discussion by both the DoE and unions. This recommendation does not imply that corporal punishment should be reinstated. What it connotes is that a more effective

incentive for disciplining learners is required. Such a method should restore respect of educators.

With respect to job stress, the discussion between the DoE and unions may entail teaching methods and administrative issues. The DoE should also consider providing support to educators, especially those who have been teaching OBE who report to have difficulty adapting to the new system. Other support educators indicated they needed from the DoE in terms of the care of ill teachers and learners, were treatment and medication, financial support (grants, medical aid), emotional support (home visits, moral support), other material support (such as food), assistance/support to schools (substitute teachers/workshops), combat stigma and discrimination, and home schooling/ care centers. It is recommended that discussions be held between the DoE and unions in order to reduce the stress levels of educators.

12. Database management

To draw the sample for the study required access to information on the geographic location of schools and the number of teachers employed at each school. The school data comes from the DoE's SRN while the teacher data comes from the PERSAL database. A major drawback in working with this data is that there is no unique alphanumeric number in either of the databases that allows teachers to be linked to a particular school. In the SRN, the Education Management Information System (EMIS) number provides each school with a unique number while the PERSAL data does not have the EMIS number nor a unique number of its own. The only common variable found in the two databases was the name of the school. Consequently, the teachers in the PERSAL database had to be linked to the schools in the SRN by the school name, which resulted in many problems.

Duplicate school names in and between provinces required extensive work to be done to ensure that the PERSAL database linked correctly to the SRN database. The truncation of school names, schools of different types but with the same name, and the spelling of school names in different languages all contributed to the difficulties in linking teachers to schools. If the unique EMIS number were used in both databases this problem would largely have been alleviated. A problem with the SRN database is that it might be recorded that a school is situated in a particular province but spatially, it is located in another province. Consequently, these sorts of problems had to be addressed. Another problem relating to the SRN database was that schools selected in the sample were found to be closed. To remedy this problem requires that the SRN database to be updated on an annual basis.

Furthermore, the Annual School Survey conducted by the provinces should be systematically linked to the updated SRN database to be able to provide the most recent statistics on schools and teacher numbers. Similarly, the PERSAL database must be updated on a regular basis and the EMIS number included in the database so that data on teachers can be easily linked to the school database. It is recommended that the South African Council of Educators develop a web-based system that will allow district managers to update information on the school locations and attributes on a regular basis.

By implementing this recommendation it will be possible to track the employment history of educators in the public service. On a regular basis it will be possible to do analysis of teachers to look at career management and identify where teachers with scarce skills are deployed, as an example. Ideally, the system should be able to track teachers from the time they are given a provisional registration number at college to when they retire from the teaching profession.

Section eight: Appendices

- Development of scales and indices
- Laboratory HIV testing procedures
- Evaluation of the age-sex distributions
- Reliability and validity of HIV prevalence rate, socio-demographic profiles, coefficient of variation and the design effects
- List of fieldwork supervisors, interviewers and coders

8. Appendices

Appendix 1: Development of scales and indices

Religious involvement index

Based on the principle of subjective rating of importance and religious practice, a measure with two items, how important is religion to you (rated from 1=extremely important to 5=not important at all) and how often do you practise your religion (rated from 1=regularly [once or more a week] to 4=never) was included (Koenig, McCullough & Larson, 2001).

Cronbach's alpha for the religious involvement index was .74 for this sample.

Job satisfaction scale

A 16-item job satisfaction scale was developed using items from existing scales (Brown, Kitchell, O'Neill, Lockliear, Vosler, Kubek & Dale, 2001; Lester 1987; Van Saane, Sluiter, Verbeek & Frings-Dresen 2003), focus groups with educators and expert interviews, for example, 'Teaching provides possibilities for promotion' (rated from 1=disagree to 3=agree).

Following a pilot survey, item analysis and principal component analysis with varimax rotation was used and a 6-factor solution was found to be the most appropriate.

In the main study, principal component analysis with varimax rotation yielded the same six components accounting for 61% of the total variance. The first factor (eigenvalue: 3.51) accounted for 22% in the variance in the responses and contained items concerning career advancement and recognition. The second factor (eigenvalue: 1.70) accounted for 10.6% in the variance in the responses and included items related to peer support. The third factor (eigenvalue: 1.31) accounted for 8.2% of the variance in the responses and included items related to teaching structure (working hours/load/policies). The fourth factor (eigenvalue: 1.20), explaining 7.5% of the variance in responses, contained items about discipline and respect. The fifth factor (eigenvalue: 1.07), accounting for 6.7% of the variance in responses, reflected items on community enhancement, and the sixth factor (eigenvalue: 1.01), explaining 6.3% of the variance, including items on job security.

Cronbach's alpha for the overall job satisfaction scale was .71. For the factors 1 to 6 coefficient alphas ranged from .47 to .73.

Table A1: Items and factor loadings for the job satisfaction scale

Factor	Items	Loading
Factor 1: Career advancement and recognition	(Alpha: .65)	4
Teaching provides possibilities for promotion		.79
Teaching provides ample career development opportunities		.80
I have the opportunity to participate in decision-making on my institution's policies		.49
I receive recognition for my work as an educator		.49
Factor 2: Peer support	(Alpha: .73)	3
I get along well with my colleagues		.82
My colleagues and I support each other		.87
My colleagues and I are united in our dedication towards teaching		.72
Factor 3: Teaching structure (working hours/load/policies)	(Alpha: .47)	3
My workload is not too high		.78
I am satisfied with the content of the policies that affect my job		.50
Teaching offers reasonable working hours (despite extra-curricular activities)		.65
Factor 4: Discipline and respect	(Alpha: .58)	2
My learners respect me as a educator		.82
Most of my learners are well disciplined		.82
Factor 5: Community enhancement	(Alpha: .64)	2
Teaching provides me with opportunities to assist in shaping the future of young people		.83
Teaching provides me with opportunities to empower people with meaningful knowledge and information		.85
Factor 6: Job security	(Alpha: -.42)	2
Teaching provides me with job security		.56
I am afraid that I will be forced to take up a teaching position in an area/school/college where I do not want to teach		-.89

Job stress index

A 6-item job stress index was developed using items from existing scales (for example, Boyle, Borg, Falzon & Baglioni 1995; Fimian & Fastenau 1990; Spielberger 1994;

Spielberger & Reheiser 1994), focus groups with educators, expert interviews, and pilot study analysis of the Job Stress Scale (Spielberger 1994), for example, 'I earn an inadequate salary' (rated from 1=disagree to 3=agree).

In the main study, principal component analysis with varimax rotation yielded three components accounting for 67% of the total variance. The first factor (eigenvalue: 1.94) accounted for 32.4% in the variance in the responses and contained items concerning problems with teaching methods and administration. The second factor (eigenvalue: 1.09) accounted for 18.2% in the variance in the responses and included items related to problems with the educational systems. The third factor (eigenvalue: 1.002) accounted for 16.7% of the variance in the responses and included items related to low socio-economic status.

Cronbach's alpha for the overall job satisfaction scale was .52. For the factors 1 to 6 coefficient alphas ranged from .09 to .82.

Table A2: Items and factor loadings for the job stress scale

Factor	Items	Loading
Factor 1: Problems with teaching methods and administration	(Alpha: .82)	2
I experience stress arising from the implementation of new curricula, pass requirements and reporting systems		.91
I experience stress with the preparation/assessment involved in applying the OBE approach		.91
Factor 2: Problems with educational system	(Alpha: .32)	2
Performing tasks not in my job description		.83
I experience negative attitudes towards the education department		.61
Factor 3: Low socio-economic status	(Alpha: .09)	2
I earn an inadequate salary		.63
The teaching profession needs more status and respect from the community		.81

Educator support index

A 9-item educator support index measured support in relation to the educator's role as educator (4 items) and for AIDS work or education (5 items), for example, 'I have the support of the school governing body for AIDS work/education'. Items were rated from 1=disagree to 3=agree.

Cronbach's alpha for this index was .82 for this sample.

Violence at school index (Cronbach's alpha .68)

A 9-item violence at school index was developed on the basis of literature review, focus groups of educators, expert interviews and pilot study analysis in order to measure the occurrence of the most common forms of violence in and on the way to school in the past 12 months, for example, 'Learners and/or educators have been found carrying weapons onto your institution's premises' (response options were 'yes' or 'no').

Cronbach's alpha for this index was .68 for this sample.

Alcohol use scale, AUDIT

Alcohol use was assessed with the ten item Alcohol Use Disorder Identification Test (AUDIT) (Babor, Higgins-Biddle, Saunders & Monteiro 2001). Standard drinking units were adjusted to the South African context (one unit 12 g alcohol), and sex differences were included for binge drinking, namely for men five or more and for women four or drinks on one occasion.

Cronbach's alpha for the AUDIT in this sample was .78.

Other substance use was assessed using two sections of the The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) (Henry-Edwards, Humeniuk, Ali, Poznyak, & Monteiro 2003). The two sections included past three months substance use (question 2), failure to do what expected to do in the past three months due to substance use (question 5), and the use of drugs by injection (question 8). In the use of tobacco products question 'snuff', as a commonly used tobacco product in South Africa (see for example, Peltzer 1999) was added and in the cannabis question the term 'dagga', a common term used in South Africa for 'cannabis', was added.

Self-efficacy scale for HIV risk behaviour

A 4-item self-efficacy scale for HIV risk behaviour was developed on the basis of existing scales (Smith, McGraw, Costa, & McKinlay 1996), literature review, focus groups of educators, expert interviews and pilot study analysis in order to measure self-efficacy of condom use in social situations, for example, 'If you decide to have sex, how sure are you that you would have a condom with you when you need it?' (response options were rated from 1=not sure at all to 3=totally sure).

Cronbach's alpha for this scale was .78 for this sample.

Health-related quality of life

The CDC Health Related Quality of Life (HRQOL-4) includes a global question that measures self-reported health (that is, 'Would you say that in general your health is excellent, very good, fair or poor?). Also included in the HRQOL core are two questions reporting the number of days during the previous 30 days in which the respondent's physical or mental health was not good. The sum of these two measures results in the total number of 'unhealthy days' (ranging from 0 to 30 days). The fourth question of the HRQOL core measures the number of days in the previous 30 days in the respondent

experienced activity limitation because of poor physical or mental health (CDC 2000). The CDC HRQOL-4 measure had an acceptable test-retest reliability and strong internal validity in a representative sample in the US (Andresen, Catlin, Wyrwich & Jackson-Thompson 2003).

HIV/AIDS knowledge index

A 14-item HIV/AIDS knowledge index was developed on the basis of existing scales (Carey & Schroder 2002), literature review (Nelson Mandela/HSRC Study of HIV/AIDS 2002), focus groups of educators, expert interviews and pilot study analysis in order to measure HIV transmission and prevention knowledge (6 items, for example, 'People can protect themselves from HIV by using a condom correctly every time they have sex'), HIV/AIDS myths (4 items, for example, 'Having sex with a virgin can cure HIV/AIDS'), knowledge on HIV and TB (2 items, for example, 'Patients with TB also have HIV'), and knowledge about antiretroviral treatment (2 items, for example, 'Once one has started taking antiretroviral treatment for HIV/AIDS one has to take it forever'). Response options were 'true', 'false' or 'do not know'.

Cronbach's alpha for this index was .52 for this sample.

HIV and sexuality communication comfort index

Five items on how comfortable one feels about HIV and sexuality education was developed from existing scales (Boscarino & DiClemente 1996) and focus groups with educators, for example, 'I am comfortable talking to learners about sexual matters', rated from 1=agree to 3=disagree.

Cronbach's alpha for this scale was .61 for this sample.

HIV risk perception scale

The Health Belief model and Social-Cognitive learning theory both stress the importance of perceptions about the seriousness of a health threat, perceptions about one's personal vulnerability to a health threat, and one's perceived ability to reduce one's risk, as key determinants of health behaviour. A 3-item HIV risk perception scale was developed on the basis of literature review (Bengel, Belz-merk & Farin 1996) and focus groups with educators, including one item on personal HIV risk, one item on community HIV risk and one item on seriousness of HIV/AIDS in the community, for example, 'How likely is it that you will become infected with HIV?' Response options included a 5 or 6-point Likert scale from 1=no risk at all to 6=extremely at risk.

Cronbach's alpha for this scale was .58 for this sample.

Tuberculosis social distance scale

The degree of prejudice against people with TB was measured with a 5-item social distance scale (intention to engage in physical and social contact with people with tuberculosis). Response options were 'yes', 'no' or 'do not know'. Responses to items

were summed so that the higher the score, the more socially acceptable were the people with TB considered by the respondents surveyed, that is, the more willing the respondents were to engage in social contact by sharing meals, working/studying or by physical contact such as hugging, kissing or having sexual relationships with people with TB (Jaramillo 1999).

The scale had an internal consistency of .69 (Cronbach's alpha).

HIV/AIDS stigma index

A 5-item stigma index was developed on the basis of literature review (FHI 2000; Nelson Mandela/HSRC Study of HIV/AIDS 2002) and focus groups with educators. Only items with a direct possible experience with a person living with HIV/AIDS were included in relation to the family (for example, 'Did you care for a family member who was ill due to AIDS?') and school situation (for example, 'Have you avoided a colleague who disclosed his/her positive HIV status to you?') Response options were 'yes' or 'no'. These questions were to be analysed with three corresponding questions, namely knowing a family member, learner or educator living with HIV or AIDS.

Cronbach's alpha for this scale was .68 for this sample.

Appendix 2: Laboratory HIV testing procedures

HIV Testing

All blood specimens were tested for HIV on the Abbott AXSYM third generation HIV 1 / 2 g0 testing system. There are many advantages of the AXSYM instrument over the old testing system, including the fact that testing of the primary tube is done directly, there is a barcode reading facility and it is fully automated. This has improved the turn-around time, eliminated the potential for pipetting and other 'human' errors and the instrument 'down-time' has been negligible. The instrument maintenance plan is practical and the instrument has proven to be very user-friendly.

The following points explain how quality control of the blood testing was ensured:

- Kit controls: HIV 1 and HIV 2 positive control, HIV negative control, which are run daily;
- Additional commercial internal control: low positive HIV positive Accurun (BBI) control (also run daily);
- A subset of AXSYM positive and negative samples are retested on a different second line 3rd generation Elisa (BioRad Genetic System HIV 1 Elisa);
- All weakly reactive AXSYM results are tested on the BioRad second-line Elisa before a result is provided. If the BioRad is positive, the sample is considered positive and if negative on the BioRad, the sample is considered negative;
- Regular servicing of the AXSYM by Abbott;
- Performance of daily, weekly and monthly maintenance of the AXSYM instrument as recommended by the supplier.

In addition, CLS is also enrolled in a national (NHLS) and international (NRL and CAP) external quality control programs for regular testing of HIV proficiency panels. CLS has achieved 100% scores since enrolment in these programmes.

Participants who did not wish to provide a blood specimen instead provided a specimen of oral fluid, which was obtained by using the 'Orasure' oral fluid collection device. These specimens were tested using the Vironostika HIV Uni-Form II Oral Fluid testing system. This is an Elisa for the qualitative determination of antibodies to human immunodeficiency virus type 1 and/ or 2 (anti-HIV-1, anti-HIV-2 and anti-HIV-1 group O) only with oral fluid specimens.

Quality control for this testing system consists of the following:

- Five negative controls are run on each plate: two in the first row, one each in the fourth, seventh and tenth rows;
- Two positive controls (one high and one low positive): these are run in the last 2 wells of the 12th row;
- No international EQA programs for oral fluids are currently available.

Appendix 3: Evaluation of the age-sex distributions

Analysts often take the quality of survey data for granted and do not provide sufficient appraisal of the quality of the data. The quality of the demographic variables in a survey often provides an insight into the quality of the survey data in general.

Two important variables in this regard are age and sex. Because of its cross cutting nature with regard to planning, age and sex information are collected in virtually all surveys. Apart from being directly or indirectly linked to all socio-economic phenomena and planning, the quality of the age-sex distribution from a survey often provides an indication of the quality of various aspects of the data. Although the quality of HIV testing may not necessarily be related to age, invariably such test results are presented by age, and if there errors in age-sex reports, the distribution of HIV prevalence by age and other age related variables in the data might be distorted. Age-related estimates from the survey data might therefore be in error. Confidence intervals though give some indications of the precision of the sample related estimates; they do not provide clues about content errors which are sometimes more substantial in survey data than sampling errors (for example, age-misreporting, tendency to report one's marital status as widowed when actually divorced). In view of these reasons, a critical appraisal of the age-sex distribution is essential.

This section provides an appraisal of the age-sex distribution of educator sample.

Methods

There are several approaches that may be used in appraising the quality of an age-sex distribution:

Internal consistency analysis: This entails examining the quality of the age-sex distribution within the survey data and, if necessary, comparison with other demographic phenomena within the data (for example, fertility and mortality). The question usually posed by the analyst in this approach is: 'Are the data internally consistent?' For example is the age-sex distribution consistent with fertility and mortality? (An age-sex distribution is determined entirely by fertility, mortality and migration). A thorough consistency check cannot be performed on the present data because the demographic information is limited as it was not the objective of the survey to collect detailed demographic information.

External consistency check. This entails comparing the age-sex distribution obtained from the survey with other external sources. The external sources chosen for comparison (often what are available) do not necessarily mean these are 'gold standards' as similar patterns of error might operate in the external sources. Even when this is the case, the approach is still useful in gauging the magnitude of probable errors in the survey data relative to those in the external source.

Use of reference standards. Several standard age distributions are available (see Udjo forthcoming) for evaluating observed age-sex distributions. Such reference standards were constructed for the general populations and not for specific occupation groups within populations. The use of reference standards is therefore not useful in the present study since the sample was based on educators.

The appraisal of the age-sex distributions of the sample therefore combines a limited internal and external consistency check as described above. The external source is Statistics South Africa's General Household Survey (GHS) (Stats SA 2003). From the occupation question in the 2003 GHS, educators can be extracted and tabulated by age and sex. However, because of the nature of the coding system employed in both data sets, and the universe of study in the ELRC data, this part of the analysis is confined to educators in primary, secondary and special institutions. Statistics South Africa utilised the International Standard Classification of Occupations (ISCO), which is very detailed. The ELRC study did not include university educators and the coding classifications employed is not as detailed as the ISCO coding; hence to avoid overlap and misclassification, the analysis of the GHS and ELRC data were restricted to educators in the institutions indicated above. The coverage of educators in the GHS and ELRC surveys is also different in another important aspect. While the GHS covers educators in both private and public institutions, the ELRC only covers educators in public schools. According to figures from the DoE, however, educators in private institutions constituted only 4% of educators in South Africa in 2001 (see DoE 2003). It may be argued that this 4% would only make a negligible impact in the overall distribution of educators in the country and therefore, one could use the distribution of educators in the GHS survey as an external check on the distribution of educators in the ELRC survey in primary, secondary and special institutions.

The appraisal of the quality of the age-sex distributions was based on examination of the median age, overall sex ratio (number of males per 100 females), single- and five-year age-sex distributions.

Median age

The median age is a summary measure of age distributions and is one of several indicators of the 'youngness' of a population distribution. The observed value of the median age of a population can be used to evaluate the accuracy of reported age distributions on the basis of a priori knowledge of fertility levels in that population. Although the present study was confined to persons who would normally be in a restricted age range (that is, defined categories) rather than all ages in the population, the accuracy of the observed median age of defined categories (such as workers and educators) could be inferred from a comparison of the observed mean age of the defined categories from other external sources of data of the same population. Such comparison is shown in Table A3 below.

As seen in the table, the median age of South Africa's population – as observed in the 2003 GHS (Stats SA 2003) – was 23 years. This value is plausible given the trend and prevailing levels of fertility in the country, and is somewhat consistent with the median age of the population in 2004 (24 years) estimated by Udjo (2004). On this basis, we assume that the median age of defined categories in the population is also plausible and hence this external source of information may be used to evaluate the observed values from the educators study.

As seen in Table A3, the observed median age of educators in the 2004 ELRC study is 39 years. This is consistent with the corresponding value observed in the 2003 GHS (41 years), though the former is two years lower than the former. A similar consistency is shown when the median age of educators from the general household survey is compared with the corresponding values from the ELRC study by population group

and province. In particular, it is a happy coincidence that the observed median age of educators from the 2003 GHS and the 2004 ELRC study are the same for Western Cape, Eastern Cape, North West, and Limpopo provinces (see Table A3).

Table A3: Median age (years) of educators in the 2003 GHS and 2004 ELRC surveys

	Median age	
	GHS 2003**	ELRC 2004***
Total (all persons)	23	—
Total (educators)*	41	39
Population group:		
Africans	40	39
Coloured	43	41
Indian	43	41
White	45	44
Province:		
Western Cape	41	41
Eastern Cape	39	39
Northern Cape	41	39
Free State	44	42
KwaZulu-Natal	40	38
North West	39	39
Gauteng	43	40
Mpumulanga	43	40
Limpopo	40	40

** Educators in primary, secondary and special institutions*
***Source: Stats SA General household survey (2003)*
**** ELRC Educators survey (2004)*

Single-year age distribution

The median estimates discussed above provide an overview of the 'youngness' and quality of the observed distributions but do not enable detailed examination of the quality of the observed age distributions. More detailed evaluation of the quality of the observed age distributions can be gained through examination of single-year age distributions. The observed single-year age distributions in the 2003 general household survey and the 2004 ELRC study are shown in Figures A1 and A2 for males and females. One common error in age reporting is age heaping or digit preference (that is, the tendency to report ages ending in certain digits). This kind of age-misreporting if present, can be detected in graphical presentation of single-year age distributions. As seen in Figure A1, heaping

in ages ending in zeros and even numbers (with the exception of an unusual heaping on age 43) was quite marked among males in the 2003 GHS survey as evident from the erratic pattern or large 'peaks' in the single-year age distribution. In contrast, with the exception of a few small peaks, heaping is hardly discernible among males in the 2004 ELRC study. In contrast to the 2003 GHS, the observed single-year age distribution for males in the 2004 ELRC study is fairly smooth thus indicating that the quality of the single-year age distribution for males is a lot better than in the 2003 GHS. The comparison of the observed single-year age distribution for females in the 2003 GHS and the 2004 ELRC study (Figure A2) shows a similar pattern as the comparison for males. The distributions indicate that the quality of the single-year age distribution for females is a lot better than in the 2003 GHS.

Figure A1: Reported single-year age distribution of educators in the general population and the ELRC study, males

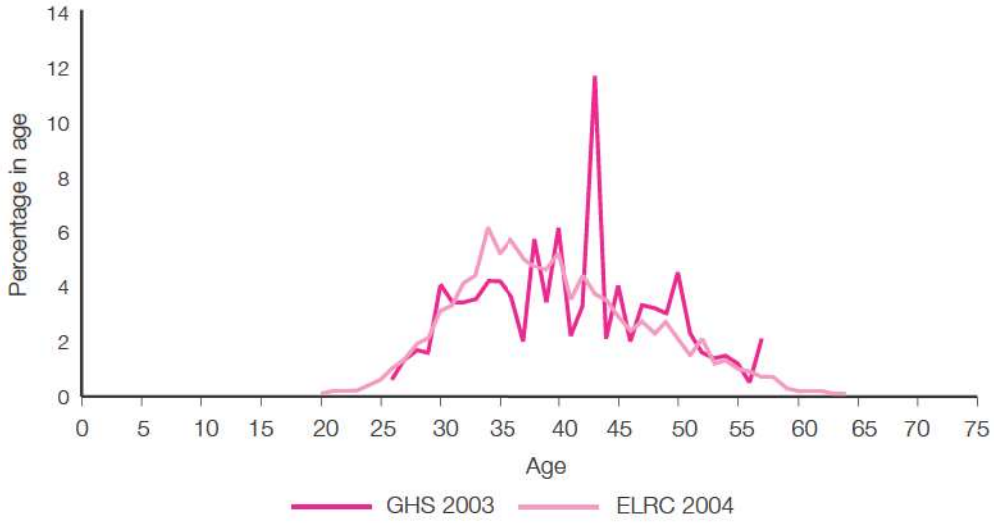
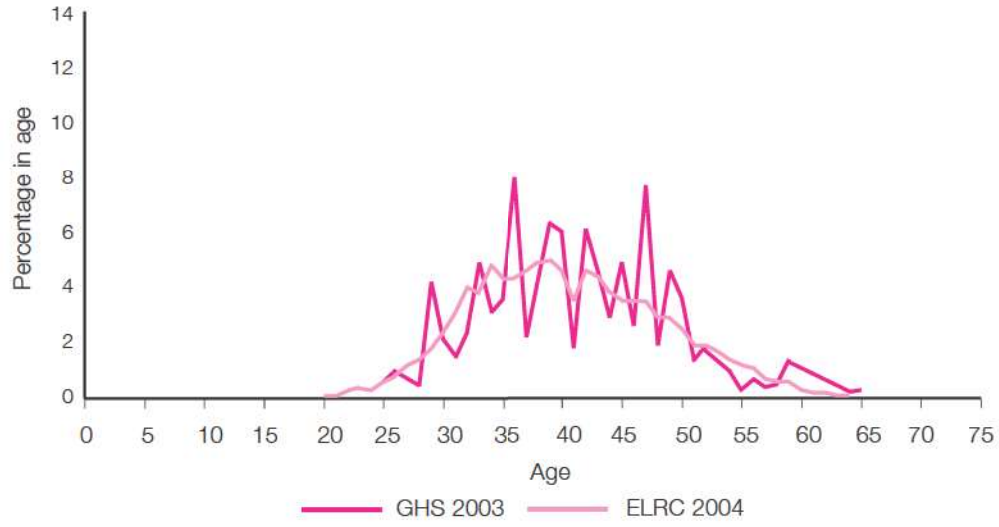


Figure A2: Reported single-year age distribution of educators in the general population and the ELRC study, females



Five-year age distributions

For practical purposes, analysis of age-related variables of survey data are often done in broad age groups as variables cross-classified by single years of age are too cumbersome for analytical purposes though they provide useful insight about the quality of the data. Commonly, variables are cross-classified by five-year age groups and sometimes by ten-year age intervals or other intervals. Cross-classification of variables in five-year age or other intervals also has the advantage of self-smoothening as some of the erratic fluctuations in single-year age cross-classifications may be minimised though age-shifting (tendency to report one's true age group in another age group) may be present in five-year age distributions. For these reasons, Figures A3 and A4 compare the observed five-year age distributions of educators in the 2003 GHS and in the 2004 ELRC study by sex. The five-year age distributions for male educators in the 2003 GHS and the 2004 ELRC show some slight differences. Since the time period between the two surveys is very short (approximately one year apart) the proportions in each age group should be almost similar in the absence of errors in the two surveys because there is very little overlap in the age cohorts. However, one observes from Figure A3 that the proportion of male educators aged 35–39 in the 2004 ELRC study is about 6% higher that the corresponding proportion in the 2003 GHS. Also, the proportion of male educators aged 40-44 in the 2004 ELRC study is about 5% lower than the corresponding proportion in the 2003 GHS. A close examination of the bulge in the five-year age distribution of educators at age 40–44 in conjunction with the single-year age distribution in the 2003 GHS suggest that the bulge is largely due to age shifting from adjacent or other age groups. (Note from Figure A1, the relative excess males at age 43). On this basis, it would appear that the 2004 ELRC study provides a better indication of the proportion of male educators aged 40–44 than the 2003 GHS. On the other hand, the bulge in the five-year age distribution of male educators at age 35–39 in the ELRC study is suggestive of age shifting on that age group, thus probably an exaggeration of the 'true' proportion of male educators in that age group. Other than these two age groups (40–44 in the 2003 GHS and 35–39 in the ELRC study) and excluding the youngest and oldest age groups, the proportion of male educators in five-year age group in the ELRC study is fairly consistent with the corresponding proportion in the 2003 GHS. In general, the distribution of male educators in five-year age groups shows a relatively more regular and hence better quality in the ELRC study than in the 2003 GHS.

Figure A3: Five-year age distribution of male educators, GHS 2003 and ELRC 2004

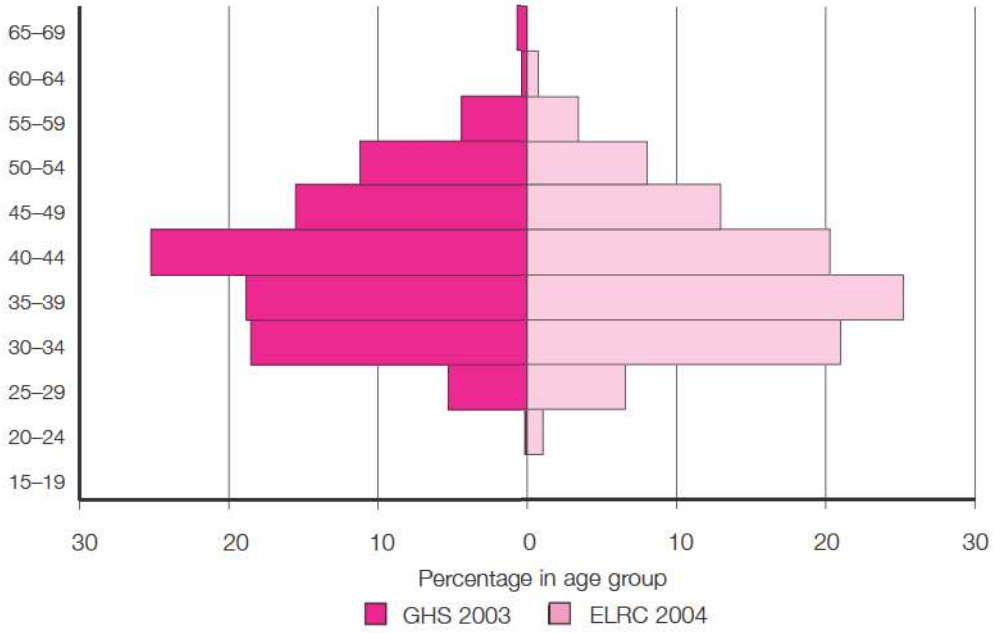
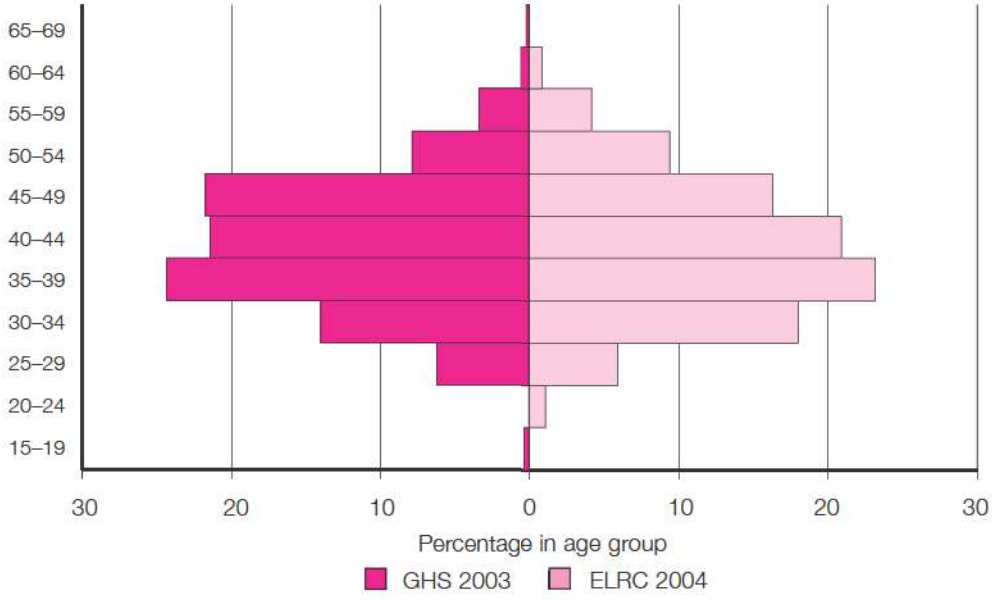


Figure A4: Five-year age distribution of female educators, GHS 2003 and ELRC 2004



With regard to females, the five-year age distributions from the 2003 GHS and the 2004 ELRC study (Figure A4) are not consistent with each other at the 30–34 and 45–49 age groups. The proportion of female educators aged 30–34 in the 2004 ELRC study is about 4% higher than the corresponding proportion in the 2003 GHS, while at age 45–49, the proportion of female educators in the 2004 ELRC study is about 5% lower

than the corresponding proportion in the 2003 GHS. There is a bulge in the five-year age distribution at 35–39 in both the 2003 GHS and the 2004 ELRC study, largely arising from age shifting and consequently resulting in a proportionate deficit of females at age 30–34 (relative to males in that age group). This is, however, less marked in the 2004 ELRC study compared to the 2003 GHS. Aside these seemingly aberrations and excluding the youngest and oldest age groups, the proportion of female educators in five-year age group in the ELRC study is fairly consistent with the corresponding proportion in the 2003 GHS. In general and similar to males, the distribution of female educators in five-year age groups shows a relatively more regular and hence better quality in the ELRC study than in the 2003 GHS.

Overall sex ratios

Another aspect of evaluating age distributions is examination of observed sex composition of the age distributions. A summary measure in this regard is overall sex ratios and is a powerful indicator of the quality of observed sex composition of a population given knowledge about fertility, mortality and migration in that population. One needs to be cautious however when comparing overall sex ratios in the 2003 GHS with those in the 2004 ELRC survey in view of controversies around observed sex ratios from surveys and censuses in South Africa (see, for example, Dorrington 1999; Phillips, Anderson & Tsebe 1999; Sadie 1999; Shell 1999; Udjo 1999). In a recent work for example, Udjo (forthcoming) has argued that observed overall sex ratio from the October household surveys (now replaced by the general household surveys) and censuses of 91 in South Africa (derived from the listing of members of household by sex) are not reliable as it exaggerates the number of females in the South African population. Furthermore, Udjo argues that since the census results (including overall sex ratios) have been used for deriving weights for sampling and subsequently weighting of survey data, the error in sex ratios are carried over to survey data (and indicators derived from them) since sex is either used as an explicit or implicit stratification variable in sampling and weighting.

The observed overall sex ratio of educators in the specified institutions from the 2003 GHS and the 2004 ELRC study are shown in Table A4. As seen in the table, the observed overall sex ratio is low (91) suggesting substantial excess females over males in the population and is inconsistent with fertility, mortality and migration levels and trend in the population (see Udjo forthcoming). Table A4 also indicates that the overall sex ratio among educators on the basis of the 2003 GHS is much lower (64) than in the general population (91) suggesting large excess female over male educators. Is the excess females in the 2003 GHS entirely due to the nature of the occupation (that is, female-dominated occupation) or a combination of errors in the data and the nature of the occupation? The 2004 ELRC study shows even lower overall sex ratio (49) than in the 2003 GHS (64).

Table A4: Overall sex ratios of educators

	GHS 2003	ELRC 2004
Total (all persons)	91.4	—
Total (educators)	64.1	48.5
Population group:		
Africans	66.6	51.8
Coloured	75.4	51.2
Indian	102.7	51.3
White	46.7	26.2
Province:		
WC	113.2	47.5
EC	67.1	38.9
NC	24.3	47.0
FS	62.4	55.2
KZN	82.0	43.0
NW	91.3	46.6
GT	35.8	38.4
MP	52.7	43.1
LP	68.1	77.9

Large differences in overall sex ratio of educators can also be seen when the 2003 GHS is compared with the 2004 ELRC study by population group and province. For example, the observed overall sex ratio in the 2003 GHS is at least twice the overall sex ratio in the 2004 ELRC study among Indian educators and educators in the Western Cape. This pattern appears to suggest that the 2003 GHS had a wider coverage of male educators (relative to female educators) than in the 2004 ELRC study. Part of the explanation for the difference in coverage may be due to the fact that whereas the educators in the 2003 GHS were from private and public education institutions, those from the ELRC were from only from public schools and there are probably more female educators.

Conclusion

Although the information pertaining to educators in the 2003 GHS is by no means a 'gold standard', it provides a useful external gauge of the quality of the observed age-sex distribution from the 2004 ELRC study. This external consistency check suggests that the age distribution from the 2004 ELRC study is of reasonably good accuracy: The median age of the age distribution from the 2004 ELRC study is plausible and consistent with those from the 2003 GHS. The observed single-year age distribution from the 2004

ELRC study is fairly smooth and of better quality than the 2003 GHS. The five-year age distribution from the 2004 ELRC study is also more regular and of better quality than the 2003 GHS. However, the observed sex composition of educators suggest that the 2003 GHS apparently had a wider coverage of male educators than in the 2004 ELRC study. Since the quality of age-sex distribution from a survey provides an indication of the quality of various aspects of the data, it might be inferred from the results of the age analysis that the 2004 ELRC data is of reasonable good quality.

Appendix 4: Reliability and validity of HIV prevalence rate, socio-demographic profiles, coefficient of variation and the design effects

Variables	n	Prevalence Rate (r)	SE_r	CV_r	Deff	Deft
Sex						
Male	5 405	12.75	0.57	0.045	1.72	1.27
Female	11 467	12.76	0.42	0.033	1.98	1.36
Age in years						
25–35 years	5 032	20.95	0.75	0.036	1.84	1.31
36–49 years	9 167	10.64	0.41	0.039	1.77	1.29
50 years and above	2 441	4.02	0.47	0.117	1.44	1.16
Race group						
African	11 854	16.30	0.41	0.025	1.73	1.27
Whites	2 151	0.42	0.13	0.310	0.73	0.83
Coloureds	2 298	0.71	0.21	0.296	0.93	0.93
Indian/Asian	523	0.98	0.39	0.398	1.25	1.08
Type of school						
Primary	9 402	12.34	0.48	0.039	2.01	1.37
Secondary/High	5 939	12.48	0.69	0.055	3.18	1.72
Combined /Intermediate	1 439	16.54	1.53	0.093	2.40	1.50
Location of institution						
Urban formal	6 928	6.29	0.52	0.083	2.97	1.66
Urban informal	1 100	13.91	1.32	0.095	1.56	1.21
Non-urban or rural	8 779	16.77	0.51	0.030	1.89	1.33
Race and sex						
African – males	3 847	15.91	0.68	0.043	1.57	1.21
Other – males	1 558	0.89	0.27	0.303	0.98	0.96
Race and sex						
African – females	7 998	16.46	0.50	0.0304	1.69	1.26
Other – females	3 469	0.75	0.16	0.21	1.02	0.97

Variables	n	Prevalence Rate (r)	SE_r	CV_r	Deff	Deft
Marital status						
Single	4 525	22.85	0.75	0.033	1.63	1.23
Married	12 302	8.82	0.35	0.040	1.97	1.36
Position at school						
Junior	12 523	14.05	0.43	0.031	2.07	1.39
Senior	4 034	8.73	0.54	0.062	1.59	1.22
Province						
WC	2 128	0.99	0.29	0.293	1.46	1.17
EC	1 845	13.81	0.96	0.070	2.46	1.52
NC	888	4.35	0.90	0.207	0.56	0.72
FS	1 123	12.49	1.27	0.102	1.68	1.25
KZN	3 566	21.90	1.05	0.048	2.77	1.61
NW	1 411	10.51	0.97	0.092	1.32	1.11
GT	2 724	6.47	0.61	0.094	1.63	1.13
MP	1 303	19.03	1.54	0.081	1.96	1.35
LP	1 896	8.54	0.72	0.084	1.84	1.31

Note: Abbreviations used: N = number of cases in the sample, r = response rate, SE_r = standard error of the response rate, CV_r = coefficient of relative variation, Deft = design factors (square root of Deff), and Deff = design effect

Appendix 5: List of fieldwork supervisors, interviewers and coders

Provincial co-ordinators

Ramlagan Shandir	KZN
Van Wyk Brian	NC
Henda Nomvo	WC
Petros George	MP
Nqeketo Ayanda	EC
Louw Julia	GT
Zungu-Dirwayi Nompumelelo	WC
Letlape Lebogang	FS
Francis Shantinie	KZN
Tamasane Tsiliso	NW
Thaba Fhumulani	LP
Sithole Nhlanhla	GT

Fieldwork supervisors

Arendse Dorothy Sophia	Mia Shahnaaz
Anthony P	Mkansi Gaza Louwy
Arrison Marlene	Mojapelo Julia Lifutso
Botha Elsie	Moleme BJ
Da Gama Harmony	Moodley Vulimal Kanama
Fynn R	Ndaba L
Galo Julia Tabina	Nel Elmarie
Gilday Colleen	Nkoana-Makhetha Perpetua
Gum Mothiba Ethel	Nqqovu Weziwe
Irwin D	Phooko Matilda Mashaw
Kgwedi Dimakatso Octavia	Ramashala Modikane Jane
Khosa Nikiwe Sellina	Schnoor JJ
Lite Eric Clifford	Scholing MJ
Lokwe Theresa	Sekgobela Njale C
Maake Rosina M	Thwane Namokonyane Martha
Magubane F	Tshipa Gertrude
Masisi SS	Tuku-Stuurman Letty Thandiswa
Matheson Mauveen	Tyalimpi Norah Nandipha

Interviewers

Adams Ena Nancy
Amadlel L
Amod Eugene Bernice
Arendse Dorothy Sophia
Baloyi A
Barnaschone LE
Beelders Luddy Evelyn
Benefeld Gameda
Bless Sheila
Bloko Nosisa Albertina
Boikanyo Sylvia Bosiswe
Bopape E
Bopape Edith
Boshoff Stephanie C
Briekwa Mina Barbara
Buckton Martha Magdalena
Burger Anna Mara
Buthelezi H
Calvert Faith Virginia
Cebekulu H
Cebekulu Nonhlanhla D
Crouch Dorah
Damonse G
Dasa Lillian Singiswa
De Bruin Elna
Diago Makwadi E
Diaz Gideon
Dike Pauline
Dipela C
Dipela Catherine
Diseko Malebato Margaret
Dladla D
Du toit Hilda Maria
Duba ND
Dube Eunice Matshiliso
Duma N
Dziba Nonkonzo Nancy
Edwana Wandisa Edna
Ellis Tandi Olga Margaret
Els SW
Francis Joy Frances
Gabohele V
Galo Julia Tabina
Galo Nozipho Benedicte
Ganie F
Gelant Jennipher Jean
Geldenhuys Mamona Ester
Ghela M
Gidagaj G
Gidagaj Getrude
Gounden B
Govender M
Govender S
Govinden A
Gqabi N A
Gumede E
Gumede Ntombile Adelaide
Gwayi Ayanda
Gxoyiya Nomatolo Millicent
Havenga Aletta M
Hayes Martha Cornelia
Hermanus Sarah
Hlabeli KJ
Hlengwa F J
Hlubi Rose
Israel SR
Jacobs Melvina Nicolette
Jali J
James Sophia Elizabeth
Johnson Blossom

Joubert Rosina Martalena
Joyi Sannah
Jwaai Mary Magaret N
Kanyile BJ
Kgaphole Joan Malefula
Kgwetiane M
Kgwetiane Mmadifedi
Khanyile E
Khume Miriam Linkeng
Khutoane Makojwana Sophy
Kitsa MS
Koma Tsiane Johanna
Krog J
Kubeka C
Kubeka Sybil M
Kwabe J
Lamprecht MSI
Laubscher Anna C E
Le John L
Ledwaba Freda Ntombizodwa
Lehaiwa J
Lehaiwa Jane
Lekubu Mmatsebe G
Lekwakwe Evatonia D
Leoane TA
Letsoalo G
Letsoalo Gladys
Lewaba Rebone N
Lewaba RN
Liebenberg G U B
Lobelo Mpho Gloria
Lombard Anneli
Lutula N
Mabaso K
Mabaso Khatazile
Mabelane Morufe Eva Ingrid
Mabizela GB
Mabote Boniswa M
Mabunda Nellie Dorothy
Mabunda Sizeni
Mabunda Tsakani Julia
Madihlaba E
Madihlaba Eva
Madiope Christene Madipofa
Mafa Hlamalahi Grace
Mafekiso Nada Nakanye
Magoro Johanna Mmemeng
Mahlaba Gloria R
Mahlaba GR
Mahlangu Matshediso Caroline
Mahonga Gladys Nomgcobo
Maidi Johannes Mfanyana
Maite Kathleen Maud Makgogo
Makathini B
Makhafola Nontsikelelo E
Makhubele Josephine Juku
Malgas Zenzile E
Malinga S
Mangena M
Mangena Miriam
Mango Nobahle Virginia
Mangoale Refilwe Miriam
Manne Florence N
Maomela R
Maomela Rachel
Mapeyi Priscilla Nkosazana
Maphatchwane E
Marole D
Marole Dorah
Marole Elizabeth Nkepile
Mashaba Thembeni Audrey
Mashini EN
Mashini Rachel
Masingi Sheillah H

Masipa Motlatjo Josephine
Maswanganyi Mlunghisi S
Maswanganyi MS
Mathabeng C
Mathibe Mamolefe Rebecca
Matome M Daphne
Matsimella Joycelyn Cornelia
Maunye Theira J
Maunye TJ
Mawila Gabaza Dinah
May Jean Marion
Mbatha E
Mbatha M
Mbebe Gcebile Monica
Mbebe T Veronica Maria
Mbekewi J
Mbele J
Mbhewe T
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Meiring Mary Elizabeth
Mfazwe Patricia
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Mhlongo Rita Ruth
Mjacu Nombulelo Dorothy
Mkandawire Winnie Clara
Mkanzi Noluthando
Mkize P
Mngomezulu Mabocha Mary
Mnguni Anna Qothi
Mnotoza Monica N
Moagi D
Moagi Dorothy
Mochoari NA
Modiba Mamtla M
Modiba MM
Mogale Letta
Moholo N
Mokeyane CI
Mokoena Exelda
Mokoena TJ
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Molepo Nqwayana Damaria
Moloi Ntombikayise Martha
Monnye WM
Moodley C
Motale Francis S
Motau Mabele Bertha
Motemekoane Elias Mahlatsi
Mothabeng C
Mothiba Mokgaetji D
Motihodi Pule Aubrey
Motsei Thabitha Manakedi
Motumi Rakgadi L
Mpahlele Nondumiso Mavis
Mphuti Evelyn B
Mqadi M
Mqadi T
Mqhlangu Matshediso Caroline
Mseti Nolwandle E N
Msimang L
Msimang Theresa
Mthembu Betty Lizzie
Mtise Helena
Mtshakaza Nomana
Mushi Poppy Leah
Musi MC
Musi Mojele Caroline

Naicker P
Naidoo L
Nair Farieda
Nasando Virginia
Ndaba C
Ndabeni Frances Ntombazana
Ndema Thantaswa Elsa
Ndhlovu Eva
Ndlovu C
Ndlovu R
Ndzotyana Irene Tozama
Nene K
Ngalwa Lucy Lindy
Ngcelwane Patricia Ntombomzi
Ngcobo Aurelia ES
Ngcobo G
Ngidi B
Ngobeni Mantwana Magaret
Ngobeni Peggy Mokgaetji
Ngobo S
Nkele Mpheteng Shirley
Nkgoeng Ketiwe Gloria
Nkoane Julia
Nkosi Nomantombazana Doris
Nkuzo Eunice Nomvuyo
Nongogo NON
Nongxa Natalia N
Nqodi Nomalungi Louisa
Ntlatleng Nomalitho Ester
Ntoi F
Ntshinga Doris Balekwa
Ntuli Musa Christian
Nxokwana Funeka Asenath
Nxumalo D
Nyembenya Nomangwanya Florida
Nzimande N
Nzumande T
October Louisa
Ogle I
Olebogeng Rebeccah Maureene
Padi LM
Papane MS
Papo Nomhle SL
Papo NSL
Phala Thokozile Philda
Pillay H
Polinyane S
Porogo Kanate Joseph
Pule Josephine
Qelo Maria Nomtunzi
Qupe Nompumelelo Florence
Qwabe Octavia
Qwele Irene Funeka
Radebe Margaret Busisiwe
Radebe Rebecca Smangela
Ramagaga MA
Ramaila Sharon Lerato
Rampeng Johanna Gontse
Ranisi Sannah Thenjiwe
Resenga Jeanette M
Resenga JM
Rhode Ragma
Rikhotso KE
Rikhotso Khahlela E
Russel Keromang Jacobeth
Sambo M
Sambo Matheline
Schoonraad Jacobus Frederick Smith
Sebe Ntebaleng Michael
Sechoaro E
Seekoei Gaitswe Irene
Seforo Phoki Jeconnett
Sekgobela Njale C
Sekhu Malebo Hilda

Setshedi Nonceba Ethel
Setsubi Sebokane Josephine
Shange T
Shipalana Helen
Sibande Nonlanhla Cathrine
Sikiti NL
Simons SH
Sisusa Nonceba Elfreida
Sithole AN
Sithole Thabiso Esther
Sitsila ND
Skosana Eugenia
Soke Mapula F
Soke MF
Sopazi Beauty Nomthandazo
Stemela Nozipho Angelina
Suttie Alice Winsome
Tarwa U
Tarwa Unopa
Tau MM
Taye Vangile
Thabethe Ntombizodwa Jane
Thango L
Thinta Mbulelo Thomas
Thipe Mercy Semakaleng
Thoka SG
Tikolo Nobantu Olive
Timotheus Wilhelmina Johanna
Tlakula Nofumana Vivienne
Tlale ST
Tsaoane Nanaki Maria
Tshabalala S
Tshoana Matlale Caroline
Tsie G
Tsotetsi Madisebo Paulina
Tsubane E
van Wyk Anna Maria
Vilikazi Maria Rasi
Vollenhoven C
Wallis Isella ingrid
Wareham Elain Even
Xulu E
Yabo Florence Fihliwe
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Choane Charity P
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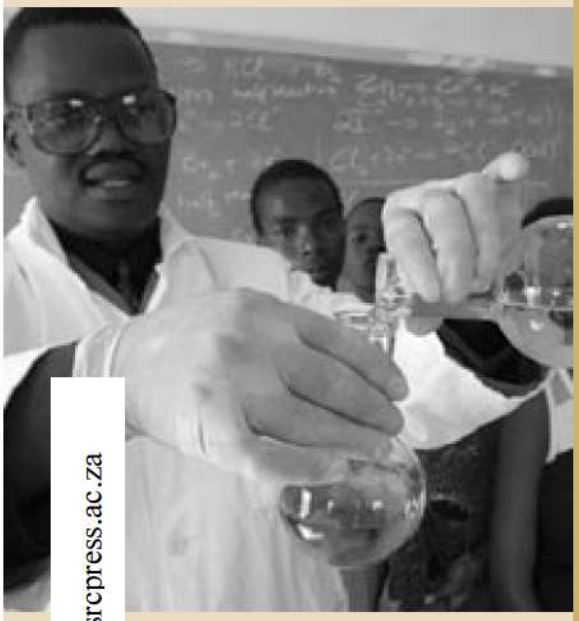
Section nine: References



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