

Full Length Research Paper

HIV fighting at an agricultural company and at a railway transport company in Mwenezi district, Masvingo province, Zimbabwe

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This case study involved sugar cane production workers and railway workers who lived 30 km apart, in a farming district with agro-industries. Major roads and railway lines pass through the district, bringing in inflows of human traffic, a potential conduit for HIV infection. The two companies had a combined workforce of more than 1260 who mix with people of different social behaviours and economic status, promoting casual sex relationships among the workers themselves and with the visitors. AIDS/HIV fighting strategies have been incorporated at the two companies to protect both workers and business concerns. Data collection from random samples (90 people from each company) using questionnaires, interviews, and observations enabled collection of representative information. Numerical data were subjected to descriptive statistical analysis using the statistical package SPSS. The condom appeared acceptable at Mwenezana Estates but was rejected at Rutenga NRZ. Analysis of data pointed towards efficient catalysts for promiscuity such as poverty, poor living conditions, low education and crowding being the main enhances for the spread of HIV/AIDS. Counselling, testing and supply of ARTs might not be enough to curb the spread of HIV/AIDS. For example 76.7% of the Mwenezana Estates participants had been counselled and tested compared to 23.3% at Rutenga NRZ, but the population of Mwenezana Estates remain more heavily HIV/AIDS burdened. Although drug intervention may alleviate suffering and prolong life, the improvement of conditions of life, including communication, appears more important in the fight against HIV/AIDS.

Key words: Agricultural workers, improvement of conditions of life, interviews, observations, questionnaires, transport workers.

INTRODUCTION

Designation of Rutenga Growth Point and Mwenezana Estates as focal points for development attracted a significant number of development players through both formal and informal employment. However, concentration of people at designated growth points has been associated with the promotion of the spread of HIV/AIDS. The Poverty Reduction Forum and Institute of Development Studies (PRF and IDS) reported (2003) that the vulnerability of people at growth points appears to be

higher than in villages as a result of adoption of some of the unwholesome urban type life styles necessitated by poverty and breakdown of family life, creating an environment that promotes promiscuity.

Rutenga Growth Point houses the Rutenga Railway Station, the main railway station in southern Zimbabwe, linking Zimbabwe, South Africa and Mozambique. Rutenga has 261 railway workers and a similar number of people in informal employment, mostly young men and women. A daily passenger train plies the Bulawayo-Chiredzi line, ferrying large numbers of passengers enroute to Mozambique and South Africa. Rutenga is also frequented by haulage truck crews plying the

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Harare-Beitbridge Highway, attracted by the bottle stores, restaurants and nightclubs which are also frequented by the local men and women.

Mwenezana Estates, 30 km from Rutenga, is a sugar cane growing concern with a workforce of more than 1000, 30% of whom are women. Many people visit the Estate to sell their wares and to order merchandise for resale in the surrounding rural areas. Some of the female visitors are sex workers who consider the male employees of the Estate as potential customers. Many of the male workers do not stay with their families, promoting casual sex relationships which tend to increase their vulnerability to sexually transmitted infections (including HIV/AIDS). The inhabitants of these two locations mix with a variety of people of different social behaviours and economic status, leading to high chances of casual sex relationships among the workers themselves and with the visitors.

The railway workers offer free transport of goods and passengers and the Estate workers offer sugar as payment for sex services (PRF and IDS, 2003).

AIDS/HIV fighting strategies have been incorporated at each of the two establishments to protect both workers and business concerns (Smith, 2001). The 2003 report on Human Resource Development in Zimbabwe pointed at transport and farming sectors as belonging to a high HIV/AIDS vulnerability category (PRF and IDS, 2003). Rutenga NRZ belongs to the transport sector and Mwenezana Estates belongs to the farming sector.

Mwenezana Estates often uses public functions like Independence Celebrations to address the public on the issue of HIV/AIDS in Mwenezi District. Rutenga NRZ does not appear to be doing much about HIV/AIDS awareness in its community. Mwenezi District's HIV fighting thrust involves government departments, non-governmental organizations, local leadership, and companies. This study aims at documenting the effectiveness of the fighting strategies, pursuing a non-medical strategy, to alleviate the suffering induced by AIDS, through development of effective education approaches that might reduce transmission of the AIDS virus (NAC, 2006). In Zimbabwe, the first AIDS reported case, in 1985, was an apparently isolated case of no apparent consequence to an ordinary Zimbabwean (PRF and IDS, 2003). HIV drastically rose to 33.1% in 2000, before falling to 15.3% in 2007 when 1.7 million of the 13 million population of Zimbabwe were HIV positive, including 890000 women and 160000 children (NAC, 2008). The two study areas are located in Mwenezi District where 748 people (535 of whom were females) were living with HIV/AIDS in 2002 and by 2007, 3420 people (1793 of whom were women) were on Community Health Based Care. The district had 7609 orphans, 5284 of whom were girls. On average the district had an HIV prevalence of 20%, and 30% of these were at growth points (Mwenezi District Action Committee, 2007). Current sentinel surveillance data show that the agriculture and transport

sectors are highly vulnerable, especially on settlements along roadsides. A study of Hippo Valley cane cutters showed HIV/AIDS prevalence rate to be above 30% (PRF and IDS, 2003).

These surveillance observations would appear relevant to the situation in Mwenezi District, which is mainly a farming area with small-scale settlements, A2 commercial ranching farms and commercial agro industries like Mwenezana Sugar Cane Estates. The district also contains a segment, centred on Rutenga, and well served with major roads and railway lines. Rutenga witnesses large inflows of human traffic in the form of train passengers, road passengers, railway workers, national and international haulage truck crews, local formal and informal business people, border-jumpers and cross border traders, all of whom may be potential conduits for HIV infection.

Different communities, including employers, are banking on preventive educational programmes to promote Public Health in their institutions. For the programmes to be effective, the planners need to be conversant with the nature of both the problem and the nature of the people affected by the problem. The crafting of intervention strategies should include educational programmes which have measurable objectives that are time framed so that the learning may result in change in behaviour that is measurable and quantifiable (Asmov, 1981; Kelly, 1986; Okware, 1988; Child, 1997). This approach appears to have been effectively adopted by the Zimbabwe National AIDS Council in crafting the National AIDS Work Plan for the period 2005-2010.

Yager (1991) and Magagula (1996) argue that learning about facts is terminal and of insignificant value. Kelly (1986) proposed that education programmes should focus on principles and allow the programme to be flexible to accommodate possible adjustment. Some programmes have failed to produce the desired effect because the whole programme has been organized and run by management without the involvement of participants, leading to the people affected failing to see the relationship between them and the programme that is supposed to save them. Thus, participants need to be involved in the crafting of the strategies. As a step towards addressing this, the EADI-DSA Conference 2011 sought to promote ideas and narratives that allow adoption of pathways that take into account inter-cultural, inter-generational and inter-disciplinary forces in order to deal with the different economic, social, political, cultural and ecological aspects of HIV/AIDS management (EADI-DSA Conference, 2011). Ignoring any of these factors, especially the political, might cascade into problems similar to the 2003 SARS crisis in China which contributed to allowing HIV/AIDS to spread from high-risk groups into the general population (Huang, 2006).

UNICEF (2003) reported that the most vulnerable people are the poor and the least powerful. The HIV fighting strategy, therefore, needs to involve such

groupings as the general workers and their families. The strategy needs to have clear goals that management work tirelessly to attain as was demonstrated by Ford Motor Manufacturing Company of South Africa through shutting down operation once a week to allow workers to attend HIV/AIDS education sessions, ensuring that attendance was 100% (Denice, 2001).

There is need to ensure that all people have access to relevant and meaningful information, education and services that have capacity to develop life skills needed in reducing their vulnerability. This calls for application of approaches and activities that have capacity to produce the desired effect, information and communication being both the prerequisites and enablers of effectiveness. Information and communication are sources of power to protect against infection, to influence decision makers, and to live lives of dignity and equality once infected (Forman, 2003). The design must be piloted to ascertain the performance capacity of the planned activities and to study the model's performance while it is at a small scale and indicate the level of resources and funding required (UNICEF, 2003).

Knowledge acquisition needs to be accompanied by relevant support services that allow participants to apply what they acquire from the education programme. Counselling and testing, treatment and supply of condoms need to be infused into the programme in such a way as to be user and gender friendly, to ensure that they benefit all including women and children.

Research questions

1. How serious is the HIV/AIDS problem at Mwenezana Estate and Rutenga NRZ?
2. To what extent is each of the two organizations protecting its workers from HIV/AIDS?
3. What value do workers associate with the employer's efforts to protect them from AIDS?
4. Do the adopted strategies have the capacity to influence the spread of HIV/AIDS?

METHODOLOGY

The case study approach provides information that has the necessary depth required by a serious study of a social nature whilst the survey allows the researcher to gather a large volume of data without reaching all members of the population (Borg and Gall, 1989). The total workforce of Mwenezana Estates and Rutenga NRZ is more than 1260 workers. The survey enabled the researcher to select a representative sample from each of the two populations, seeking to establish trends from 2005 to 2009, giving a longitudinal characteristic (Best and Khan, 1993). Data were collected using multiple methods that included records, questionnaires, interviews and incidental observations to improve the quality of results through triangulation (Chiromo, 2006). The comparison of data collected using the different instruments would insure validity in that if data from any two instruments do not appear related, then the sources would be checked for trustworthiness.

Pilot study

The quality of the data collecting tools was pre-tested in a pilot research and the observations obtained were used to improve the quality of the instruments. The questionnaires were pre-tested using 19 workers. The results of this pre-test were used to modify the questionnaires.

Data collection

Data collection from relatively large samples (90 people) increased the chances of capturing representative information (Borg and Gall, 1989). Data were analyzed continuously during collection, the analysis itself influencing subsequent data collection. The data were grouped into themes, processed using descriptive statistics and subsequent values organized into tables and treated to non-parametric tests (Appendices 4 and 5).

Gaining field entry

Permission to carry out research was obtained from the District Medical Officer in Mwenezi District and the management at each of Rutenga NRZ and Mwenezana Estates. Permission to work in Mwenezi District was granted by the District Medical Officer, whilst permission to carry out research at Rutenga NRZ was given by the NRZ Head Office Human Resource Department in Bulawayo. Mwenezana Estates granted verbal permission through the Human Resource Officer. The Human Resource Officer at Rutenga NRZ attached the researcher to the site HIV Coordinator, while in Mwenezana Estates, the researcher was attached to the Hospital Matron. The researcher was introduced to the field supervisor for section 2 of Mwenezana Estates and to the railway maintenance gang for Rutenga NRZ. The coordinators in turn introduced him to the workers.

Sampling

Random selection of one section of Mwenezana estates for the research

Unlike Rutenga NRZ whose workers were concentrated at the railway station, Mwenezana Estates covered a large area comprising 3 sub-sections, one of which was randomly selected for study.

Cards with numbers corresponding with general workers who had reported for work were sealed in a small box with a slit on one face. The box was shaken, dropping some numbered cards through the slit until ninety had fallen out and workers with those numbers qualified to participate in the questionnaire session and supervisors later released the sampled workers at scheduled times.

The 90 workers who had been sampled above picked up a card each from a hat containing ninety cards, 80 of which were marked 'Q' and 10 marked 'QI'. Those who picked up cards marked 'QI' took part in both the interview and questionnaire segments while those who picked cards marked 'Q' took part in the questionnaire phase only.

The population

The population from data records consisted of all people who were treated for sexually transmitted infections (STIs) and HIV related illness, those on Anti-Retroviral Therapy (ART) and those who collected condoms or went for counselling and testing at the company hospital from year 2005 to 2009. The population also

includes those who had died of HIV related illnesses and were recorded as such in the company records.

Sampled general workers

The population consisted of general labourers who work as railway maintenance workers in Rutenga NRZ or cane cutters and irrigators in Mwenezana Estates. Ninety workers were sampled from the above population for each company sample.

Data collection

Questionnaire forms (Appendix 1) were left at the company clinic for completion and collected after 5 days. The clinic staff cooperated and completed all sections of the forms. The researcher could not verify the data because some sections of the records contained very confidential information which was not relevant to the research requirements.

Questionnaire for workers

The sampled workers were released for the research during working hours. The researcher issued the questionnaire forms (Appendix 2) and pens and explained what was required, discussing instructions and allowed workers to fill in the questionnaire. All questionnaires were collected and every question was checked for omissions at the point of collection. All the 90 questionnaires were completed and returned in each case, having been completed on separate days at Rutenga NRZ and Mwenezana Estates.

Interviews

The 10 general workers selected for interview (from each of the two organizations) were scheduled for interview and interviewed individually, each interview lasting a total of 30 minutes using interview guide (Appendix 3). Since the workers were going to reveal their personal feelings about the company's HIV programmes, the interviewee was told that information was going to be recorded but assured the interviewee that all issues discussed were for the purpose of the research and only the researcher and the researcher's supervisor were going to know the details and sources. The interviewees gave responses which appeared to be genuine and honest opinions and feelings in a friendly atmosphere. All interviewees were accorded opportunity to ask questions related to the interview. The researcher discussed with the HIV/AIDS coordinator and the supervisor separately on the efforts made and problems encountered in fighting HIV/AIDS by their respective companies.

Data from observations

The researcher inspected accommodation, clinic facilities, electric connections, water connections, recreation facilities and passes-time behaviour of workers, jotting down notes on observations as he moved about in the locations. Attention was paid to issues of condom use and distribution. The observations were used to verify what the workers had said during the interviews.

Data analysis

Data type

Data were presented as counted items or people using a nominal

scale. While the nominal scale was the least accurate, it was the best way of presenting the available data (Best and Khan, 1993). The researcher counted people or responses. Although the bulky of the data were in numerical form, data from interviews captured opinions of respondents while data from observation captured the observed characteristics.

Data analysis approach

Data were used to describe the population and to establish trends and relationships between selected parameters. This was prompted by the need to give detailed insight about the effectiveness of a selected strategy. The numerical data were subjected to descriptive statistical analysis that called for determination of rates, measures of mean and standard deviation, correlation coefficient and variability. The statistical package SPSS was used because it has the capacity to provide solutions needed on correlations (Levir and Rudn, 1980; Best and Khan, 1993). Correlations were established between HIV and STI cases, condom use and number of workers tested for HIV and counselled, and between death levels and the numbers of people on ART to establish the trends (Appendices 4 and 5).

Data presentation

STI cases were by far more prevalent at Mwenezana Estates (averaging 100) than at Rutenga NRZ (averaging 6) (Table 2).

No HIV cases were recorded for females in the Rutenga NRZ population. However, both male and female populations of Mwenezana Estates registered a rise in HIV positivity levels from 2005 to 2008, but there was a significant drop in 2009. The number of HIV cases averaged 58 for Mwenezana Estates (33 for females and 25 for males) compared to 3 male cases for Rutenga NRZ whilst HIV related deaths averaged 5 for Mwenezana Estates compared to 2 for Rutenga NRZ. The highest number of HIV cases (135) and AIDS related deaths (10) were recorded at Mwenezana Estates in 2008.

Relationship between HIV and STI cases for Mwenezana estates and Rutenga NRZ

The correlation coefficient between STI and HIV was -0.229 at Mwenezana Estates and 0.507 at Rutenga NRZ both at 0.01 significant level (Appendix 4). Although the correlation was significant at Rutenga NRZ, the numbers involved are small. STI cases ranged 4 to 10 over the 5 year period and HIV cases ranged 2 to 5 for males with no recorded HIV cases for females.

Correlation of interventions with HIV levels

The intervention methods that included use of condoms, HIV testing, counselling, and use of ART services were compared. The comparisons included establishing correlation patterns with intervention levels in the populations.

Use of female condoms in Mwenezana, female and male condoms in Rutenga NRZ

Figures 3 and 4 reveal that condom use was much higher for Mwenezana Estates than at Rutenga NRZ (even after correcting for the disparity in population levels). Similarly, the number of people taking up counselling and testing increased with time at

Table 1. STI Cases for Mwenezana Estates and Rutenga NRZ.

Name of company	Mwenezana estates			Rutenga NRZ			
	Year	STI in males	STI in females	Total cases	STI in males	STI in females	Total cases
	2005	38	66	124	4	4	8
	2006	77	81	158	7	3	10
	2007	52	42	94	3	3	6
	2008	41	53	94	2	2	4
	2009	24	9	33	2	2	4
	Mean	50	50	101	4	3	6

Table 2. Characteristics of the research participants.

Name of company	Characteristic	Description	Rutenga NRZ		Mwenezana Estates	
			Responses	%Responses	Responses	%Responses
Marital status		Single	21	23.3	24	26.7
		Married	69	76.7	57	63.3
		Separated	0	0	9	10.0
		Widowed	0	0	0	0
Gender		Male	81	76.7	54	60
		Female	9	23.3	36	40
Age in Years		18-20	3	3.3	18	20
		21-25	15	16.7	24	26.7
		26-40	60	66.7	33	36.7
		40+	12	13.3	15	16.7
No. of children per respondent		0	6	6.7	6	6.7
		1-2	51	56.7	42	46.7
		3-5	21	23.3	18	20
		5+	12	13.3	24	26.7
No. of spouses per respondent		0	21	23.3	24	26.7
		1	60	66.7	45	50
		2	6	6.7	15	16.7
		3	0	0	6	6.7
		3+	3	3.3	0	0

Mwenezana Estates while it fell at Rutenga NRZ. The total population of formal workers Mwenezana Estates was about 1000 and that at Rutenga NRZ was 261.

The majority of the respondents are aged between 18 and 40 years, married to 1 spouse and have 1 or 2 children (Table 2). However, Rutenga NRZ is predominantly male (90%) while Mwenezana is more gender balanced (40% female and 60% male). The age group shows that the sample population is highly sexually active (Table 1), confirming the need for HIV/AIDS information for their own safety.

Table 3 shows that 76.7% of the participants from Mwenezana Estates were counselled compared to 23.3% from Rutenga NRZ. The correlation coefficient was 0.058 for Rutenga NRZ data (Appendix 4) and 0.984 for Mwenezana Estates data (Appendix 4). The larger percentage of counselling (76.7%) of the Mwenezana Estates population indicated that they had taken up counselling and

testing compared to 23.3% at Rutenga NRZ. Interviews revealed that a number of workers did not see the value of taking up testing when the chance of getting assistance after testing was remote and that counselling should be conducted by people from their community and not by strangers.

One respondent remarked: "Ko vana tete, vana mbuya, vana sekuru vedu vozaita basarei?" This translates to: "If counselling is done by strangers, what will our aunts, grandmothers and grandfathers do?" This must be understood in the context of cultural values regarding the role of the extended family in matters of sex and sexuality. The nurse at Mwenezana Estates attributed the high counselling up take to the time off it gives workers from the tiring work and the site coordinator for Rutenga NRZ felt that workers were adequately serviced for HIV testing and blamed the workers for not taking the initiative to go for testing.

The performance of each company on all the themes was

Table 3. Workers' perceptions on counselling and testing.

Name of sample	Mwenezana Estates sample				Rutenga NRZ sample			
	yes	% yes	no	% no	yes	% yes	no	% no
Characteristic examined								
Were you ever counselled for HIV/AIDS in this company?	69	76.7	21	23.3	30	33.3	60	66.7
Were you ever tested for HIV/AIDS in this company?	60	66.7	30	33.3	30	33.3	60	66.7
Mean	65	71.7	26	28.3	30	33.3	60	66.7

Table 4. Condom use, Behaviour towards Infected Colleagues and Medical Treatment.

Company name Responses	Mwenezana Estate		Rutenga NRZ	
	No. of responses	% responses	No. of responses	% responses
Condoms are freely distributed	69	76.3	75	83.3
People talk freely of condoms	21	23.3	15	16.7
Teenagers have free access to condoms	0	0	0	0
All women have access to condoms	15	16.7	0	0
Prostitutes encourage use of condoms	9	10	3	3.3
Workers laugh at the HIV positive	15	16.7	11	3.3
Workers gossip about the HIV status	16	20.0	63	70.0
Medical service is free and open to all	75	83.3	66	73.3
Medical staff respect all patients	21	23.3	24	26.7
Treatment until the end recovery/death	72	80	78	86.7

Table 5. Positive indicators.

Area of HIV activity Name of company	Mean % score obtained	
	Mwenezana Estate	Rutenga NRZ
Advocacy	20.9	22.1
Counselling and testing	71.7	33.3
Condom use	33.3	26.7
Treatment and care	56.7	50.0
Total	182.6	132.1
Number of indicators	5	5
Overall % mean	36.5	26.4

summed up and an average performance of each company with regards to HIV fighting was obtained by computing positive indicators of performance as a percentage factor (Table 5).

DISCUSSION

The prevalence of STI cases at Mwenezana Estates (averaging 100) compared to Rutenga NRZ (averaging 6) may be indicative of moral decadence arising from breakdown of family ties and overcrowding (Table 1). The trend observed in Figures 5 and 6 suggests that more people were coming forward to take up counselling and testing services, increasing the chances to detect HIV in the population (N'gwesheni et al., 1999). The increased

readiness of people to go for testing is often caused by effective counselling and confidence in ARVs' effectiveness (Aizen, 1991), with many people being motivated by the available treatment regime (Ministry of Health, 2005). The trend indicates an upward thrust in the readiness of both male and female members of the Mwenezana Estates population to cooperate and take up testing. The greater the number of people taking up testing, the higher become the chances of detecting HIV positive members of the population (NAC, 2006). Identification of the infected enhances their education and helps curb the spread of the virus. Mwenezana Estates has an on-site ART centre which provides voluntary counselling and testing services as well as antiretroviral therapy services. The trend suggests that this ART centre is motivating people to take up testing in the hope of receiving

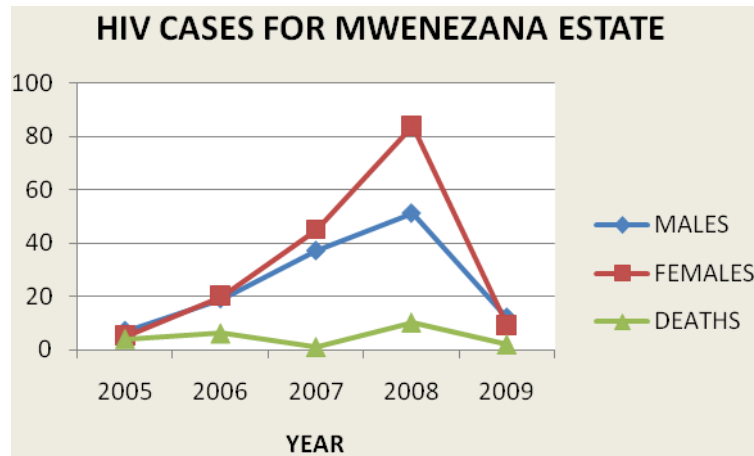


Figure 1. HIV cases and related deaths for Mwenezana Estates.

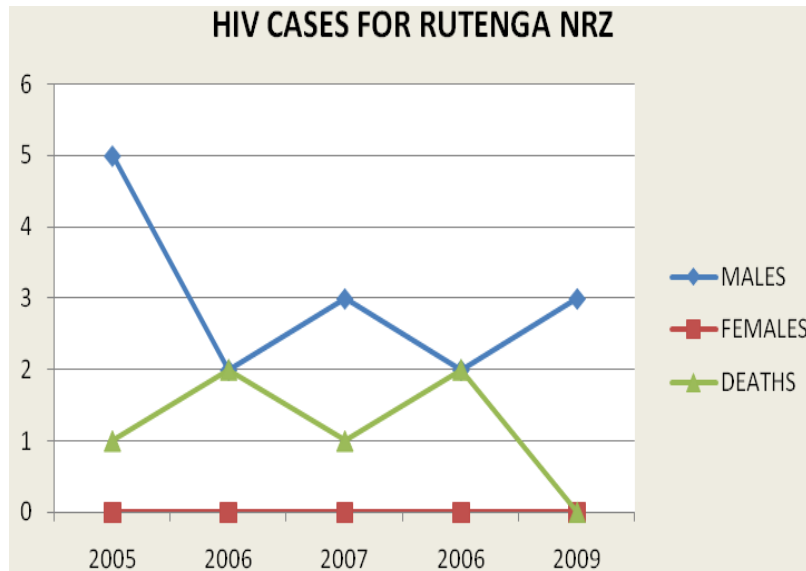


Figure 2. HIV cases and related deaths for Rutenga NRZ.

treatment (NAC, 2005).

Figures 1 and 2 and the Mwenezana Estates correlations (Appendix 5) might suggest that as more people are tested and get on ART, the number of deaths due to AIDS falls. However, the correlation values are so small as to be considered negligible (Best and Khan, 1993), suggesting that the effect of ART, even for Mwenezana Estates, is yet to be realized and the death rate at Mwenezana Estates (12.9%) is higher than the national levels. Death rate may be calculated using the expression:

$$\text{AIDS related death rate} = (\text{Number of AIDS related deaths} \times 100 / \text{Number of HIV cases}) \%$$

According to Prescott et al. (2005) the investigation into

the relationship between HIV and STI Cases at the two companies did not yield the desired results. The correlation coefficient between STI and HIV was -0.229 at Mwenezana Estates and 0.507 at Rutenga NRZ both at 0.01 significant level (Appendix 4). Although the correlation was significant at Rutenga NRZ, the numbers involved are small. STI cases ranged 4 to 10 over the 5 year period and HIV cases ranged 2 to 5 for males with no recorded HIV cases for females. The small numbers involved negate the significance of the correlation for Rutenga NRZ. STI cases ranged 33 to 158 and HIV cases ranged 13 to 135 and the correlation was insignificant at Mwenezana Estates. Thus, the negligible relationship between STIs and HIV at Mwenezana Estates might mean that the greater number of people taking up testing may not be linked to STI infection.

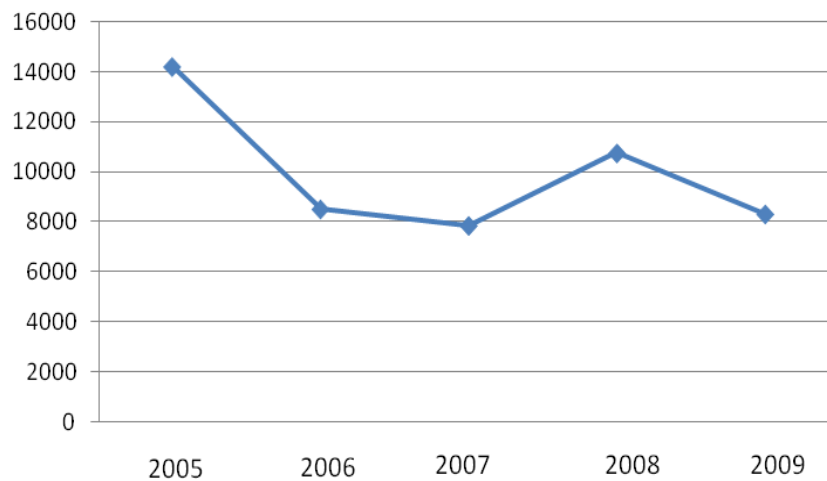


Figure 3. Number of male condoms used in Mwenezana.

AIDS related deaths

Recorded HIV cases and AIDS related deaths were much lower for Rutenga NRZ during the five year period (Figure 2). The high HIV prevalence for Mwenezana in 2008 coincides with the worst economic woes experienced in Zimbabwe over the decade. Poverty, poor living conditions, low education and crowding are efficient catalysts for promiscuity, which enhances spread of HIV/AIDS. Mwenezana Estates has more of the above negative factors, coupled with the greater population density which promotes anonymity than Rutenga NRZ. The lower HIV incidence at Rutenga NRZ is probably a reflection of the better working and living conditions prevailing at that company.

The best way to win the fight against AIDS is not engaging in activities that lead to infection. Once infected, in the absence of cure, the best one can do is to delay its victory over one's life. Mwenezana Estates has strategies that are promoting survival of the infected people more than Rutenga NRZ has. Apparently, the survival of the infected is enhanced at Mwenezana Estates by the provision of ARTs whilst Rutenga NRZ does not have such facilities, although the lower HIV level is commendable. Correlation between death and use of ARTs was insignificant at the two localities (Appendix 5). Unfortunately, the information that was given does not reveal how long the infected survived after the year on infection. Thus, the link between use of ARTs and prolongation of life is missing.

These statistical figures might be meaningless considering that at Rutenga NRZ no females succumbed to HIV and that the rate for males ranged 2 to 5 over the 5 year period. STI cases ranged 2 to 4, equally shared between females and males except in 2006 when there were 7 males and 3 females. Mwenezana Estates, where the fighting strategies were more rigorously practised, had an average of 58 HIV cases and an average of 101

STI cases over the same period. The main difference between the two localities was in living and working conditions. There was more crowding at Mwenezana Estates than at Rutenga NRZ. Although drug intervention may alleviate suffering and prolong life, the war on HIV might be won through factors that prevent onset of HIV/AIDS by not engaging in activities that lead to infection. The present study suggests that improvement of conditions of life might yield the desired results.

Data on use of condoms in the two locations

Mwenezana Estates appears to be promoting the use of both male and female condoms and the use of the female condom has increased from zero in 2005 (Figures 3 and 4). Results indicate that Rutenga NRZ women do not use the female condom at all although the female condoms have been reported to be very effective in reducing HIV incidence in populations that use them (Mamimine et al., 2008). The non-use of the female condom in Rutenga NRZ appears to be related to the company's policy of employing husbands and their wives. In general, people have a need to use condoms when they engage in sex outside marriage. That the use of the condom and the incidence of HIV at Rutenga NRZ are significantly lower than at Mwenezana Estates probably suggest that promiscuity is also lower at Rutenga NRZ. It might be unfair to equate the non-use of the female condom at Rutenga NRZ with the oppressive tendencies of men as many are kin to point out. It might simply mean that the majority of the women do not feel the need for that condom. The use of the female condom is very low even at Mwenezana Estate where its range was zero to 194 compared to the male condom which ranged 7840 to 14200 over the 5 year period. That the distribution of the male condom fell from 14200 to about half in the succeeding years might simply mean that after the

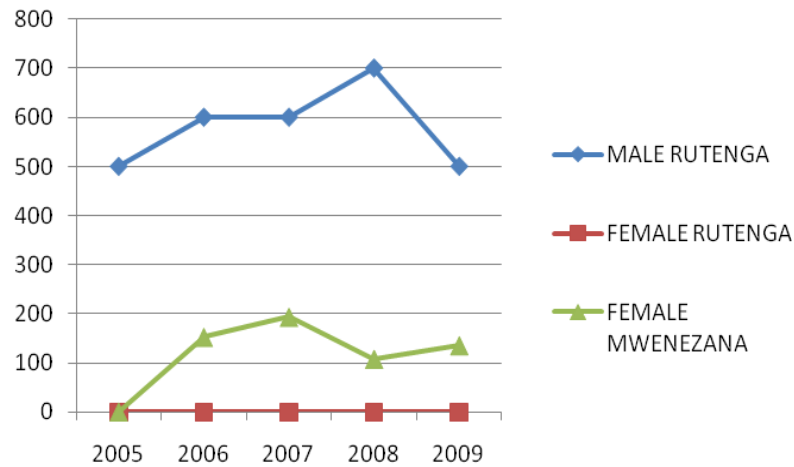


Figure 4. Number of condoms used.

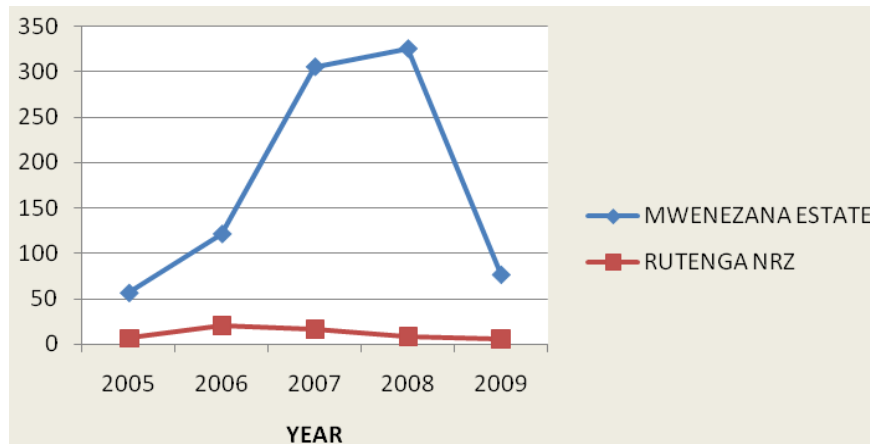


Figure 5. Counselling at Mwenezana estates and Rutenga NRZ.

excitement of its introduction in 2005 people did not enjoy its use and discarded it as could be evidenced by appearance of unused condoms by road sides. The distribution of the male condom at Rutenga NRZ ranged from 500 to 700 over the same period was probably realistic. The population of Rutenga NRZ (261 workers) was about a quarter that of Mwenezana Estates (1000), coupled with the fact that most Rutenga NRZ workers lived as married couples.

Relationship between HIV and use of condom in the two populations

Calculation of non parametric correlation coefficient at 0.01 significant level shows a correlation of 0.048 for Rutenga NRZ and 0.637 for Mwenezana Estates (Appendix 4). The positive correlations imply that the use of condoms increased with increase in HIV cases in both populations, as people realized the need for protection

when having extramarital sex. However, the correlation is by far greater in Mwenezana Estates than in the Rutenga NRZ populations. The coefficients had variability levels of 2.28 and 44.6% for Rutenga NRZ and Mwenezana Estates, respectively, suggesting that the influence of condoms on HIV is 44.6% in Mwenezana Estates and 2.28% for Rutenga NRZ. Condoms have been found to be very effective in preventing transmission of HIV/AIDS where they are accepted (Ministry of Health and Child Welfare, 2005). Agreement by the two partners to use the male condom instead of the female condom should not be equated with oppression of females by males. There are females who actually prefer the male condom to the female condom.

Use of counselling

There is a high positive correlation between the number of people counselled and the number of HIV cases in the

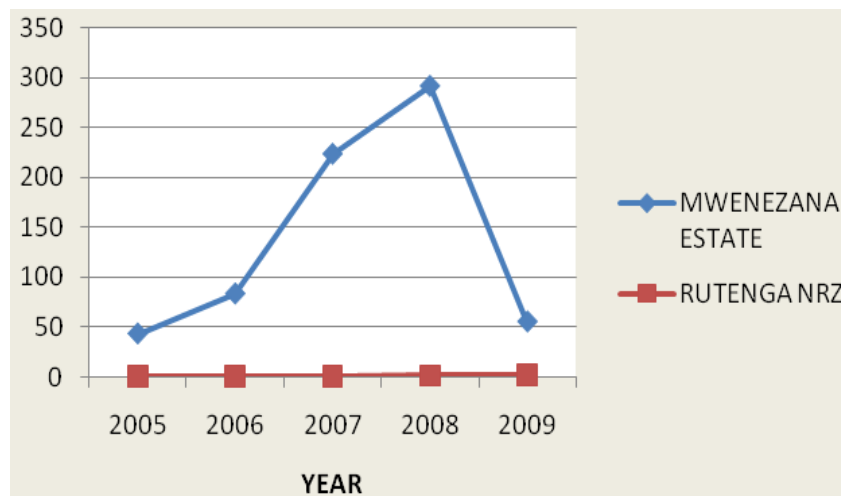


Figure 6. HIV testing at Mwenezana Estates and Rutenga NRZ.

Mwenezana Estates population, suggesting that as more HIV cases were recorded, the number of people counselled increased in Mwenezana population. This does not necessarily equate to acceptance of counselling at Mwenezana Estates. Counselling is mandatory to those who go for HIV testing. The Rutenga NRZ population does not appear to have been influenced by the counselling done by the company, the coefficient level of 0.058 reflecting that there is no significant relationship between HIV and the number of people counselled. Most people do not ordinarily go for counselling unless they are ill and conditions force them to be HIV tested. They are then counselled before and after testing. The use of HIV testing services was measured by capturing the number of people tested in a given population generating data represented in Figure 6. These might be the same people reported for counselling in Figure 5. Some of the counselled people might have declined testing, leading to the differences in the figures between Figures 5 and 6.

Data on use of HIV testing

In general people are counselled, agree or disagree to be tested, and if they are tested, they will be counselled again after the test. Three people were tested for HIV at Rutenga NRZ over the 5 year period, compared to an average of 159 per year for Mwenezana Estates. The number of people tested increased from 43 in 2005 to 291 in 2008, and fell to 55 in 2009. The pattern suggests that the Mwenezana Estates population was opening up more and was volunteering for HIV testing better than the Rutenga NRZ one, confirming the pattern revealed by the counselling data. If that is the case, then it is commendable. However, there is the possibility that the tested were people who felt the need to be cured and they could access drugs only after being tested. Hence

they “volunteered” for testing.

Workers’ perceptions on counselling and testing

Interviews revealed that a number of workers did not see the value of taking up testing when the chance of getting assistance after testing was remote and that counselling should be conducted by people from their community and not by strangers. The observation of remarks of the type: “Ko vana tete, vana mbuya, vana sekuru vedu vozoita basarei?” needs to be taken seriously. The remark translates to: “If counselling is done by strangers, what will our aunts, grandmothers and grandfathers do?” This must be understood in the context of cultural values regarding the role of the extended family in matters of sex and sexuality.

The nurse at Mwenezana Estates attributed the high counselling up take to the time off it gives workers from the tiring work and the site coordinator for Rutenga NRZ felt that workers were adequately serviced for HIV testing and blamed the workers for not taking the initiative to go for testing. These sentiments might be unfortunate in that they appear to negate the rights of the workers to decide how they should be counselled and the remarks do not promote research into the actual causes of failure to accept counselling.

Behaviour of workers towards their infected colleagues

Information from interviews appeared to indicate that workers from both companies gossiped and laughed at those who were suspected to be HIV positive, Mwenezana Estates scoring 18.4% and Rutenga NRZ scoring 36.7% in that regard. Apparently looking

negatively at the AIDS suspects, colleagues at Mwenezana Estates referred to them as “Mushakabvu or Chitunha” meaning one already dead. At Rutenga NRZ, they were referred to as “Quarter to, meaning one about to die, or “UN yakapindira”, implying “The one on ARVs therapy donated by the United Nations”. Thus, stigmatization though mild, was a problem in the two localities. Stigmatization is retrogressive because it deters the infected from being open about their status. That the workers advanced flimsy explanation to their use of such stigmatization is immaterial. Stigmatization must be discouraged.

Perception of workers on care and medical treatment by their company

The performances of the two companies on the issue of care and treatment of AIDS patients were very similar with Mwenezana Estates scoring 65% and Rutenga NRZ scoring 62.3%. The two companies scored very high on company medical policy which provides for treatment of all grades of workers. However, both companies performed very poorly as regards the way workers are treated by clinic staff (23.8% for Mwenezana Estates and 26.7% for Rutenga NRZ). Thus, while the company policy is appreciated by workers, workers are not properly handled by the medical staff at the respective clinics (Table 4).

Positive Indicators

Mwenezana Estates performed better than Rutenga NRZ sample in all aspects except advocacy. Overall, Mwenezana Estates scored a mean of 36.5 against Rutenga NRZ mean of 26.4%. However, in real terms, the above information reflects that both companies are performing well below expectations. The available data indicate that the strategies of the two companies are failing to cause reasonable behaviour change in the workers who constitute the bulk of the workforce in each case.

Vulnerability of workers to HIV/AIDS

The greater the extent to which workers are exposed to situations that promote sexually transmitted infections, including HIV/AIDS, the higher the chances of infection (NAC, 2008). The existence of the highly sexually active male and female workers (18 to 40 years), in the absence of their spouses, provides opportunities for promiscuous behaviour among Mwenezana Estates workers, while the assignments of duties away from their spouses at the station or on different assignments away from the station promote extramarital sex among the Rutenga NRZ

population. The rail workers' wives also fall prey to male workers who remain at the station on normal duty. There is, thus, need for management of Rutenga NRZ to create an environment, including marriage friendly assignments, that promoted family stability and self-monitoring of spouse behaviour to prevent creation of sex networks that promote easy transfer of the virus in the worker population (Ng'weshemi et al., 1997).

Condom acceptance and use

The research revealed that, contrary to the theory that condoms are effective in preventing transmission of HIV infection; the acceptance of condom use is low amongst workers from the two populations, notwithstanding the high distribution of male condoms in the two localities. The availability of clinical data on workers who have been treated for sexually transmitted infections is evidence that some workers do not use condoms in their extramarital sex relations. The research has revealed that the use of condoms is erratic in the male worker populations of both Mwenezana Estates and Rutenga NRZ, and there also appears to be strong attitude problem regarding the use of the condom among the female workers and adolescents as revealed by the strong resistance to condom use by the female workers and the sexually active children. Both localities were strongly of the view that use of the condom by children who were yet to marry and women interfered with fertility. Use of the female condom was suspected of damaging the uterus and was only promoted in Mwenezana Estates, but at a very low scale. The workers feared that the female condom might cause real danger to the user by damaging the uterus. Furthermore, giving condoms to children is contradictory to workers' cultural values. Workers have institutions that have the capacity to attend to problems of premarital sex and do not capacitate children to experiment with sex. The institutions consider sex to be concerned with womanhood and manhood and issues of virginity are upheld religiously, with personal and cultural dignity and pride at stake (Campell and Rakgoasi, 2000). The current teaching is meant to replace these entrenched values with views that contradict the workers' common way of life.

The research revealed that the workers do not want approaches generated from other cultures to focus on making them throw their own sex education. They want to be involved in the planning and implementation of public health issues from a partner point of view rather than from top to bottom (Schapera, 1971). The use of the condom is an imposition that needs to be handled with care to be useful. Management needs to take on board the cultural context of the workers on HIV prevention programmes. The current thrust where people are asked to discard their practices and replace them with wholly foreign approaches appears to be failing to deliver

(Mzinga, 2003). Present HIV programmes encourage people to give sexually active children access to condoms. But the majority of workers, who are parents, consider that a condom is a tool employed by prostitutes. So, in the African context, giving condoms to children is directly licensing children to experiment with sex, an act which parents feel should wait until marriage (Campbell and Rakgoasi, 2000). To a certain extent, workers accept use of condoms by male adults for certain purposes but not always. But workers (male and some female) are not in favour of condom use by women and sexually active children.

The workers want control measures that uphold their cultural values. Which African parent would smile upon seeing a teen age child keeping a supply of condoms in readiness for sex? The argument for a choice between AIDS and virginity is a reality, but painful to parents.

Treatment and care

Information and communication are crucial to proper treatment and care as these offer potential solutions to many of the obstacles such as limited resources, stigmatization, discrimination and marginalisation. Information and communication also enable appropriate behavioural changes to counter dangerous social consequences of misinformation and myths around the disease, and continuing social and political silence and denial about the disease (Forman, 2003)

The companies scored very high on the general health provision but results show that there are less people on ARVs than the number of people confirmed HIV positive in each of the two localities. The health authorities suggest that HIV treatment is on the strength of the CD4 count, a facility that is not available at any of the two sites, a situation which may cause anxiety in the infected workers, resulting in more harm being inflicted. The companies also scored low on care level by clinical staff. Thus, while company policy is clear about workers' entitlement, the medical staff implements this policy selectively, compromising on the quality of service. Clinical staff should be monitored to ensure that all workers get the quality of service entitled to them.

However, illiteracy, limited access to information, education and communication probably inhibited participants to spell out the rights of infected and affected children and dependants to treatment and care. Treatment appeared to centre on giving ARVs to the worker. There was hardly any mention of treatment of children and care of the infected and affected dependants and minors. The companies should develop strategies to cater for spouses, dependants and children. These might get infected as they look after the infected worker. The companies need to include the education of the spouses, children and dependants as part of the care expected for their infected worker. The attitude of the health care providers has influence on the success of the treatment

and care programme. They need to ensure an environment free from stigma or discrimination in the health care settings and ensure child-focus as well as the existing worker-centric strategy (India HIV/AIDS Alliance, 2009).

Stigmatization

The data suggest that the problem is low in the two populations. The workers indicated that the issue of stigmatization is relative to the people who evaluate. They normally use the terms which might appear negative to outsiders when referring to their infected colleagues to create lighter moments and definitely not to hurt the person. They feel that their use of the terms is culturally acceptable.

The virus is already in the population and can be communicated within the population through casual sex activities. The death rate is high, indicating that those infected have a negligible chance of surviving the infection, more so at Rutenga NRZ than at Mwenezana Estates. The detection of STI in the population is confirmation that workers are engaged in unprotected sex. Contraction of STI exposes the infected to HIV/AIDS (NAC, 2005). The low use of female condoms in Mwenezana Estates and its absence in the Rutenga NRZ population do not necessarily mean that the women are very vulnerable to HIV/AIDS. They might still have adequate protection through the use of the male condom. Both companies made significant efforts to fight HIV/AIDS by exposing their workers to knowledge, though the accessibility and intensity of the information appears to have been higher in Mwenezana Estates than in Rutenga NRZ populations. The incidence of sexually transmitted infection in the Mwenezana Estates is gradually falling, signifying a positive response to the HIV fighting strategy of the company. The increasing condom use in the company further confirms that workers in this company are responding to the HIV fighting effort of the company.

Mwenezana Estates recorded an increase in the number of workers confirmed as positive through testing, increasing the number of people with access to counselling and testing (NAC, 2005), with a chance to get treatment at the ART site. Treatment appears to have caused the AIDS related death rate to fall, implying that HIV positive workers in Mwenezana have a chance to live positively with the epidemic. On the whole, the research established that Mwenezana Estates' HIV fighting effort caused the STI incidence in the population to fall; made more workers open up for testing and counselling and influenced both male and female workers to use condoms more than before, while making those infected live more positively with the virus by providing treatment at the company hospital.

Rutenga NRZ managed to help its workers to fight HIV/AIDS, but to a lesser extent than Mwenezana Estates. More workers took up testing and counselling,

suggesting that more knew of their HIV status. However, the incidence of unprotected sex remained high as reflected by the increase in the STI incidence and fluctuating male condom use and absence of use of female condoms by the workers. The high death rate indicates that chances of dying from HIV/AIDS are still high due to absence of HIV/AIDS treatment facilities at Rutenga NRZ. AIDS patients from Rutenga NRZ seek treatment at public hospitals in the district.

The workers from Mwenezana Estates welcome the methodology adopted in the HIV/AIDS education programmes while those from Rutenga NRZ resent the use of lectures adopted by management. However, the workers from the two companies feel that they should own the programme rather than management selecting what it thinks is necessary for the workers, conforming to calls for participatory approaches (Yager, 1991). The Mwenezana Estates workers accepted testing more than did the Rutenga NRZ workers did, conforming to the fact that uptake of testing increases where potential for treatment is high (Over, 2004). Workers from both companies have faith in the medical policies of their companies but indicate that medical personnel treat them selectively, infringing on their right.

Education, information and living conditions appear to be key areas in the fight against HIV/AIDS. Effective counselling would involve education and information, leaving counselling and living conditions as the key areas. The two companies, particularly Mwenezana Estates, would move closer to the goals for fighting HIV/AIDS if they concentrated on those two areas.

Conclusions

There is need for management to ensure that workers feel a sense of ownership and belonging to projects involving them. If the workers are to use the skills planned, they should have clear understanding of the set goals. Since the issue of HIV is about life and death, every member of the community needs to be protected. Planners need to establish ways of influencing workers to come up with practical ways to ensure that women and sexually active children, as well as those who look after AIDS patients at home, are protected from HIV/AIDS and its effects.

HIV testing should be closely linked to treatment. Rutenga NRZ needs to seriously consider establishing an ART centre at Rutenga railway station and both companies should consider treating AIDS patients on the strength of clinical observation rather than making patients wait for CD4 count results which are currently not easy to get. Research on the African sex education institution needs to be made so as to use aspects of this education that might help to fight HIV/AIDS. The HIV/AIDS fighting strategy needs to consider focussing the thrust on the family rather than the individual (Rusimbi and Ezekiel, 2003).

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Appendix 1

Questions asked to compilers of information from records.

1. How many Men, Women and Children in your organisation were confirmed HIV positive in each years from 2005 to 2009?
2. Please give the number of HIV positive workers by grade and gender for each year from 2005 to 2009.
3. Please give details of HIV/AIDS related deaths in the company for each year from 2005 by employee grade and sex.
4. Please give information for each question, for each year, from 2005 to 2009.
 - i). How many condoms were issued each year by sex?
 - ii). How many people were counselled each year by sex?
 - iii). How many people were voluntarily tested for HIV status each year by sex?
 - iv). How many sexually transmitted infections cases were recorded each year by sex?
5. How many male adults, female adults, and children were on ARV therapy in each of the years 2005 to 2009?

The End

Thank you for your contribution.

Appendix 2

Workers questionnaire questions.

1. Complete the following information by putting a tick in the appropriate box.
 - a) Marital status: Married Single Divorced Widowed Separated
 - b) Sex: Male Female
 - c) If married, how many wives/husbands are you married to?
 One Two Three More than three
2. Where does your family normally live?
 With me at work At home in the rural areas Some place away from me
3. Which one of the following HIV/AIDS activities have your company provided to you?
 HIV/AIDS awareness lectures HIV/AIDS awareness workshops
 HIV/AIDS awareness drama HIV/AIDS awareness film shows
 None of the above
4. Which of the following activities are provided at least once a month?
 HIV/AIDS awareness lectures HIV/AIDS awareness workshops
 HIV/AIDS awareness drama HIV/AIDS awareness film shows
 None of the above
5. Which of the HIV/AIDS activities is enjoyed most by workers?
 HIV/AIDS awareness lectures HIV/AIDS awareness workshops
 HIV/AIDS awareness drama HIV/AIDS awareness film shows
 None of the above
6. Have you gone for HIV/AIDS counselling since you joined this company?
 YES NO
7. If your answer is No, what is your likely reason for not taking up counselling?
 I do not need to Counsellors at this company cannot keep secrets
 The counsellors are my juniors at work Other reasons (specify)
8. Have you been tested for HIV/AIDS?
 YES NO
9. If your answer to (9) is NO, which of the following could be the right reason?
 HIV/AIDS testing sites are far away. I do not want to know my status
 I do not want to know my status I do not see the reason for being tested
 Other reasons (specify)
10. How many people in your company are talking freely about their being HIV positive?
 NIL 0-5 6-10 More than 10 More than 20
11. What do you like most about the HIV/AIDS treatment and care programme of your company?
 It is open to all grades of workers HIV/AIDS patients are respected
 Families of HIV/AIDS patients are supported None of the above.
12. Which of the following do you see happening at your workplace?
 People laugh at those suspected of being HIV positive
 People gossip about the HIV/AIDS status of others
 Workers still exchange girlfriends/boyfriends

- Many sex workers visit our area during month ends
 - Condoms are for free and readily available.
 - People openly talk about use of condoms.
 - Teenagers can access condoms.
13. Which of the following love relationships is popular in your workplace?
- Young girls fall in love with old male workers.
 - Young boys fall in love with older female workers.
 - Married couples exchange partners None of the above.
14. What happens at your company when a worker falls ill for a long time?
- The worker is treated until recovery or death.
 - The worker is transferred to his/her rural home with company support.
 - The worker is discharged with normal benefits. I am not sure.

The end.

Thank you for responding to this questionnaire.

Appendix 3
Interview schedule for workers

1. Introduction

- a). Self-introduction.
- b). Explaining the present studies being undertaken and justifying purpose of research.
- c). Explaining how the interview and research data are going to be used: explaining ethical issues and confidentiality.
- d). Informing the respondent that you are going to record the information from the discussion.

2. Preparing the interview discussion.

Get a comment on how the respondent feels about the questionnaire.

3. The Interview Discussion.

Solicit the worker’s perception on:

- i). how the company is addressing HIV/AIDS issues.
- ii). the way the issue of condoms is being handled.
- iii). how counselling and testing are being handled.
- iv). areas of the HIV/AIDS programme in the company that need to be improved.

4. Give the respondent chance to ask questions on the interview and thank the respondent.

Appendix 4

Rutenga NRZ and Mwenezana Estates correlations for HIV, STI and counselling.

Name of company		Rutenga NRZ			Mwenezana Estates		
		HIV	STI	couns	HIV	STI	couns
Correlation coefficient	HIV	1.000	0.523	0.121	1.000	-0.279	1.000
Sig.(2-tailed)			0.000	0.058		0.000	
Correlation coefficient	STI	0.523	1.000	-0.758	-0.279	1.000	-0.279
Sig.(2-tailed)		0.000	-	0.000	0.000	0.000	0.000
Correlation coefficient	couns	0.121	0.362	1.000	1.000	-0.279	1.000
Sig.(2-tailed)		0.058	0.000			0.000	
Correlation coefficient	TEST	0.461	0.753	-0.661	1.000	-0.279	1.000
Sig.(2-tailed)		0.000	0.000	0.000		0.000	
Correlation coefficient	Condom	0.048	0.339	0.431	0.637	0.054	0.637
Sig.(2-tailed)		0.447	0.000	0.000	0.000	0.300	0.000

N = 249 for all entries; Couns = Counselling; TEST = HIV/AIDS testing; STI = sexually transmitted infections.

Appendix 5**Rutenga NRZ and Mwenezana Estates Death and ART correlations.**

Name of company	Rutenga NRZ		Mwenezana Estates	
	Death	ART	Death	ART
Tested parameter				
Correlation coefficient Death	1.000	0.124	1.000	0.063
Sig.(2-tailed)		0.051		0.236
Correlation coefficient ART	0.124	1.000	0.063	1.000
Sig.(2-tailed)	0.051		0.326	

N = 249 for Rutenga NRZ; N = 248 for Mwenezana estates.