

3.1.3 **METHODOLOGY**

3.1.4 **Topic affects knowledge, attitudes and practices.**

3.1.5 **Research Design**

A repeat cross-sectional intervention-based design was used. A KAP questionnaire was administered to the employees of a refractory industry before and after the intervention.

The study was conducted in a refractory industry, manufacturing heat resistant bricks in the Tlokoeng area of the Gauteng province.

An English questionnaire was given to every employee (150 in total), together with their salary slips, at the end of February 2003 and again at the end of August 2003. For illiterate employees or those experiencing difficulty in understanding certain terminology, venues were arranged where small groups were given help in completing the questionnaire. Transparencies on an overhead projector were used in assisting the completion of questionnaires, thus still ensuring confidentiality. Informed consent (Appendix A) was obtained from every employee who participated, but handed in separately from the questionnaire.

3.1.6 **Intervention**

A research assistant was trained as a fieldworker to administer the questionnaires at the end of February 2003 and again the end of August 2003.

The intervention was a health education programme aimed at improving the knowledge, attitudes and practices of the employees in the refractory industry.

The following hypotheses were tested:

1. Knowledge, attitudes and practices are positively related.

3.1.1 **iv** Knowledge, attitudes and practices are positively related.

3.1.2 **nd** Women have more knowledge about HIV / AIDS than men.

3.1.3 Language affects knowledge, attitudes and practices.

3.1.4 Race affects knowledge, attitudes and practices.

3.1.5 Age is related to knowledge, attitudes and practices.

3.2 Study Site

A refractory industry, manufacturing heat resistant bricks in the Olifantsfontein area, was used. There is an onsite medical centre, offering both primary and occupational health care to predominantly male employees (127 males, 84.7%; 23 females, 15.3%), with 90 employees (60%) being black and 60 white (40%). A female professional nurse (with an additional qualification in occupational health) and a male nursing assistant are manning the medical centre.

Employees were residing in the Olifantsfontein area, but many have a second home further afield (e.g. Limpopo Province).

3.3 Intervention

Previously general health education was offered with no specific emphasis on any area of the health field. Obvious health problems with which employees presented were steering the main thrust of health education campaigns. These problems were, amongst others, personal hygiene affecting health (e.g. athlete's foot), sexually transmitted diseases (mainly gonorrhoea, treated as mixed infections with the syndromic approach) and upper respiratory infections.

The refractory industry introduced an HIV / AIDS committee to look into the development of an effective workplace programme to combat the spread of the disease amongst its employees.

3.3.1 Representatives from Departments

Representatives (Reps) from each Department were nominated to represent the whole of the Company on this committee. Their main responsibility was to keep their respective Departments abreast with the rollout of the programme and assist with all the initiatives as the programme unfolded.

3.3.2 Policy on HIV / AIDS in the workplace

The first action was to display a signed (by the Company CEO) Policy on HIV / AIDS throughout the premises (Appendix B). Subsequently this policy was translated into Sepedi / Setswana and also put up on notice boards.

3.3.3 Training of peer educators (Advisors)

Fellow employees selected an eager and motivated representative amongst them to be their peer educator. Ten employees were trained to serve as sources of information and support to fellow employees. They were all given a short course on general health and another course specifically dealing with HIV / AIDS, by the professional nurse.

In many instances the Advisor was also the representative for the Department on the central HIV / AIDS committee. They proved to be an important mechanism to distribute the information (written and otherwise) in the Company. It was ensured that regular contact with the professional nurse was ongoing throughout the entire period of the rollout programme. Before handing out the specific pamphlet of the month, the professional nurse discussed the entire pamphlet in detail with the group of Advisors.

3.3.4 Posters and pamphlets

Posters and pamphlets were distributed on a monthly basis to all of the Departments with the help of the Advisors and / or Reps. A theme per month, focusing on the various aspects of HIV / AIDS, was chosen to disseminate the information (Table 1). A health phrase (usually taken from the pamphlet of the month) depicting the theme of the month was attached to the pay slips of all employees. The phrase was also published in the Company's monthly newsletter 'The Grape Vine'.

Table 1 Monthly Themes

Month	Theme
1	HIV / AIDS and Rights (Appendix C)
2	Sexually Transmitted Diseases (STD's) (Appendix D)
3	HIV / AIDS in the Workplace (Appendix E)
4	Tuberculosis (TB) and HIV / AIDS (Appendix F)
5	Caring for people with HIV / AIDS (Appendix G)
6	HIV / AIDS and Relationships (Appendix H)

3.3.5 Health education

All medical personnel were encouraged to provide health education on an individual level during patient contact. Additionally, the professional nurse gave health education to groups on a regular basis throughout the entire Company.

3.4.1 Demographic characteristics of the study site (language)

3.3.6 Help-line

The toll-free national help-line on HIV / AIDS (0800-012-322) was made known throughout the entire Company. Employees were encouraged to utilise this facility since some issues might have been of such a nature that they did not have the courage to discuss it with the Advisor, nor the onsite medical personnel.

3.3.7 Condom dispensers

Extra condom dispensers were bought for the Company. This was an attempt to make condoms more accessible and available compared to previously where the clinic was the only distribution point.

3.4 The Questionnaire

A structured questionnaire (Appendix I), with a respondent information leaflet and consent form (Appendix A), was used. It consisted of 31 questions, with subsections. For a literate person, fluent in English, it takes approximately 10 to 15 minutes to complete the questionnaire.

The questionnaire was designed to obtain information on:

3.4.1 Demographic characteristics of the respondents (age, gender, home language).

3.4.2 General beliefs regarding HIV / AIDS.

3.4.3 Knowledge of transmission regarding HIV / AIDS.

3.4.4 General attitudes regarding HIV / AIDS.

3.4.5 General practices regarding HIV / AIDS.

3.4.6 Condom usage and beliefs

3.4.7 General information sources

General beliefs (Table 2): Five questions tested this aspect (questions 4 to 8).

Three options were available on each, namely yes, no and don't know. All of these questions were again used in the second questionnaire because of their reliability.

The more correct responses the respondent selected, the better was his / her belief about HIV / AIDS. The above-mentioned table (Table 2) contains the questions, with the correct answers in bold.

Table 2 Questions on Beliefs

	Beliefs	Yes	No
4	Do you believe that there really is something like HIV / AIDS virus?	Yes	
5	Do you think HIV / AIDS poses a serious threat to your community?	Yes	
6	Can doctors cure HIV / AIDS virus?		No
7	Can traditional healers cure HIV / AIDS virus?		No
8	Is there a vaccine (an injection) against HIV / AIDS?		No

Table 3 Questions on Transmission Knowledge

General knowledge (Table 3): Seven questions (question 9 to 14 and 29) with 9 subsections tested this aspect. Three options were available here as well, namely yes, no and don't know. Subsection 1 was not reliable and therefore removed from the second questionnaire. For the same reason of reliability questions 10 to 14 and 29 were also dropped from the second questionnaire.

Question	Response
9.1. Through anal sex	Yes
9.2. Through menstruation	Yes
9.3. Through saliva	No
9.4. Through contacts like handshaking	No
9.5. Through vomit	No
9.6. Through sexual intercourse	Yes
9.7. Through relationship	Yes
10. Is it true that there is a greater risk of getting the HIV/AIDS virus when having sex with the woman or menstruating?	Yes
11. Is it true that we never get the virus from mosquito bite although it feeds on blood?	Yes
12. Can a woman have the HIV/AIDS virus for many years without knowing it?	Yes
13. Do you think that a person who is infected will look healthy for a long time? (Yes/No/Don't know)	Yes
14. Do people with HIV/AIDS get other diseases more easily?	Yes
29. Can one be protected from getting the HIV/AIDS virus when one has sex with an uninfected partner only?	Yes

Table 3 Questions on Transmission Knowledge

9	HIV/AIDS is transmitted from 1 person to another by:	Yes	No
9.1	Different sex partners	Yes	
9.2	Drug users	Yes	
9.3	Through pregnancy	Yes	
9.4	Blood transfusion	Yes	
9.5	Forks, knives etc.		No
9.6	Personal contacts, like handshaking		No
9.7	Insects, dog bites		No
9.8	Homosexual relationship	Yes	
9.9	Bisexual relationship	Yes	
10	Is it true that there is a greater risk of getting the HIV /AIDS virus when having sex while the women is menstruating?	Yes	
11	Is it true that someone who suffers from sexually transmitted diseases is more likely to get HIV / AIDS virus?	Yes	
12	Can a person have the HIV / AIDS virus for many years without looking ill?	Yes	
13	Do you think that a person who is infected with the HIV / AIDS virus but who feels and appears healthy can infect another person?	Yes	
14	Do people with HIV / AIDS get other diseases more easily?	Yes	
29	Can one be protected from getting the HIV / AIDS virus when one has sex with an uninfected partner only?	Yes	

A higher score (more correct responses – printed in bold in Table 3) represented a respondent with better knowledge about transmission.

General attitudes (Table 4): Eight questions (questions 15 to 20, 42 and 43) with 5 subsections tested this aspect. Here were also 3 options available on each, namely yes, no and don't know. All of these questions were again used in the second questionnaire because of their reliability.

A higher score (more true responses) represented a more negative perception of attitudes of others towards a person with HIV / AIDS (questions 16.1 to 16.5).

This was contrasted by the questions testing a respondent's attitudes towards people with HIV / AIDS (questions 18 to 20, 42 and 43). A higher score (more correct responses) represented a more positive attitude towards people with HIV / AIDS. Correct responses are in bold in Table 4.

Table 4 Questions on General Attitudes

Avoidance and Attitudes	Yes	No
15 Do you think that other people would avoid you if you have HIV/ AIDS?	Yes	
16 If yes at Q 15, why do you say so?		
16.1 Others will be afraid	Yes	
16.2 Others will be ashamed	Yes	
16.3 Will regard me as homosexual	Yes	
16.4 Will regard me as a prostitute	Yes	
16.5 Will think badly of me	Yes	
17 Do you think people who are infected with the HIV / AIDS virus should be blamed for their own infection?		No
18 Will you remain friends with a person who has been infected with the HIV / AIDS virus?	Yes	
19 Should people who are infected with the HIV / AIDS virus be made to resign from their jobs?	Yes	
20 Would you be willing to work with someone who has HIV / AIDS virus?	Yes	
42 Do you think that nurses will be prejudiced towards a person with the HIV / AIDS virus?	Yes	
43 Do you believe that a doctor will treat the knowledge that a patient has HIV / AIDS as confidential?	Yes	

General practices (Tables 5.1 to 5.3): Twelve questions (questions 21 to 26, 46 to 48 and 50 to 52) with 47 subsections tested this aspect. Again 3 options were available on some, namely yes, no and don't know. With others the subsections provided a number of alternatives (opportunity was granted to select more than one in some subsets).

Table 5.1 Questions on General Practices

21 Chance that you might get HIV / AIDS?	Choice
	1 No chance
	2 A small chance
	3 A moderate chance
	4 A big chance
22 If 'No chance' is given at Q21, then why?	1 Don't know**
	2 Practice safe sex
	3 No drug use
	4 No sex
	5 Using condoms always
	6 Avoid Persons with HIV / AIDS
	7 Only having sex with opposite sex**
	8 Taking medicine**
	9 Had no blood transfusion /contact with blood

Whenever subsections 1, 7 and 8 (marked with "***" under question 22) were selected, it was all regarded as poor reasons for "No chance" selected in question 21.

Choices (subsets) were also given at question 23 (when "Small chance" / "Moderate chance" was selected) and question 24 (when "Big chance" was selected). These 2 questions, however, were dropped from the second questionnaire due to a lack of reliability.

Table 5.2 Questions on General Practices (continued)

Do you find it acceptable to have more than one sexual partner	Yes	No
25 for a man as long as it is more than a month apart?		No
26 for a woman as long as it is more than a month apart?		No
46 Have you ever had a sexually transmitted disease?		No
47 Did you and your sexual partner inform each other about the STD?	Yes	
48 After hearing about HIV / AIDS did you think it was necessary to change your sexual behaviour?		No

Correct responses (in bold) in Table 5.2 represented more acceptable practices.

Due to a lack of reliability it was decided to drop all of these questions (5 in total) from the second questionnaire.

Table 5.3 Questions on General Practices (continued)

50 If yes at Q 48: which behaviour did you change?	Choice
	1 Changed to one partner
	2 Using condoms
	3 Not sharing utensils (blades, etc.)**
	4 Avoid drug abuse
	5 Wash after having sex**
	6 Visit clinic / doctor often**
51 If no at Q 48: why do you say so?	1 Always one partner
	2 Careful
	3 No drug use
	4 Use condoms
	5 AIDS does not exist**
	6 Had blood test**
	7 Not sexually active
52 Are your sexual partner(s)?	1 A man / men
	2 A woman / women
	3 Both (bisexual)

Table 6 Questions on Condom Usage and Beliefs

Whenever subsections marked by "***" were selected, it was regarded as poor reasons for their response in question 48.

Due to a lack of reliability it was decided to drop all 3 of these questions from the second questionnaire.

Condom usage and beliefs (Table 6): Fourteen questions (questions 27, 28, 30 to 39, 44 and 45) tested this aspect. Three options were available on each, namely yes, no and don't know.

Four questions (27, 28, 44 and 45) on condoms were dropped from the second questionnaire due to a lack of reliability.

A higher score (more correct responses – printed in bold in Table 6) represented more correct usage for and beliefs about condoms.

Table 6 Questions on Condom Usage and Beliefs

Condom Usage and Beliefs	Yes	No
27 Do you believe that using a condom when having sex can protect one from getting HIV / AIDS virus?	Yes	
28 Can a condom protect one against HIV / AIDS virus if the condom has been used before?		No
30 Do you think one should use condoms when having sex with casual sexual partner(s)?	Yes	
31 Do you think condoms make sex less enjoyable?		No
32 Would condom use make you feel ashamed?		No
33 Is condom use against your culture / religion?		No
34 Do you think condoms are easily available?	Yes	
35 Can one get condoms free of charge?	Yes	
36 Do you think the price of condoms is too high to use regularly?		No
37 Would you be ashamed to ask for or to buy condoms?		No
38 Do you think that one can insist that a regular partner/spouse should use a condom if you know that he/she has other sexual partners?	Yes	
39 If your partner suggests that a condom should be used, do you think it means that he/she does not trust you?		No
44 Have you ever had sex with anyone other than your spouse or regular partner?		No
45 If yes to Q44: Did you use a condom on any of these occasions?	Yes	

Table 7.1 Questions on Informative Sources

General information sources (Tables 7.1 to 7.2): Three questions (questions 40, 41 and 49) with 25 subsections tested this aspect. Again 3 options were available on some, namely yes, no and don't know. With others the subsections provided a number of alternatives (respondents were asked to select only one in a subset).

A higher score (more correct responses – printed in bold in Table 7.1) represented the situation where a person will be influenced by their significant others in their life.

Question 49 was omitted in its entirety as well as the very last option (in the subset) under question 41. This was also done due to a lack of reliability on these questions.

Table 7.1 Questions on Information Sources (continued)

40 Will information on HIV/AIDS from the following sources influence your behaviour / way of life?		Yes	No
40.1	Your friends?	Yes	
40.2	Your relatives or family?	Yes	
40.3	A health advisor / worker?	Yes	
40.4	A nurse?	Yes	
40.5	A doctor?	Yes	
40.6	A person with HIV / AIDS?	Yes	
40.7	A traditional healer?	Yes	
40.8	A church leader / minister?	Yes	
40.9	Television?	Yes	
40.10	Radio?	Yes	
40.11	Printed material (newspapers) magazines, brochures, pamphlets?	Yes	

Table 7.2 Questions on Information Sources (continued)

41 Select the way in which you would most prefer to receive information about HIV / AIDS:	Choice
	1 Personal contact
	2 Information on TV
	3 Information over the radio
	4 Information in printed materials
	5 Don't know
49 If yes to Q48: who influenced you most to change your behaviour?	1 No one
	2 Partner
	3 Family
	4 Mass media
	5 Doctor / nurse
	6 Church
	7 Friends
	8 Person with AIDS
	9 Colleagues

3.5 Procedure

The questionnaire was in English, but for illiterate employees or those having difficulty in understanding certain terminology, venues were arranged where small groups were given help in completing the questionnaire. Transparencies on an overhead projector were used in assisting the completion of questionnaires, thus still ensuring confidentiality. Informed consent was obtained from every employee who participated, but the signed consent was handed in separately from the questionnaire.

3.6 Data Analysis

At the end of February 2003 all 150 employees received the questionnaire together with their salary slips. This was completed anonymously and after completion, posted back in a sealed container after 1 week.

A research assistant was trained as a fieldworker to administer the questionnaires during the first week of March 2003 to illiterate employees. The assistant was supervised by the researcher and was able to consult him with any difficulties encountered.

The results of the questionnaire were analysed and presented to management to keep them abreast of the progress. A summary of the responses to each question was used as an aid in guiding health education. The rest of the rollout programme included the drawing up of a policy on HIV / AIDS in the workplace; training of peer

educators; health education with the use of amongst others videos, posters and pamphlets; putting up condom dispensers in ablution blocks; and effectively treating sexually transmitted diseases.

The same, but shortened questionnaire was administered after 6 months (end of August 2003) to determine if there were any changes after the rollout programme in improving knowledge and changing attitudes and practices. Questions that did not discriminate and were not reliable in the first questionnaire were not included in the second questionnaire.

3.6 Data Analysis

All data were analysed with the SPSS Version 11 PC statistical package.

Descriptive statistics were the first step for data analysis. Thereafter, the reliability (internal consistency) analyses were conducted on all scales; coefficient alpha of 0.70 was regarded as acceptable, between 0.71 and 0.80 as respectable and > 0.80 as very good.^{34, 35} T tests were used to ascertain demographic effects and pre and post-intervention effects on knowledge, attitudes and practices. Pearson product-moment correlation coefficients and one-way analysis of variance (ANOVA), with Bonferroni adjustments for multiple comparisons, tested group effects.

3.7 Ethics

Ethical approval for the study was sought and obtained from the Faculty of Health Sciences Research Ethics Committee (University of Pretoria). Approval number of the Ethics Committee: **172 / 2002**. Informed consent was obtained from the respondents.

4 RESULTS

Sixty-four questionnaires were returned of the 150 that were handed out at the end of February 2003 (42.7%). Ninety-six of the 150 questionnaires were returned after the second round of questionnaires handed out at the end of August 2003 (64%). Baseline knowledge, attitudes and practices of the Company's employees were tested through 52 questions. The questionnaire consisted of 31 questions for the post-intervention evaluation. All percentages used were based on the number of respondents to each question.

4.1 Demographic Information

Pre-intervention

The mean age of male respondents was 37.7 years (sd = 9.3) and 39.9 years (sd = 10.2) for the female respondents. There were no significant differences in age between males and females ($p > 0.05$).

Sixty-two respondents indicated their gender; 46 males (74.2%) and 16 females (25.8%).

All 64 respondents indicated their home language. The most common home language was Afrikaans (23: 35.9%), followed by Sepedi (21: 32.8%), English (8: 12.5%), isiZulu and Xitsonga (4 each: 6.3%), other languages, not listed (3: 4.7%) and isiNdebele (1: 4.7%).

Post-intervention

The mean age of male respondents was 38.8 years (sd = 9.3) and 44.4 years (sd = 6.8) for the female respondents. There were no significant differences in age between males and females ($p > 0.05$).

Ninety respondents indicated their gender; 78 males (86.7%) and 12 females (13.3%).

Ninety-four respondents indicated their home language. The most common home language was Afrikaans (32: 34%), followed by Sepedi (29: 30.9%), English (12: 12.8%), other languages, not listed (8: 8.5%), Xitsonga (7: 7.4%), isiZulu (4: 4.3%) and then isiXhosa and Setswana (1 each: 1.1%).

4.2 Beliefs of Respondents

Five questions were used to assess (Table 8) the beliefs of respondents.

Pre-intervention: The lowest correct belief was for "a vaccine (an injection) against HIV / AIDS". The highest correct belief was for "there really is something like HIV / AIDS".

Post-intervention: The lowest correct belief was for "a vaccine (an injection) against HIV / AIDS". The highest correct belief was for "there really is something like HIV / AIDS".

Table 8 Beliefs of Respondents

Beliefs	February 2003	August 2003
	% Correct Responses	% Correct Responses
Do you believe that there really is something like HIV / AIDS virus?	96.9	95.8
Do you think HIV / AIDS poses a serious threat to your community?	90.6	87.5
Can doctors cure HIV / AIDS virus?	92.2	79.2
Can traditional healers cure HIV / AIDS virus?	89.1	81.3
Is there a vaccine (an injection) against HIV / AIDS?	75.0	68.8

Pre-intervention: Five percent scored 2 questions correct and 66% scored all 5 correct.

The overall score on beliefs was 4.4 (sd = 0.89) with a minimum of 2 and maximum of 5.

Post-intervention: Six percent scored 2 questions correct and 52% scored all 5 correct.

The overall score on beliefs was 4.1 (sd = 1.08) with a minimum of 1 and maximum of 5.

There was a significantly more positive level of beliefs ($p < 0.05$) about HIV / AIDS in the pre-intervention group.

4.3 Transmission Knowledge of Respondents

Eight questions were used to assess the knowledge of respondents about transmission (Table 9).

Pre-intervention: The lowest correct knowledge about the transmission was for “transmitted from one person to another by drug users”. The highest correct

knowledge about the transmission was for “transmitted from one person to another by blood transfusion”.

Post-intervention: The lowest correct knowledge about the transmission was for “transmitted from one person to another by insects, dog bites”. The highest correct knowledge about the transmission was for “transmitted from one person to another by blood transfusion”.

Table 9 Transmission Knowledge of Respondents

Transmission	February 2003	August 2003
	% Correct Responses	% Correct Responses
HIV / AIDS transmitted from one person to another by drug users	46.9	63.5
HIV / AIDS transmitted from one person to another through pregnancy	51.6	76.0
HIV / AIDS transmitted from one person to another by blood transfusion	65.6	85.4
HIV / AIDS transmitted from one person to another by forks, knives etc.	51.6	62.5
HIV / AIDS transmitted from one person to another by personal contacts, like handshaking	59.4	80.2
HIV / AIDS transmitted from one person to another by insects, dog bites	53.1	59.4
HIV / AIDS transmitted from one person to another by homosexual relationship	54.7	75.0
HIV / AIDS transmitted from one person to another by bisexual relationship	50.0	83.3

Pre-intervention: Twenty eight percent knew nothing about transmission and 30% knew everything about it.

The overall score on transmission knowledge was 4.3 (sd = 3.37) with a minimum of 0 and maximum of 8.

Post-intervention: One percent knew nothing about transmission and 24% knew everything about it.

The overall score on transmission knowledge was 5.9 (sd = 2.07) with a minimum of 0 and maximum of 8.

The post-intervention group had significantly better transmission knowledge ($p < 0.01$) about HIV / AIDS.

4.4 Avoidance

One question tested avoidance amongst respondents (Table 10).

Pre-intervention: Sixty-seven percent of respondents indicated that they thought that others would avoid them if they had HIV / AIDS.

Post-intervention: Fifty-five percent respondents indicated that they thought that others would avoid them if they had HIV / AIDS.

Table 10 Avoidance

Avoidance	February 2003	August 2003
	% Positive	% Positive
	Responses	Responses
Do you think that other people would avoid you if you have HIV/ AIDS?	67.2	55.2

There were no significant differences ($p > 0.05$) about avoidance found between the pre and post-intervention groups. Fewer respondents in the post-intervention group thought that others would avoid them.

4.5 Perceived attitudes of others towards a person with HIV / AIDS

Five questions were used to assess the perceived attitudes of others towards a person with HIV / AIDS (Table 11).

Pre-intervention: The least likely reason for the perception of being ostracised by others was "regard me as homosexual". The most likely reason, on the other hand, was "Others will be afraid".

Post-intervention: The least likely reason for the perception of being ostracised by others was "regard me as homosexual". The most likely reason was "Others will be afraid".

Table 11 Perceived Attitudes towards an individual with HIV / AIDS

Reason for avoidance	February 2003	August 2003
	% Positive Responses	% Positive Responses
Others will be afraid	62.5	69.8
Others will be ashamed	32.8	59.4
Will regard me as homosexual	18.8	29.2
Will regard me as a prostitute	26.6	42.7
Will think badly of me	37.5	54.2

Pre-intervention: Thirty-one percent of respondents had no negative perception at all, but 12.5% perceived attitudes of others in a totally negative light.

The overall score on personal perception of attitudes was 1.8 (sd = 1.78) with a minimum of 0 and maximum of 5.

Post-intervention: Twenty-five percent of respondents had no negative perception at all, but 22.9% perceived attitudes of others in a total negative light.

The overall score on personal perception of attitudes was 2.6 (sd = 1.92) with a minimum of 0 and maximum of 5.

The post-intervention group had significantly better perceptions of attitudes of others ($p = 0.01$).

4.6 Attitudes towards people with HIV / AIDS

Pre-intervention: Attitudes directed towards others (Table 12) varied from strong aversion ("nurses will be prejudiced") to more open acceptance ("made to resign from their jobs") of a person with HIV / AIDS.

Post-intervention: Attitudes directed towards others varied from strong aversion ("nurses will be prejudiced") to more open acceptance ("made to resign from their jobs" and "doctor will treat knowledge as confidential") of a person with HIV / AIDS.

Table 12 Attitudes towards people with HIV / AIDS

Attitude	February 2003	August 2003
	% Positive Responses	% Positive Responses
Do you think people who are infected with the HIV / AIDS virus should be blamed for their own infection?	51.6	61.5
Will you remain friends with a person who has been infected with the HIV / AIDS virus?	81.3	77.1
Should people who are infected with the HIV / AIDS virus be made to resign from their jobs?	89.1	82.3
Would you be willing to work with someone who has HIV / AIDS virus?	79.7	69.8
Do you think that nurses will be prejudiced towards a person with the HIV / AIDS virus?	43.8	49.0
Do you believe that a doctor will treat the knowledge that a patient has HIV / AIDS as confidential?	76.6	82.3

Pre-intervention: Two percent of respondents were very negative, but 25% revealed a totally positive attitude.

The overall score on attitudes towards people with HIV / AIDS was 4.2 (sd = 1.35) with a minimum of 1 and maximum of 6.

Post-intervention: Seven percent of respondents were very negative, but 20.8% revealed a totally positive attitude.

The overall score on attitude towards people with HIV / AIDS was 4.2 (sd = 1.53) with a minimum of 1 and maximum of 6.

There were no significant differences between the pre and post-intervention groups on their attitudes towards people with HIV / AIDS ($p > 0.05$).

4.7 Practices

4.7.1 Chance to contract HIV / AIDS

Respondents were asked to give an estimate of their chance to contract HIV / AIDS (Table 13).

Pre-intervention: Thirty-nine percent in February 2003 felt that their conduct made them susceptible to contracting the disease. Sixty-one percent indicated that they had no chance of contracting HIV / AIDS, 25% a small chance, 3.1% a moderate chance and 10.9% a big chance.

Post-intervention: Fifty-eight percent in August 2003 felt that their conduct made them susceptible to contracting the disease. Forty-two percent indicated that they had no chance of contracting HIV / AIDS, 28.6% a small chance, 11.0% a moderate chance and 18.7% a big chance.

Table 13 Chance to contract HIV / AIDS

Chance	February 2003	August 2003
	% Positive Responses	% Positive Responses
No chance that you might get HIV / AIDS	60.9	41.8
A small chance that you might get HIV / AIDS	25.0	28.6
A moderate chance that you might get HIV / AIDS	3.1	11.0
A big chance that you might get HIV / AIDS	10.9	18.7

4.7.2 Reasons offered for "No chance" of contracting HIV / AIDS

Respondents were granted the opportunity to give reasons for choosing "No chance" of contracting HIV / AIDS (Table 14).

Pre-intervention: The most common reason given for having no risk of contracting HIV / AIDS was "Practice safe sex". The least common reason offered was "Taking medicine".

Post-intervention: The most common reason given for having no risk of contracting HIV / AIDS was "Practice safe sex". The least common reasons offered were "Avoid Persons with HIV / AIDS" and "Only having sex with opposite sex".

Table 14 Reasons offered for “No chance” of contracting HIV / AIDS

Reason	February 2003	August 2003
	% Positive Responses	% Positive Responses
Don't know	1.6	3.1
Practice safe sex	37.5	46.9
No drug use	15.6	27.1
No sex	3.1	9.4
Using condoms always	15.6	31.3
Avoid Persons with HIV / AIDS	1.6	4.2
Only having sex with opposite sex	7.8	4.2
Taking medicine	0.0	5.2
Had no blood transfusion or contact with blood	15.6	18.8

Pre-intervention: Fifty-nine percent respondents had low knowledge about high-risk practices. Five percent answered all the questions correctly.

The overall score on knowledge about high-risk practices was 0.8 (sd = 1.18) with a minimum of 0 and maximum of 4.

Post-intervention: Forty-four percent respondents had low knowledge about high-risk practices. One percent answered all the questions correctly.

The overall score on knowledge about high-risk practices was 1.5 (sd = 1.80) with a minimum of 0 and maximum of 8.

The intervention groups' knowledge of high-risk practices for contracting HIV / AIDS had significant differences ($p < 0.01$), with the post-intervention group superior.

4.7.3 Condom usage and beliefs

Ten questions were used to test usage of and beliefs about condoms (Table 15).

Pre-intervention: The worst usage of and beliefs about condoms was "condoms make sex less enjoyable". The best usage of and beliefs about condoms was "condoms are easily available".

Table 15 Condom Usage and Beliefs

Question	February 2003 % Correct Responses	August 2003 % Correct Responses
Do you think one should use condoms when having sex with casual sexual partner(s)?	90.6	85.4
Do you think condoms make sex less enjoyable?	46.9	43.8
Would condom use make you feel ashamed?	71.9	66.7
Is condom use against your culture / religion?	81.3	74.0
Do you think condoms are easily available?	98.4	94.8
Can one get condoms free of charge?	96.9	94.8
Do you think the price of condoms is too high to use regularly?	79.7	76.0
Would you be ashamed to ask for or to buy condoms?	82.8	71.9
Do you think that one can insist that a regular partner/spouse should use a condom if you know that he/she has other sexual partners?	89.1	78.1
If your partner suggests that a condom should be used, do you think it means that he/she does not trust you?	64.1	65.6

Post-intervention: The worst usage of and beliefs about condoms was “condoms make sex less enjoyable”. The best usage of and beliefs about condoms was “condoms are easily available” and “get condoms free of charge”.

Pre-intervention: Two percent had very incorrect usage for and beliefs about condoms and 23.4% had all the correct usages for and beliefs about condoms.

The overall score on condoms was 8.0 (sd = 1.95) with a minimum of 2 and maximum of 10.

Post-intervention: Two percent appeared to have very incorrect usage for and beliefs about condoms and 22.9% had all the correct usages for and beliefs about it.

The overall score on condoms was 7.5 (sd = 2.49) with a minimum of 0 and maximum of 10.

There were no significant differences between the pre and post-intervention groups in their usage of and beliefs about condoms ($p > 0.05$).

4.8 Influence from significant others

Pre-intervention: Influence from significant others (Table 16) that most likely change practices varied from “A doctor” (most likely) to the least likely source “A traditional healer”.

Post-intervention: Influence from significant others that most likely changed practices varied from "Printed material" (most likely) to the least likely source "A traditional healer".

Table 16 Influence from significant others

Source	February 2003	August 2003
	% Positive Responses	% Positive Responses
Friends	37.5	54.2
Relatives or family	35.9	56.3
A health advisor / worker	40.6	55.2
A nurse	34.4	54.2
A doctor	51.6	58.3
A person with HIV / AIDS	35.9	51.0
A traditional healer	14.1	32.3
A church leader / minister	34.4	49.0
Television	39.1	57.3
Radio	39.1	59.4
Printed material (newspapers) magazines, brochures, pamphlets	39.1	61.5

Pre-intervention: Twenty-five percent were not influenced by anyone, while one significant other person influenced 29.7% of respondents. Nine percent were influenced by all other significant others listed in the questionnaire.

The overall score on risk was 4.0 (sd = 4.36) with a minimum of 0 and maximum of 11.

Post-intervention: Twenty-three percent were not influenced by anyone, while one significant other person influenced 8.3% of respondents. Nineteen percent were influenced by all other significant others listed in the questionnaire.

The overall score on risk was 5.9 (sd = 4.48) with a minimum of 0 and maximum of 11.

The post-intervention group was significantly more influenced ($p = 0.01$) than the pre-intervention group by their significant others.

4.9 Information routes

Pre-intervention: Most respondents preferred personal contact as a route (Table 17) for information about HIV / AIDS. The least preferable way was indicated as information over the radio.

Post-intervention: Most respondents preferred printed material as a route for information about HIV / AIDS. The least preferable way was indicated as information over the radio.

Table 17 Information Routes

Route	February 2003	August 2003
	% Positive Responses	% Positive Responses
Personal contact	43.8	28.1
Information on TV	29.7	31.3
Information over the radio	3.1	9.4
Information in printed materials	32.8	33.3

4.10 Reliability

Pre-intervention: Knowledge about transmission of HIV / AIDS satisfied the convergent validity criterion of ≥ 0.40 .³⁶ The reliability analysis scale on knowledge about transmission had a coefficient alpha of 0.94 and the scale is therefore very good.^{34, 35}

Perceptions of attitudes satisfied the convergent validity criterion of ≥ 0.40 .³⁶ The reliability analysis scale on perception of attitudes had a coefficient alpha of 0.83 and the scale is therefore very good.^{34, 35}

Table 18 Knowledge about High-Risk Practices – pre-intervention

Item	Corrected Item-Total Correlation
1 Don't know****	0.0000
2 Practice safe sex	0.4009
3 No drug use	0.7165
4 No sex****	0.1513
5 Using condoms always****	0.0305
6 Avoid Persons with HIV / AIDS****	0.2034
7 Only having sex with opposite sex	0.4845
8 Taking medicine****	0.0000
9 Had no blood transfusion /contact with blood	0.6640

Five items on knowledge about high-risk practices did not meet the item convergent validity criterion of ≥ 0.40 .³⁶ These items marked '****' were removed and a second reliability analysis conducted. The reliability analysis with the remaining items 2, 3, 7 and 9 had a coefficient alpha of 0.78 and the scale is therefore respectable.^{34, 35}

Table 19 Condom Usage and Beliefs – pre-intervention

Item	Corrected Item-Total Correlation
1 'condoms when having sex with casual sex'	0.4721
2 'condoms make sex less enjoyable'	0.4033
3 'condom use make you feel ashamed'	0.5563
4 'condom use against your culture'	0.3025
5 'condoms are easily available'	0.2006
6 'condoms free of charge'	0.2430
7 'condoms is too high to use regularly'	0.3270
8 'ashamed to ask for condoms'	0.4041
9 'condom if he/she has other sexual partners'	0.2998
10 'partner suggests that a condom be used'	0.4626

Only condom usage and beliefs 1, 2, 3, 8 and 10 satisfied the convergent validity criterion of ≥ 0.40 .³⁶ The reliability analysis scale with items 1 to 10 had a coefficient alpha of 0.70 and the scale is therefore acceptable.^{34, 35}

All items of significant others satisfied the convergent validity criterion of ≥ 0.40 .³⁶

The reliability analysis scale on significant others had a coefficient alpha of 0.95 and the scale is therefore very good.^{34, 35}

Post-intervention: Three items on beliefs did not meet the item convergent validity criterion of ≥ 0.40 .³⁶ These items marked '****' were removed and a second reliability analysis conducted. The reliability analysis with the remaining items 3 and 4 had a coefficient alpha of 0.85 and the scale is therefore very good.^{34, 35}

Table 20 Beliefs – post-intervention

	Item	Corrected Item-Total Correlation
1	'really something like HIV / AIDS'****	0.2416
2	'HIV / AIDS poses a serious threat'****	0.0000
3	'doctors cure HIV / AIDS'	0.5348
4	'traditional healers cure HIV / AIDS'	0.4685
5	'vaccine against HIV / AIDS'****	0.2374

Three items (marked '****') on knowledge about transmission did not meet the item convergent validity criterion of ≥ 0.40 .³⁶ The reliability analysis scale with items 1 to 9 had a coefficient alpha of 0.74 and the scale is therefore respectable.^{34, 35}

Table 21 Transmission Knowledge – post-intervention

	Item	Corrected Item-Total Correlation
1	'Drug users'	0.4941
2	'Through pregnancy'	0.5299
3	'Blood transfusion'	0.5079
4	'Forks, knives etc.'	0.4996
5	'Personal contacts, like handshaking'	0.5148
6	'Insects, dog bites'*****	0.3353
7	'Homosexual relationship'*****	0.2721
8	'Bisexual relationship'*****	0.3583

All items of perception of attitudes satisfied the convergent validity criterion of ≥ 0.40 .³⁶ The reliability analysis scale on perception of attitudes had a coefficient alpha of 0.86 and the scale is therefore very good.^{34, 35}

Four items on knowledge about high-risk practices did not meet the item convergent validity criterion of ≥ 0.40 .³⁶ These items marked '*****' were removed and a second reliability analysis conducted. The reliability analysis scale with the remaining items 2, 3, 5, 6 and 9 had a coefficient alpha of 0.76 and the scale is therefore respectable.^{34, 35}

Table 22 Knowledge about High-Risk Practices – post-intervention

Item	Corrected Item-Total Correlation
1 Don't know****	0.1221
2 Practice safe sex	0.6177
3 No drug use	0.6362
4 No sex****	0.3959
5 Using condoms always	0.4610
6 Avoid Persons with HIV / AIDS	0.5008
7 Only having sex with opposite sex****	0.2769
8 Taking medicine****	0.3806
9 Had no blood transfusion /contact with blood	0.5402

Only condom usage and beliefs 1 to 4, 6 to 8 and 10 satisfied the convergent validity criterion of ≥ 0.40 .³⁶ The reliability analysis scale with items 1 to 10 had a coefficient alpha of 0.81 and the scale is therefore very good.^{34, 35}

All items of significant others satisfied the convergent validity criterion of ≥ 0.40 .³⁶ The reliability analysis scale on significant others had a coefficient alpha of 0.95 and the scale is therefore very good.^{34, 35}

4.11 Hypothesis 1

"Knowledge, attitudes and practices are positively related"

Pre-intervention: Knowledge about transmission was positively related to personal perception of attitudes towards people with HIV / AIDS ($r = 0.325, p < 0.01$). Knowledge about transmission was also positively related to influence of significant others ($r = 0.328, p < 0.01$). Beliefs about HIV/ AIDS were negatively related to knowledge about high-risk practices ($r = -0.249, p < 0.05$).

Therefore, hypothesis 1 received partial support.

Post-intervention: Knowledge about transmission was positively related to beliefs about HIV/ AIDS ($r = 0.385, p < 0.01$) and to usage of and beliefs about condoms ($r = 0.294, p < 0.01$). Usage of and beliefs about condoms was also positively related to attitudes towards people with HIV / AIDS ($r = 0.288, p < 0.01$).

Therefore, hypothesis 1 received partial support.

4.12 Hypothesis 2

"Women have more knowledge about HIV / AIDS than men"

Pre-intervention: There were no significant differences between males and females on beliefs ($p > 0.05$) or knowledge about high-risk practices ($p > 0.05$).

However, women were significantly more knowledgeable than men about transmission of HIV / AIDS ($p < 0.01$).

Therefore, hypothesis 2 received partial support.

Post-intervention: There were no significant differences between males and females on beliefs ($p > 0.05$), knowledge about transmission ($p > 0.05$) or knowledge about high-risk practices ($p > 0.05$).

Therefore, hypothesis 2 is rejected.

4.13 Hypothesis 3

“Language affects knowledge, attitudes and practices”

Pre-intervention: There were no significant differences between any of the language groups on beliefs ($p > 0.05$) about HIV /AIDS.

English speaking respondents were significantly more knowledgeable than Sepedi / Setswana ($p < 0.01$) or Xitsonga / other ($p < 0.01$) speaking respondents about knowledge of transmission. The same was found between Afrikaans and Sepedi / Setswana ($p < 0.01$) and Xitsonga / other ($p < 0.01$) speaking respondents about knowledge of transmission of HIV / AIDS.

English speaking respondents had significantly superior knowledge over Nguni ($p < 0.05$) and Sepedi / Setswana ($p < 0.05$) language groups on knowledge about high-risk practices.

There were, however, no significant differences between the black language groups ($p > 0.05$), as well as no significant differences between English and Afrikaans respondents ($p > 0.05$) about knowledge of transmission. There were also no significant differences between English and Nguni language groups ($p > 0.05$), or between Afrikaans and Nguni language groups ($p > 0.05$).

Furthermore, there were no significant differences between any of the language groups on perception of attitudes ($p > 0.05$) or usage of and beliefs about condoms ($p > 0.05$).

Therefore, hypothesis 3 received partial support.

Post-intervention: There were no significant differences between any of the language groups on beliefs ($p > 0.05$).

English speaking respondents were significantly more knowledgeable than Sepedi / Setswana ($p = 0.01$) speaking respondents about the transmission of HIV / AIDS. The same was found between Afrikaans and Sepedi / Setswana ($p < 0.01$) speaking respondents about the transmission of HIV / AIDS.

There were, however, no significant differences between the black languages ($p > 0.05$), as well as no significant differences between the English and Afrikaans respondents ($p > 0.05$) about transmission.

No significant differences were found between any of the language groups on perception of attitudes ($p > 0.05$), knowledge about risk ($p > 0.05$) and usage of and beliefs about condoms ($p > 0.05$).

Therefore, hypothesis 3 received partial support.

4.14 Hypothesis 4

“Race affects knowledge, attitudes and practices”

Pre-intervention: The white group was significantly more knowledgeable about transmission ($p < 0.01$), about risk ($p < 0.01$) and was also significantly more influenced by their significant others ($p < 0.05$) than the black group.

The black group had significantly better attitudes towards people with HIV / AIDS ($p = 0.03$) than the white group.

No significant differences were found between the race groups on perception of attitudes ($p > 0.05$), beliefs ($p > 0.05$) and usage of and beliefs about condoms ($p > 0.05$).

Therefore, hypothesis 4 is rejected.

Therefore, hypothesis 4 received partial support.

5 LIMITATIONS

Post-intervention: The white group was significantly more correct in their beliefs about HIV / AIDS ($p < 0.05$) and also had significantly better knowledge about transmission ($p < 0.01$) than the black group.

There were no significant differences ($p > 0.05$) between the race groups on their attitudes towards people with HIV / AIDS ($p > 0.05$), knowledge about high-risk practices ($p > 0.05$) or on influences from their significant others ($p > 0.05$).

Therefore, hypothesis 4 received partial support.

4.15 Hypothesis 5

“Age is related to knowledge, attitudes and practices”

6 DISCUSSION

Pre-intervention: There were only significant positive correlations between the total knowledge about transmission and age of respondents ($r = 0.276$, $p < 0.05$).

Therefore, hypothesis 5 received partial support.

Post-intervention: No significant positive correlations with age were found ($p > 0.05$).

Therefore, hypothesis 5 is rejected.