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Johannesburg gold mine**

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PERCEPTIONS OF HIV/AIDS ON A JOHANNESBURG GOLD MINE

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Abstract

Semi-structured interviews were conducted with 40 mine-workers on a Johannesburg gold mine, focusing on workers' perceptions of health, HIV/AIDS and sexuality. The paper seeks to highlight a range of factors which might predispose mine-workers to high-risk sexual behaviour, despite the fact that they had all attended HIV-education programmes. These factors are presented within a framework that views the process of sexual decision-making as a debating process - in which competing facts and beliefs are weighed up against one another - within the context of a range of normative and social parameters. Firstly attention is given to a number of pre-existing perceptions and doubts which may blunt the force of the facts that HIV educational messages seek to impart to this particular group of people. These include a lack of perceived urgency regarding the treatment of sexually transmitted diseases (STD's), a commitment to 'flesh-to-flesh' sex, a dislike of condoms, and faith in the ability of traditional healers to cure a range of STD's and possibly also HIV/AIDS. Secondly attention is given to the normative context of sexuality, and in particular the way in which norms of masculinity predispose people to high-risk sexual behaviour. Finally the paper focuses on some aspects of social and occupational life on the mines as the context within which sexual relationships are conducted. These include the phenomenon of single sex hostels, an acceptance of high levels of disease and accidents as the norm, and the use of alcohol. The paper concludes with a discussion of the challenges these findings pose for a peer education programme which is shortly to be implemented in the mining context.

Introduction

Why do people often continue to have unsafe sex with multiple partners even when they have attended health education programmes and are in possession of correct factual knowledge about the causes of HIV/AIDS and methods of prevention? This paper reports on an interview-based investigation of gold mine-workers' knowledge of HIV/AIDS, in an attempt to illustrate why knowledge of health risks is such a weak determinant of health-related sexual behaviour in the mining context. Research findings are presented within a framework that views the process of sexual decision-making as a debating process - in which competing facts and beliefs are weighed up against one another - within the context of a range of normative and social parameters.

Levels of HIV/AIDS in South African are on the increase. The only available statistics on the nation-wide prevalence of HIV infection are for women attending ante-natal clinics (Epidemiological Comments, 1996). While little recent published data exist regarding the incidence or prevalence of HIV/AIDS amongst mine workers, a range of informal estimates have put the figure at between 15% and 25% of all mineworkers. Given the lack of a vaccine or an affordable cure for HIV disease, current thinking on the gold mines seems to favour two major strategies regarding the prevention of HIV/AIDS transmission. The first is the aggressive detection and treatment of associated diseases, in particular sexually transmitted diseases (STDs). The second is the promotion of HIV/AIDS awareness through education campaigns designed to give people information about HIV/AIDS, linked to the distribution of condoms. Mine management has devoted considerable energy and resources to HIV/AIDS education, but Crisp (1996) comments that while such programmes have succeeded in

increasing peoples' knowledge about HIV/AIDS, such education programmes have not been as successful as hoped in bringing about HIV-preventive behaviour change.

Poor correlations between knowledge about HIV/AIDS and 'safe' sexual behaviour are well documented in the social scientific literature (see Campbell and Williams 1996 for a review of South African findings, and Gillies 1996 for a more international perspective). Such research findings pose a particular challenge for health educators, namely that of developing innovative health educational programmes which attempt not simply to provide information about health risks in the interests of increasing peoples' factual knowledge about HIV/AIDS, but also to provide the context for the collective renegotiation of group norms of sexual behaviour. Such programmes have been successful in certain sub-Saharan African contexts (Dube and Wilson 1996; Wilson and Lavelle 1993) and a number of initiatives are currently underway to explore the possibility of adapting such alternative approaches for the South African mining context (Williams and Campbell, 1996). This paper will explore some of the reasons for the poor correlation between mineworkers' knowledge about HIV/AIDS and their sexual behaviour drawing on a recent pilot study into mineworkers' perceptions of health and HIV/AIDS, in the interests of arguing why such alternative programmes need to replace more traditional information-based programmes as a matter of urgency.

Method

There have been numerous calls for more qualitative research into the social context of HIV/AIDS and sexuality both internationally (e.g. Gillies 1996) and in the context of sub-

Saharan African (e.g. Scott and Mercer, 1994). In the spirit of such calls, the current study (part of the Epidemiology Research Unit's *Perceptions of Health Project*) took the form of semi-structured in-depth interviews with 40 mine workers, conducted over a two-month period in early 1995. Interviews were conducted at a mine clinic in the Johannesburg area. As agreed with informants, the mine will not be named in the interests of confidentiality and anonymity.

Informants

Informants were recruited from the waiting room of a first aid clinic attended by people with minor ailments e.g. colds, minor injuries (more serious cases attend the mine hospital) and by healthy workers returning from home leave, who are required to undergo routine medical check-ups prior to returning to work. Workers are continually leaving and arriving on the mines at a fairly steady rate throughout the course of each month of the year. Taking this into account, we believe that our informants are adequately representative of the workforce on a typical gold mine in the Johannesburg area.

Initially informants were approached by the clinic supervisor as they sat in the clinic waiting area. The supervisor introduced them to the interviewers. Between 20 and 30 minutes were spent prior to the start of the interview negotiating the interview conditions with the informants. Informants were told that the ERU was an independent research body, with a management committee consisting of representatives of universities, doctors, trade unions and mine management. They were told that participation in the interview would not result in any direct reward to them as individuals, but that the aim of the study was to generate knowledge about mine workers' perceptions of health and illness - an area which had been under-researched in the past. The principles of anonymity and confidentiality were outlined.

As agreed with informants they would be identified only by number (informant 1 ... informant 40) in the reports, and the mine on which they worked would not be identified. Informants were then given the opportunity to ask questions about the study. Thereafter formal permission to be interviewed was requested. At this stage approximately 5 workers declined to be interviewed, and 40 agreed. A consent form was signed. At the end of each interview, informants were asked for feedback. While several complained that the interview had been too long, every informant said he was pleased that he had participated, and had found the interview a positive experience.

The age range of informants was 22 to 49 years (mean age 33.8 years, median age 33 years). Of the 40 informants who were interviewed, 1 lived in a nearby township, 2 in more distant townships, and 37 were migrants coming from Lesotho (13), KwaZulu-Natal (10), the former Transkei (13) and Botswana (1). Thirty-one of the informants were married with children. Informants' home languages included Zulu (10), Xhosa (12), Sotho (16) and Tswana (2).

Interviews

The interviews were on average 3.5 hours long (excluding hourly breaks for refreshments and short walks), and were conducted in informants' home languages by a multilingual interview team. Interviews were tape recorded, and later transcribed and translated into English. The advantages of in-depth qualitative research on relatively small samples are well-documented in the social science literature when the intention is to generate information about complex social dynamics which cannot be accessed using quantitative survey questionnaires (Miles and Huberman, 1994). An open-ended semi-structured questionnaire was constructed as the most appropriate method for locating miners' understandings of their health, of HIV/AIDS

and of their sexuality within the broader context of their everyday life experiences. The questionnaire had two sections. The first part aimed to elicit general background information about informants' working, social and sexual lives. The second part focused more specifically on informants' understandings of specific health-related issues: in particular HIV/AIDS, tuberculosis and sexually transmitted diseases. (See Campbell and Williams, 1995, for a full copy of the interview protocol.)

Data analysis

Interview analysis took place in two phases. The first phase consisted of examining informants' responses to three simple factual questions about HIV/AIDS. The first concerned whether or not HIV/AIDS existed. This question was asked against the background of informal reports that because many mine workers had never seen anyone with full-blown AIDS, they were skeptical about the existence of the disease. The second question regarded how one could protect oneself against HIV/AIDS, and the third concerned whether or not informants used condoms in casual sexual encounters. Percentages were calculated reflecting the proportion of informants who were in possession of correct factual knowledge about HIV, and the proportion of informants who said that they used condoms in sexual encounters other than those with their wives or primary partners.

Informants reported that they had been taught about HIV/AIDS through their mine's AIDS Awareness Education Programme which they must attend when they come back to the mine at the start of each new annual contract. Those who had presented at the mine clinic with

STD's had also been counselled about HIV. The radio and the media were cited as two additional sources of information.

Ninety percent of our informants believed that HIV/AIDS existed (as opposed to the other 10% who said they were skeptical since they had never seen anyone with HIV/AIDS). Eighty-five percent said that condoms were the best means of avoiding HIV transmission - but only one-third of these said they had ever used a condom in a casual sexual encounter.

The second phase of interview analysis took the form of an interpretative thematic analysis, involving the detailed reading and re-reading of the interviews in order to generate explanations of why it is that some mineworkers continue to knowingly engage in potentially life-threatening sexual behaviour. This analysis was conducted by the first author, in on-going consultation with the second author (both had been members of the project's interview team). This stage of analysis pointed to three broad groupings of factors that might be said to mediate the relationship between AIDS-related knowledge and sexual behaviour: (i) competing beliefs that may serve to contradict the information that health education programmes seek to impart; (ii) the normative context of sexuality; and (iii) the social context of sexuality in the mining context. Each of these themes will be dealt with in turn.

We suggest that each of these factors need to be taken account of in generating explanations as to why mineworkers continue to engage in unsafe sexual behaviour, despite their possession of factual knowledge about the dangers of such behaviour. Knowledge about HIV/AIDS is more complex than a series of 'facts' of the kind which information-based health education programmes seek to impart (e.g. 'HIV/AIDS is an incurable disease',

‘condoms serve as an important means of HIV-prevention’). We will illustrate the way in which such facts are located within the framework of a complex and detailed web of ideas concerning health in general, sexuality, traditional values and healing systems - as well as a set of social conditions which shape and constrain peoples’ sexual choices. The acquisition of new knowledge is not a seamless process, with new information neatly taking the place of pre-existing or non-existent information. The process of human thinking takes the form of a complex debate (which is both conducted intra-personally within a particular individual, as well as inter-personally within his/her social groupings) in which an often complex range of ideas are weighed up against one another in a process of on-going debate and negotiation, and where the conclusions of these debates are influenced by peoples’ concrete social and material conditions (Billig 1987/1996).

Competing beliefs that may contradict HIV education messages

Factual knowledge about HIV/AIDS: doubts and uncertainties.

Looking closely at our interview data it seems that while informants were often in possession of the basic facts about HIV, which they had internalised through information-based programmes, these facts were embedded within a range of doubts, qualifications, contradictions and uncertainties. We would argue these doubts and uncertainties might serve to blunt the factual messages imparted by information-based health education programmes. Health education messages are not simply passively accepted by miners but must compete

with alternative beliefs, experiences and logics which may be more compelling than the information the health educator seeks to impart.

In some cases miners were actively skeptical of the educational information. As we have already said, ten percent of informants said they did not believe that HIV/AIDS existed at all.

As one man commented:

According to lectures we receive at the mine school, AIDS starts by being a small black sore. However I have had several such sores and have seen other people with such sores as well - and to my surprise, the medical doctors don't say that I have AIDS ... this whole claim about AIDS is implausible.

Amongst those who did believe that HIV existed, several commented that they were not sure that the problem existed in South Africa.

Informant: My understanding is that HIV/AIDS happens overseas, but we have never had it here.

Informant: I am not sure about whether we have HIV/AIDS here in South Africa but I hear from doctors that HIV/AIDS exists in other countries.

Several people said they had never seen anyone with HIV/AIDS.

Informant: Well I have heard that HIV exists through the radio and the mine's programmes which we attend when we come back from leave, but I have never seen anyone with it.

One mine worker commented that this lack of first-hand interaction with persons with AIDS might be one of the reasons for skepticism amongst certain of his peers about its existence, and he suggested that this lack of first-hand contact was one of the reasons why miners did not change their sexual behaviour despite the threat of the disease:

If someone that was personally known to people could die of AIDS, this would provide a good example to motivate men to change their behaviour.

It must be remembered that these interviews were conducted at the relatively early stages of the HIV/AIDS epidemic in South Africa. First-hand contact with HIV/AIDS sufferers will no doubt increase as the epidemic progresses. However we would like to make the more general point that health education messages may be received with skepticism if they do not resonate with the first-hand life experience of members of the target audience (Stockdale, 1995). Health educational interventions are most likely to be successful when members of the target audience are integrally involved in their design. One of the reasons for this is that members of target audiences will be the most familiar with local beliefs and norms which might seek to contradict HIV-prevention messages.

The following sections focus on informants' comments about condoms and STD's. These provide further illustration of the way in which health education messages are inserted into a broader set of beliefs and experiences about health - which may often serve at worst to contradict or at best to blunt the impact of the information health educators seek to impart.

Perceptions of condoms

While 85% of our informants cited condom usage as the means of protecting oneself against HIV/AIDS, two-thirds of these commented that they had never used a condom in a casual sexual encounter. The explanation most frequently offered was that (a) condoms made sexual intercourse 'unnatural', and (b) that they took away the pleasure from sex. Against the background of these two arguments 'flesh-on-flesh' sex was preferable.

Interviewer: What about condoms? Informant: (laughs) I have not tried them before. Interviewer: Why not? Informant: They say you feel like you are making love to the condom rather than enjoying the woman.

Some men commented that they were too shy to use condoms because of their unfamiliarity. Interviews revealed a number of misconceptions about condoms which might be related to their low usage by miners. For example one informant said that he had never used condoms because he believed it would be inconvenient for him to use a condom if he was sleeping with a woman for the whole night because it would get tedious for him to keep having to get up to wash the condom after each ejaculation. Another said he avoided condoms because he had been told that they were cold and uncomfortable. Several informants also commented that condoms could get stuck inside a woman.

Informant: I think condom is wasting my time. Interviewer: Have you ever tried one? Informant: Yes I tried it once, but even before I could ejaculate, this woman ran away and I ended up ejaculating in this condom. Later she said that she had been scared that once I had ejaculated, the condom would be left inside her.

There was also the perception that women did not like men to use condoms with them because that implied that the man did not trust her and regarded her as a prostitute.

Informant: If you suggest condoms to some of women around the mines they reply: 'You don't believe that I am clean, you think that I have diseases, and that I am a prostitute'. Some men avoid suggesting condom use because they are afraid of angering the woman.

The importance of 'flesh-on-flesh' sex for health

Another reason for informants' reluctance of use condoms related to their belief that regular sex is necessary for good health, and that only flesh-on-flesh sexual contact can satisfy male sexual needs (see Campbell, 1997, for an extended discussion of this point). They commented that the build-up of sperm could lead to mental problems, such as mental confusion, violence and bad-temperedness. It could also lead to physical problems such as pimples and high blood pressure. A man who had remained celibate for too long might a be unable to control his desire for sex when he encountered a CSW in the street, even if he did not have a condom with him.

Interviewer: Do people worry about AIDS on the mines? Informant: It does scare them but it is difficult for a man to stay without a woman for a long time, it is a risk that men take to go and see women.

Interviewer: Is it possible for a man to live without sex? Informant: I don't think a man could survive without sex for very long.

Informants differed in their estimates of how long a man could stay without sex without suffering physical and emotional consequences. Such estimates varied from one year to less than a week (for example one person said he visited a commercial sex worker every day).

Perceptions of sexually transmitted diseases

Certain of informants' perceptions of STD's could also serve as potential obstacles to HIV-preventive behaviour. Not one informant appeared to be aware of the way in which STD's increased one's risk of HIV infection. No one appeared to regard STD's as particularly serious. For some, the success of STD treatments they had undergone at the mine hospital and clinics has had an somewhat unintended consequences insofar as they commented that since 'the drop' (a colloquial term for an STD) could easily be cured by biomedical doctors within a week of undergoing treatment, it was not very serious.

Informant: When we advise each other in the hostel we usually say that if you are with a woman on Mondays and you get the drop, you should make sure that you see a doctor by Thursday to make sure that it is cured before seeing her again. After getting cured people simply go back to the sexual behaviour they were doing before and get sick again and again.

A number of articles have referred to myths about STD's which may serve as obstacles to HIV-preventive behaviour (e.g. Hickson and Mokhobo, 1992). Thus for example a number of people claimed that one of the causes of the drop was sleeping with women who use birth control pills. These pills would leave 'dirt' inside the woman - which would then get into the

male during sexual intercourse. This dirt could also enter a man from a woman who had recently taken some sort of traditional medication in the interests of purging or cleansing the blood.

Informant: The drop is not a disease as such. It has to do with using the pill. It is the result of the dirt that comes from a person who is using the pill. If this dirt stays in you for a long time it develops into a disease.

Informant: You get the drop by sleeping with a woman who has drunk a potassium permanganate mixture to cleanse herself. All the dirt gets transferred from her into yourself.

For many informants, traditional healers were considered the most skilled in dealing with this dirt. Several informants said they would go to a biomedical doctor for instant pain relief, and thereafter consult a traditional healer who was the most skilled at removing ‘the dirt’ inside the person - the root cause of the malady.

Interviewer: What help can traditional healers give with this problem? Informant: The traditional healers can give you *pitsa* (medicine brewed in a pot) to drink because aside from the observable symptoms of the drop, its root cause are the eggs it has made inside your body. The medical doctors’ injections can help with the external symptoms, but cannot kill the eggs inside. It is only the traditional healers’ medicine is able to kill what is inside.

Traditional healers and STD’s

Informants consult a wide range of healers without any tension or sense of contradiction. These include practitioners of western biomedicine, including hospitals, clinics, pharmacies and general practitioners in private practice, and traditional healers, including *sangomas* (diviners), *inyangas* (herbalists) and *umProfiti* (faith healers) (see Abdool-Karrim, Ziqubu-Page and Arendse 1994)

Most informants said they made use of both doctors and traditional healers for the treatment of sexually transmitted diseases. They said they would first go to a biomedical doctor, who would give them an injection which took away the pain and ‘put the disease to sleep’. However, biomedical treatment did not kill the ‘eggs’ that were the root cause of the problem. After this, they would visit a traditional healer who would administer an enema and other herbs which would, as one informant said, “go inside of the person and take out the disease” and also generally purge the patient in the process.

Informant: The doctor’s role is that he will give you instant relief with his injection. Thereafter the *inyanga’s* procedure must take place over a longer period. Firstly you have to vomit after taking the emetic, then the healer will administer an enema, then you will take a steaming session to produce excessive sweat, and finally the healer will make incisions in your pubic area. All this process is some kind of cleansing of your reproductive system, and this gets rid of the ‘eggs’ that have caused the problem.

Some informants told us that a person could go to a traditional healer and get preventive medicines, which would then ‘block’ these diseases (particularly STDs) from entering the person. Such treatment would make the use of condoms unnecessary.

Interviewer: How do you prevent getting an STD? Informant: Before you sleep with a woman, you must drink manganese. This 'makgonatsohle' will kill any dirt from the woman that might have caused a disease.

A particular problem for health educationalists on the mines is that many workers believe that as soon as they learn that they are HIV positive they will simply have to consult their traditional healers who claim to have a cure for AIDS. The patients say that the traditional healers will then treat them with *muti* to 'cleanse' the blood and flush the virus out of the system.

Normative context of sexuality: the role of masculinity on the mines

Much has been written about the central role of macho masculinity in the social identities of migrant mine workers (e.g. Moodie, 1995). Campbell (1997) comments that notions of masculinity play a key role in the way in which mine workers, often a great distance from their families and primary support networks, cope with the harsh physical demands of underground work under what miners perceive to be constant risk of injury or death. Informants in the current study spoke at length of the physical and emotional demands of life on the mines, and explained their ability to deal with these hardships in terms of the fact that they were 'men', where masculinity involved physical strength, fearlessness in the face of danger and the necessity of undergoing difficult work without complaining in order to earn money to support one's family in the rural area. Also associated with this masculine identity, which serves as such a source of comfort and strength to mine workers, is the ability to father children and the notion of an irrepressible sex drive.

Informant: You cannot call yourself a man if there is no woman involved

Informant: To be a man you do not only have to send money home. The thing is to be able to make children will prove that you are a man. If you cannot make a child then you are like a child

When an informant was asked why people risked their lives by not using condoms, he replied thus:

Informant: We do not think the same. Like I mentioned that others want flesh to flesh, others say they do not want to throw away their sperms.

Against the background of a culture in which the notion of masculinity plays a central role, and where the fathering of children serves as a key component of this masculinity, the importance of not “wasting sperm” in condoms appeared to have important symbolic significance - even though making a child would not be a miners’ primary objective when having casual sex.

Social context of sexuality on the mines

Working and living conditions on the gold mines have been described as physically unhealthy (Leon, Davies, Salamon and Davies, 1995) and psychologically stressful (Molapo, 1995). In our interviews a number of features of life on the mines emerged as relevant in our attempt to understand why many mineworkers continue to practice unsafe sexual behaviour, despite knowledge of the risks of HIV/AIDS.

Single sex hostels

The majority of mine workers live in single sex hostels, which tend to be all-male environments, with women not being allowed inside the compound. Informants said that they were often lonely for female company and intimacy. Two responses to this situation were mentioned. Some men said that they preferred to abstain from casual sex, waiting until they could visit their regular wife or girlfriend in their rural area of origin. However they emphasised that given the need for regular sex to stay healthy this was a less than ideal option. Another option was to find a regular girlfriend in the township near the mine. However informants commented that finding regular girlfriends in the townships was problematic insofar as such women would expect some form of material support particularly in the form of money and presents, and such demands would compete with the demands of supporting a family in the rural areas.

Interviewer: When you say a township girlfriend would destabilise you, what do you mean?

Informant: Most of the time people of the opposite sex are concerned with getting money from men - and in that situation I would no longer be able to support my family back home.

Another problem was the question of the miner's personal safety in the townships. Several referred to the dangers of being mugged in the townships, or of being tricked into going home with women whose brothers or neighbours might then rob and stab them. Such problems mean that many miners, particularly those who have no friends or relatives in the townships, are wary of venturing into the townships. Against this background, some informants found it

most convenient to have sexual relationships with the commercial sex workers who operated in the vicinity of the mines and hostels.

Jochelson, Mothibeli and Leger (1991) comment that homosexual relationships do occur in single-sex hostels. Such relationships are often particularly low-risk as far as HIV/AIDS is concerned, with men preferring inter-crural sex involving thigh contact rather than anal penetration (Moodie, 1994). Such relationships tend to be fairly stable, taking place between older and younger men and often imitating patterns of heterosexual relating (e.g. with the older man giving the younger man money, and the younger man performing domestic services such as cooking and washing). Moodie comments that such relationships are less common than they used to be. In our sample, informants commented that while homosexual relationships did occur in the hostels, these were relatively uncommon. However another recent study (Campbell, in preparation) suggests that these relationships might be coming back into vogue in the hostels, with some miners arguing that such inter-crural sexual practices decrease the chances of STD transmission.

Amongst our informants, masturbation was not regarded as a satisfactory alternative to sexual intercourse.

Informant: Most of the younger miners, therefore, use the services offered by CSWs. Interviewer: What is it about the contact with a woman that makes sex so important - why for example is masturbation not a satisfactory alternative? Informant: It is important because with a woman there is something you feel. I do not know how to put it (laughs). But when you masturbate you just inhale all the air.

Thus, for many, sex with commercial sex workers in the vicinity of the mines was preferable to other options, such as having a township girlfriend or masturbating.

Acceptance of high levels of disease and accidents as the norm

Social and occupational life on the mines is often unhealthy and dangerous. Work-related accidents and injuries are not uncommon e.g. based on the average fatality and reportable injury rates published by the South African Chamber of Mines for the 10-year period 1984 to 1993, an underground worker has a 2.9% chance of being killed in a work-related accident and a 42% chance of suffering a reportable injury in a 20-year working life (Chamber of Mines, 1993). Levels of diseases such as tuberculosis are high e.g. on one group of mines the annual incidence of tuberculosis remained steady at about 600 per 100 000 between 1990 and 1992, but almost doubled to 1 000 per 100 000 in 1994 (Churchyard, 1996). One informant commented that under such circumstances it is not surprising that peoples' main motivation is the pursuit of pleasure - in a context where every time they go underground to work they might not come back alive or they might come back with a permanent disability which would make them unemployable.

Most rural and traditional African societies are organised along patrilineal lines. Being a man in such societies means taking important decisions for the household and the community, being in charge and there is a certain degree of authority and respect that goes with that. Informants commented that in the context of the mines such dignity and authority is taken away from them.

Informant: The way we are treated here is not nice. No one cares, no one gives a damn about you. You are treated like a goat, a cow in a kraal, you are left there in the hostels at night and then let out in the morning to go to the fields to work.

People referred to strenuous working conditions, involving extreme heat and danger during a shift that can last up to eight hours and forty five minutes. Work often takes place in extremely confined spaces and miners may have to squat for many hours in order to drill holes in rocks prior to blasting. All this time they are subjected to a combination of heat, noise and humidity which may cause discomfort, anxiety and fear (Molapo, 1995). The stress of this environment is exacerbated by the constant fear of accidents. Most of our informants had either been involved in accidents, or witnessed their colleagues involved in underground accidents.

Informant: The accidents are terrifying and horrible. Big rocks fall down, crushing peoples' waists and skulls. At times they lose their legs, hands, fingers and so forth. I have seen an incident in which my co-worker tried to pick something up and a big iron rod fell down and cut off his leg. In my hostel room there is someone who has lost his feet. He is now a scrap, he has been thrown to the surface. (i.e. he has been given an easier job above the ground). Interviewer: How do people cope with the fear of accidents?

Informant: There is no way to cope with this. We all have to work, and we are all suffering.

These conditions, both underground and in the compound, make these men not to be motivated by life. Under such conditions, the potential danger of unsafe sexual practices, which might lead to a disease (HIV) that might take a number of years to manifest itself, may appear minor compared to the dangers of day-to-day working life in a context where high levels of disease and accident are the norm of peoples' day-to-day lives.

Use of alcohol

Some informants said there was inadequate provision for spare time leisure activities. When asked why miners did not use the sporting facilities that the mine provides for its workers, most of the informants said by the time they got off the shift they were too tired and thirsty to do anything that required physical exertion. Some go and prepare for the next shift while others go and drink at the compound bar. The role of alcohol in the transmission of sexually transmitted diseases has been documented in a number of contexts (e.g. MacQueen 1996), and evidence from our interviews suggested that the gold mines are no exception to this rule. Our informants told us that most miners usually go to commercial sex workers after they have been drinking. Many commercial sex encounters are negotiated in miners' bars, where women might also have been drinking (Campbell, in preparation). One informant who had quit drinking said that he always used to go and drink and thereafter pursue women for sex. He said that this was a common practice amongst his colleagues.

Interviewer: Do you have sexual relationships on the mines? Informant: I had them before I lessened my drinking patterns. I used to consume lots of liquor and thereafter pursue women ... I was under my friends' influence. On pay day, they would organise for a spree of drinking and womanising.

Interviewer: Do your colleagues visit commercial sex workers a lot? Informant: It is even happening as we are sitting here this afternoon. We could go now and I could show you what is happening there ... Just behind the compound there is a store called X, men meet sex workers there and then they go to the veld lawns behind the store. Those women hang around there waiting for that.

According to our informants, loneliness, stress and boredom drive a lot of miners into drinking and seeking temporary solace from these casual encounters with sex workers. Drinking is seen by most miners as the only form of entertainment available to them. As one person said of the bar: “it is the only place where people can come together and be happy”.

Conclusion

In this paper we have suggested that while all of our mine-worker informants had attended traditional information-based HIV/AIDS education programmes, and while their knowledge of the basic facts about HIV/AIDS appeared to be fairly accurate, this factual knowledge was embedded within a range of potentially contradictory beliefs, which are weighed up against the incoming health educational information within a range of normative and social constraints. The challenge remains for HIV/AIDS educators on the gold mines to design and implement health educational interventions which seek not only to transmit facts about HIV/AIDS, but to do so in a way that takes account of the beliefs, norms and contexts within which these facts will be embedded, and in the light of which the new facts that educators seek to impart will be debated and evaluated.

Currently a peer education programme is being planned in the Carletonville gold mining community which attempts to address some of the limitations of the information-based programmes which dominated the early stages of HIV/AIDS education on the gold mines (Crisp 1996, Macheke 1996). This programme is part of a broader HIV/AIDS management programme which will attempt to involve all the key players in the mining community -

including representatives of mining management, trade unions and the communities around the mines.

The proposed programme will use the model developed by Wilson and colleagues at the University of Zimbabwe (Dube and Wilson, 1996), which has been implemented in a range of contexts in Zimbabwe, Zambia and Mozambique. The aim of the peer education approach is to work with HIV vulnerable, low-income single women and men in contexts conducive to rapid HIV transmission, including men separated from primary partners, men who visit bars and men seeking STD care, a profile which almost perfectly matches the situation at South African mines. Between 1993 and 1994, their projects reached an estimated 10 million people and have distributed about 30 million condoms at a very low cost. The aim of such programs is to move away from the old-fashioned focus on providing factual information to individuals in the hope that they will make different behavioural choices, based on the model of rational decision-making. This alternative approach views behaviour not as the result of individual decisions, but as the function of peer-group related social norms and practices which can only be changed at the collective level through their collective renegotiation.

In the local mining context, peer education will involve training community members (in this case mineworkers, as well as members of the formal and informal communities surrounding the mines, including squatter camps and townships) in participatory education and condom distribution skills (Dube and Wilson, 1996). Such peer educators then go back into their communities and work at generating discussion about HIV/AIDS, sexuality and condoms in a range of formal and informal settings. Such discussion is generated in a way that encourages people to actively participate in the debate and discussion of such issues - so as to maximise

the likelihood that new information might be internalised in a way that is not contradicted by existing beliefs, norms and social constraints. The method of peer education is based on two key assumptions: firstly, that people are most likely to change their behaviour if they perceive that liked and trusted peers are changing theirs, and secondly that it is only through active participation by target audience members that educational interventions are likely to succeed. Rather than simply transmitting factual information, the programme aims to provide the context within which members of target audiences can discuss the educators' informational input within the context of existing beliefs, norms and contextual constraints - and work together to accommodate new knowledge in a way that is consistent with existing perceptions of health, disease and sexuality, and in a way that takes account of the way in which existing norms and social conditions shape these perceptions.

An important prerequisite for the success of such a programme will be that mine management should be seen by the workers to be sincere in their efforts towards curbing the AIDS epidemic. Informants in the current study expressed the suspicion that management never did things which benefitted workers in the long run. Every effort needs to be made to counter this preconception through the full involvement of worker representatives in the planning and execution of HIV awareness and behaviour change programmes. Workers should not see these programmes as management dominated. Involvement of worker representatives will be a start of a important process of trust building. In addition to this, worker involvement would increase the likelihood that factual information about HIV/AIDS was delivered in a way that took account of some of the sexual health related beliefs, norms and practices outlined above (see Evian et al, 1992 who emphasise the importance of full participation of target audience members in the development of educational materials).

Educational strategies need to be backed up by attempts to change the contexts in which peoples' sexual lives are conducted. In the interests of addressing the issues of loneliness and boredom which make drinking and commercial sex attractive options for mine workers a range of long term strategies need to be initiated as soon as possible. The trade unions have long called for an increase in the availability of family housing for mine workers, as well as improved working conditions. However these are long-term goals, and the HIV epidemic is developing more rapidly than they are likely to be achieved. In the short term, there needs to be greater provision of visiting wives centres where miners' wives can visit them, particularly wives who live some distance from the mines. Miner representatives might also work towards promoting participation in more extra-mural activities which might occupy miners more and reduce the idling time which many people spend drinking at the bar. Sporting programmes might be encouraged more than they are at present and a sporting culture might be developed which portrays sports as a form of relaxation and stress relief.

The data outlined above highlight the key role that traditional healers play in the conceptualisation and treatment of STD's among mine workers, and traditional healers need to be integrally involved in HIV-prevention plans. Furthermore, education and awareness campaigns need to target not only mine workers, but also their sexual partners, taking full account of the array of social relationships that miners engage in - ranging from more established long-term girlfriends to more casual commercial sex in the townships and squatter camps around the mines.

Maximising participation in educational programs and the formation of support groups is also essential. In relation to mine workers in particular, support groups should be encouraged -

especially in the hostel context, where miners frequently have informal opportunities to discuss issues around health and sexual behaviour with their peers, so that they can set examples for one another in the development of alternative health-promoting practices and beliefs. As Molapo (1995) has observed, it is crucial that at all stages of such programmes, workers' cultural explanations and perceptions of illness, disease and well-being are taken into consideration as it is these explanations and perceptions which will determine the compliance with and effectiveness of health-promotion campaigns. We hope that in this paper we have begun to illustrate the way in which some of these explanations and perceptions, as well as workers' sexual practices, are shaped and constrained by working and living conditions on the mines.

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