

THE IMPACT OF HIV/AIDS ON SKILLS AVAILABILITY IN SOUTH AFRICAN COAL MINES

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ABSTRACT

Purpose of this Paper: South Africa has 5.3 million HIV positive people within the economic active age group of 15 - 49 years. This statistic threatens to significantly deprive the economy of its workforce and its skills base. By 2005 it was believed that a third of all South African mine workers were HIV positive, resulting in absenteeism and loss in productivity. By 2015, it is projected that 8 out of 9 deaths on mines will be due to AIDS-related diseases.

The Coal Mining Sector accounted for 1.2% of South Africa's GDP in 2005, and directly employed 56 871 people. Therefore, the impact of AIDS on skills within the Coal Mining sector can be very damaging to the economy at large. This paper investigates the general level of skills availability on South African opencast coal mines, and assesses the extent to which this has been affected by HIV/AIDS.

Methodology/Scope - The research will be based on data regarding skills, absenteeism, cost of health care and labour turnover at the mines as well as unstructured and semi-structured interviews with mine officials and site contractors.

Findings – The stated hypothesis to the above investigation is that HIV/AIDS is having a significantly negative effect on the availability of skills within the opencast coal mining sector. However, preliminary findings only indicate a minimal effect. An analysis of the data, as well as some explanations for the findings is provided.

Research limitations - The research included only specific coal mines. Suggestions for future research: The effect on labour-intensive gold mines, the efficiency of mines' information systems and strategies for addressing the threat to skills in the industry.

Practical implications – Coal mines have embarked on vigorous educational programmes to inform their employees of the dangers of HIV. However, these education programmes must not only be limited to their employees but must be extended to the community at large as these will be the communities where they are most likely to recruit new staff members

Value - Very little industry-specific research has been done. Skill shortages may become critical shortly and this research can stimulate awareness and prompt action.

Keywords: HIV, AIDS, coal mines, productivity, skill levels.

1. INTRODUCTION

Since the first recognised cases of HIV/AIDS in USA in the early 1980's, AIDS has become one of the most important public sector concerns in contemporary society. According to data released by the Joint United Nations Programme on HIV/AIDS (UNAIDS), there are an estimated 39.5 million people living with HIV globally. However, HIV/AIDS has had its greatest impact in Sub-Saharan Africa; which is home to 24.7 million people living with AIDS. Although the region is home to less

than 10% of the world population, it accounts for more than 62% of the global population infected with HIV.

The epicentre of the epidemic in Sub-Saharan Africa is in Southern Africa. South Africa had a late outbreak of HIV/AIDS, but has since become one of the hardest hit countries (Pembrey, 2006). According to UNAIDS (2006), the AIDS epidemic in South Africa is growing faster than anywhere else in the world. In terms of numbers, South Africa has one of the world's largest populations of HIV. According to a report published by UNAIDS in December 2006, it was estimated that out of an official population of 47 million:

- 5.5 million South Africans were HIV- positive in 2005.
- 5.3 million were in the economically active age group (between the ages of 15-49 years), amounting to an estimated 18.8% of the total adult population.
- 320 000 AIDS-related deaths had occurred in South Africa in 2005.

According to Bollinger (1999), the two major economic impacts of HIV/AIDS are the reduction in labour supply and the increase in labour cost. Bollinger (1999) further states that South African companies stand to loose revenue due to high absenteeism as a result of illness, time off to attend funerals, time spent in training of new labour, and high labour turn-over. Such a turn of events is likely to affect all labour intensive industries (van Aardt, 2004).

The Mining Industry employed 442 911 people in 2005 (Chamber of Mines, 2006). In that year it was believed that a third of South African miners were HIV-positive, resulting in regular absenteeism and loss in productivity. The high infection rates of HIV/AIDS in mine workers together with the related incidence of illness and death means that mines will loose between 5-10% of their workforce each year (Fourie, 2006; Davies et al, 2002).

In 2005 the South African coal mining sector alone generated R36 billion in revenue sales. This was the second largest component of the South African mining industry. The coal produced by the coal mining sector is used to generate 93% of South Africa's electricity. It is also used to produce approximately 30% of the country's liquid fuel production. The coal mining sector directly accounted for 1,2% of South Africa's Gross Domestic Product (GDP) and directly employed 56 971 people in 2005 (Chamber of Mines, 2006). It is therefore reasonable to assume that, if AIDS has a significant impact on the availability of skills in the coal mining industry, the effect will be very damaging to the industry as a whole (Davies et al, 2002).

Mining companies will be required to provide pecuniary resources to cope with mine health. By 2015 it is estimated that for every single normal death on a mine there will be eight mine workers dead or dying from AIDS related diseases (Fourie, 2006: 37). It is estimated that in the next five years South African mines will require about 20% more mine workers to maintain normal production levels and to replace workers in key positions that suddenly become ill and die (Fourie, 2006: 37).

This paper investigates the impact of HIV/AIDS on skills availability in South African opencast coal mines in terms of regular absenteeism, increased labour costs (recruitment costs and training costs) and high staff turnover.

2. BACKGROUND

The loss of skills along with increased absenteeism, increased staff turnover, loss of tacit knowledge and declining morale as a result of HIV/AIDS will contribute to the declining levels of productivity in an organisation. Transmission of skills becomes more difficult with high levels of staff turnover,

and morale can be severely affected by the loss of colleagues. These less visible factors build up over longer time frames and are critical for a more efficient, effective, and ultimately productive workforce (Daly, 2000: 16).

HIV/AIDS will also result in increased costs for a company in the form of insurance cover, retirement fund claims, health and safety claims, medical assistance, increased demand for training, recruitment and funeral costs. These will lead to an increase in production costs for the business, which will have a direct impact on current profit margins and future profits by reducing the investment capacity for increasing productivity, expansion, research, development, workforce training and support (Daly, 2000: 16). Although substantial, the direct cost of HIV/AIDS is likely to be dwarfed by the indirect cost thereof; particularly those costs relating to income and productivity (FitzSimons, 1993). According to (ILO, 2005), 'unauthorised' absenteeism due to illness is on the increase in the South African Coal Mining sector and this is affecting production and productivity.

Coal Mining involves the removal of large volumes of earth, dressing and treatment of minerals which includes underground as well as opencast mines. The mining of coal remains labour intensive (ILO, 2005).

Labour intensive organisations will have a higher risk of lost production as a result of HIV/AIDS. The impact will however also depend on the ease with which skills can be replaced. It therefore follows that a labour intensive industry requiring high levels of skills will find it very costly to retrain replacement staff. However, low skill industries will more easily be able to find replacement employees from the large pool of unemployed labour. Goldmine employees have borne the brunt of the HIV epidemic, but because there is relatively little task specialisation, production has not been significantly affected. If the same were to occur in coal mines, the loss of a few operators could lead to a substantial loss in production, since coal mining employees comprise of a small number of machine operators each performing specialised tasks. AIDS is likely to affect production by reducing the number of people available to do the necessary tasks (Steinberg et al, 2001).

The impact of HIV on productivity is difficult to measure accurately and it is even more difficult to estimate the compounding effect of declining productivity over time (Brink, 2003). Absenteeism, delays in finding replacement workers, disruption of teams, loss of experience and skills and adjustment problems will increase the possibility of idle machinery and slow down production, thereby reducing productivity (BER, 2006).

3. SKILLS AVAILABILITY IN SOUTH AFRICA MINING SECTOR

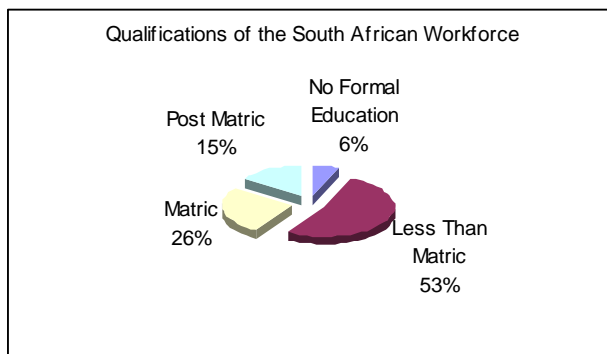


Figure 1: Qualifications of the South African Workforce (Based on data taken from DOL, 2006)

South Africa is a labour surplus country with an estimated workforce of 20.1 million. Although 94% of the workforce has been to school, 53% of the total workforce withdraws from school before

matic (see Figure 1). Therefore, although there is a labour surplus, the lack of quality education provided to the general population has created a shortage of skilled labour in the South African workforce. In addition the replacement demand arising from nett migration, movement to other occupations and in-service mortality given the low rate of economic growth in South Africa, coupled with high mortality will result in the replacement demand exceeding the supply of skilled labour (Woolard, Kneebone & Lee, 2003).

3.1. Scarce Skills

In the period of 1 April 2006 to 31 March 2007 the mining industry was unable to fill 12 422 vacant positions, of which 1950 positions were from the coal mining sub-sector (MQA, 2007). Most of these vacancies were for technicians and trades workers, professionals, machine operators and drivers. According to the same study, candidates for managerial positions are also usually taken from the post of skilled personnel, thus making the shortages of professionals such as engineers even bigger. Furthermore, legislation requires that the Mining Sector comply with strict health and safety regulations, therefore operations can only be performed by specific personnel who are in possession of specific qualifications. This further limits the pool from which employers can recruit personnel, further contributing to the labour shortage in the sector. The vacancies reported by employers are typically for highly skilled personnel who have gone through a formal education system that takes up to four years (MQA, 2007).

3.2. Impact of HIV/AIDS on Skilled Labour in the Mining Sector

There are no reliable estimates of HIV infections per skills category available. It is however believed that HIV prevalence is highest amongst semi-skilled and unskilled workers, and lowest amongst skilled workers (BER, 2006:9). Therefore the impact of HIV/AIDS on the mining industry could be damaging considering that 96% of the entire mining workforce are considered to be semi-skilled or unskilled. This is illustrated in Figure 2.

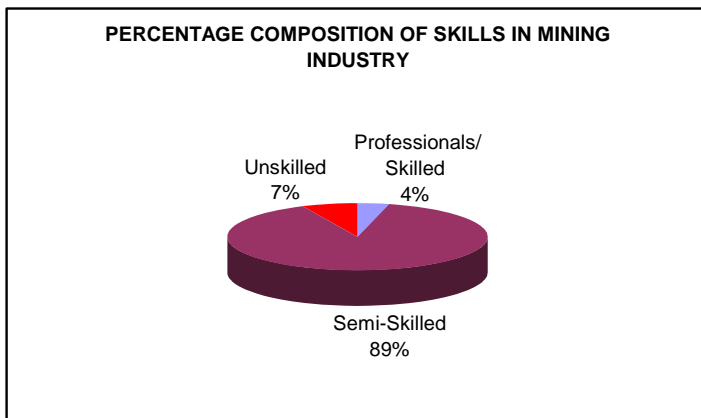


Figure 2: Percentage composition of skills in the Mining Industry (Source DOL, 2004)

4. RESEARCH METHODOLOGY

For the purpose of this study, both qualitative and quantitative approaches were adopted hence incorporating triangulation which is the method of combining qualitative and quantitative approaches. These approaches are explained in the following subsections.

4.1. Qualitative and quantitative approaches

The rationale behind the choice of this method is that it will enable a more thorough understanding of the influence of HIV / AIDS on skills availability on South African coal mines. The respondents will be unfolding their daily experiences relating to absenteeism, labour turnover, increase in employee cost associated with the declining level of skills due to HIV / AIDS on South African coal mines. Furthermore, qualitative research as an approach will facilitate an understanding of social phenomena from the perspectives of the participants (White, 2005:81). Data is mainly collected through ethnographic and descriptive interviews. A quantitative approach deals with data that is mainly statistical. Descriptive research will be the quantitative method used in the collection of data.

4.2. Population and sample

It could be argued that the population for this study consists of all mine workers working in South African opencast coal mines irrespective of their post levels. For the quantitative sample the size of the population is too large, therefore the researcher has opted to choose seven specialist mining contracting companies specialising in bulk earthworks removal, discard management operations, coal washing, coal extraction and coal crushing. The purposive sampling method which is a form of non-probability sampling was used in selecting the qualitative sample of eight management officials from varying collieries within a Coal Mining Group for interviews. Due to the sensitivity of the information, the people and companies interviewed are not named. All the participants were asked the same questions (but different to those interviewed coincidentally) from which the information regarding HIV / AIDS and its impact on skills availability on South African opencast coal mines was to be generated.

4.3. Data Collection

The use of different methods of data collection is likely to increase the validity and the reliability of the data. Data was collected from companies operating in the coal mining industry in the form of questionnaires and interviews. The insight gained from the literature study regarding the topic, namely the impact of HIV / AIDS on availability of skilled labour in South African coal mines, was used to develop and design the questionnaire. The researcher consulted primary resources such as circulars, books, the internet and other relevant sources. The unstructured interview as qualitative approach was employed since it has been diversely described as naturalistic, autobiographical, in-depth, narrative or non-directive. The semi-structured interview, which is a dual purpose technique was also employed since it can collect factual information and at the same time gain deeper insight into specific aspects through the asking of additional questions.

Data collection was conducted on a one-to-one basis and also via emails since the researcher intended to obtain information in a conducive, but yet diplomatic manner leaving room for freedom of expression. Interviews were carried out between August and October 2007.

4.4. Data analysis

Comprehensive use of field notes in the form of detailed notes made by hand, tape recordings, and observations, were compiled during qualitative interviewing. In order to analyse the raw field notes, these were processed. This entailed converting the notes into write ups which were then edited for accuracy, commented on and analysed. The researcher also analysed the literature from other theoreticians. Quantitative data analysis came from the descriptive statistics.

A pilot study was initially conducted on four civil contractors excluded from the sample, in order to check the consistency of the items in the questionnaire. Validity within this study was ensured by the researcher using the correct sampling procedures and selecting the correct data-collection instruments. Reliability was ensured by the use of a simple language in the interviews and questionnaires while ambiguous questions and instructions were avoided.

5. ANALYSES OF DATA

Interviews were conducted with senior officials from an International coal mining group which shall be referred to as Mining Group 1 (MG1). The senior officials consisted of two Mine Managers, a Financial Manager, a Human Resource Manager, a Planning Manager, a HIV/AIDS Coordinator and an Engineering Manager. In addition an interview was conducted with the Senior Vice President of Mining Group 1 who is also a pioneer of the groups' HIV initiatives for its employees.

Interviews were also conducted with senior management of five specialist mining contracting companies specialising in bulk earthworks removal, discard management operations, coal washing, coal extraction and coal crushing. In addition questionnaires were also issued to seven specialist contractors to ascertain a quantitative basis to the qualitative information obtained from the interviews. In some cases the results of the questionnaires contradicts the answers given in the given by the interviewees. The questionnaires were issued only to directors of the specialist contracting companies as the information required to complete it may not have been at the privy of middle or lower management.

Each of the companies agreed that there may be a future problem with the looming HIV/AIDS infection rates in the country, but agreed that this has not had an effect on their overall productivity as a company. The company representatives did however indicate that the effect of HIV/AIDS had been noted amongst some labourers, but acknowledged that the effects were not so significant as to affect their current productivity.

5.1. HIV/AIDS Related Costs

According to a Financial Manager at one of the collieries in MG1 it now costs more to produce a ton of coal due to the mine having to provide ART to HIV positive employees. The Financial manager also stressed that the costs of not taking any action against HIV/AIDS will far outweigh the costs of treating all HIV positive workers with anti-retroviral therapy (ART). This argument is supported by the Senior Vice President (SVP) of MG1 who argues that it simply makes business sense to provide ART for employees and the costs they are incurring is worth it. Current cost of treatment over 3 years of the ART programme is estimated at R1001 per patient per month

According to a Mine Manager in MG1 the cost of providing ART has been added to the mines operating costs therefore the mine does not see it as a separate cost. He further stated that according to their voluntary counselling and testing (VCT) on the mine only one person on the mine has turned positive who was previously negative in the last year.

The specialist contracting companies stated that they have not had significant increases in the medical costs as a result of HIV. Of the seven contractors included in the questionnaire, six did not provide any form of medical assistance to foremen or operators. In most cases where medical aid is provided it is only provided to the highly skilled personnel; healthcare benefits are generally not provided to semi-skilled and unskilled personnel. One company did note that all doctors' consultation is paid for.

There is a contradiction with regards to the answers given in the questionnaire and the answers given in the interviews with regards to VCT. In the questionnaire all the companies marked that they do encourage VCT. However, the feedback with regards to the interviews was rather different. Since the majority of the contracting companies do not provide medical assistance to lower level employees they avoid encouraging their staff to participate in VCT's as they do not want to bear

responsibility for the employee being positive. They believe that there would be a moral obligation for them to provide ART if they encourage their employees to participate in VCT's.

All the contractors reported that they have not had significant increases in their costs resulting from employees claiming their medical benefits. This has been attributed to medical benefits not being provided to the employees, who are most susceptible to HIV/AIDS (those who do the physical work i.e. operate the machines).

The contractors however reported that they have incurred other costs due to AIDS. Contractors noted that if a person becomes sick with HIV/AIDS and is unable to perform his/her duties, the employee will be moved to another job where he/she can still be of use to the company. They however admitted that the productivity of the infected person reduces but their salary is held firm for the duration that the employee stays with company. They reported that no employee is dismissed on the basis of their HIV status.

Although the contracting companies do not dismiss their employees due to HIV/AIDS, they may not have to bear the wage cost of holding onto the ineffective employee for long as they do not provide medical treatment. One contractor stated that an employee will look fine and work efficiently, but may be dead within two weeks after first showing symptoms of the disease (HIV/AIDS). The contractors therefore experience little additional cost due to loss in productivity.

5.2. Productivity

According to the two Mine Managers interviewed AIDS has had little or no impact on productivity at their mine site. They attribute this to the VCT policy working well and the provision of ART for all employees who test positive.

There was consensus amongst the contractors that there is a surplus of labour in the country and this makes it easy for them to get new workers into the system. They however stressed that the loss of a good operator will reduce productivity. One contractor stressed that it takes about two weeks training to get a new machine operator up to speed with regards to what is happening on the mine. Another contractor stressed that although AIDS has not significantly affected their productivity, the disease is affecting the company financially in the form of medical costs and the re-training of new staff. He further reiterated that when a new operator starts due to safety reasons the new operator will not work nightshift and will thus only work dayshift leading to a loss in productive time from the new operator.

Six of the seven contractors reported that HIV had affected their labour productivity in the past year. It must be noted that the only contractor who did not report an impact on productivity is also the only contractor that provides ART to employees. For those who reported that HIV/AIDS has had an impact on their productivity they also reported that the impact has been marginal or slight.

5.3. Labour Turnover

Three officials including the SVP of MG1 stressed that the skills shortage currently being experienced in the coal mining industry is not as a result of HIV, but rather as a result of the rapid expansion of the industry and inadequate training of new personnel during the dormant periods. This opinion was supported by an engineering manager at another Mining Group.

Approximately 50% of the contractors reported that they had a high degree of labour turnover. However, of these companies only a small percentage of their labour turnover was attributed to HIV/AIDS.

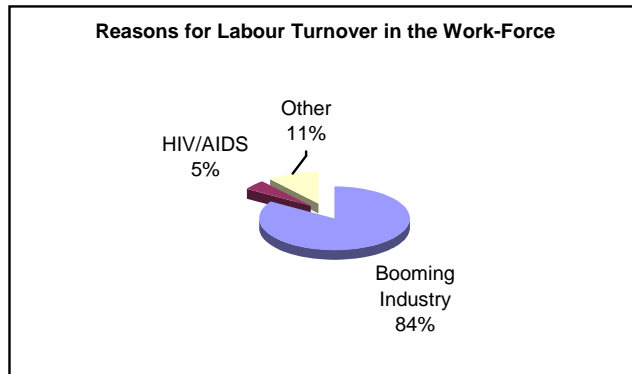


Figure 3: Reasons for the Labour Turnover in the Workforce

The companies attributed 84% of their labour turnover to the booming industry, 11% was due to other factors such as resignations and absconding. Only 5% of their labour turnover was attributed to HIV/AIDS, which is illustrated in Figure 3. However, one company reported that as much as 47 employees have absconded from January 2007 to October 2007 out of a staff compliment of 890. All seven companies concurred that HIV/AIDS will increase future labour demand. The seven companies also concurred that they foresee appointing more employees to compensate for the loss in skills due to HIV/AIDS. However, none of the companies have estimates of what the incurred costs will be to their company.

5.4. HIV/AIDS and Absenteeism

The officials at MG1 reported that high levels of absenteeism could not always be directly attributed to HIV/AIDS. Officials did however report that when employees first start ART they may need a month off (depending on the patient) for their bodies to adapt to the medication and for them to regain their strength. After this stage, the HIV positive employee may only require one or two days off for regular check-ups. It was however stressed by the AIDS co-ordinator that some patients discontinue medication at the first signs of recovery. This will then lead to the HIV positive employee falling sick again.

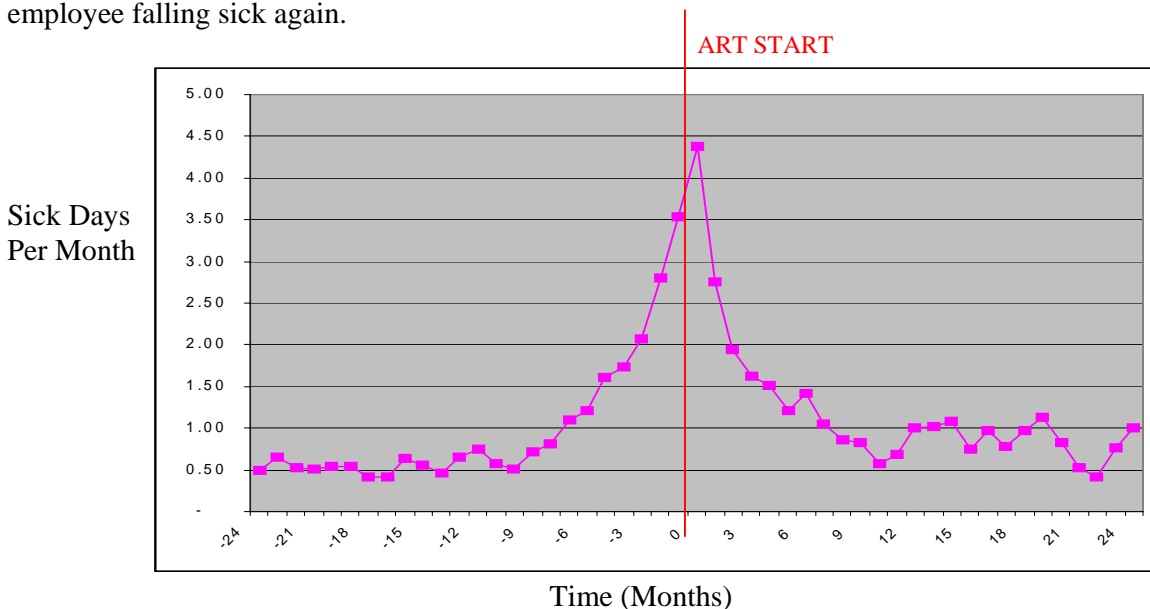


Figure 4: HIV positive employee absenteeism patterns two years before ART treatment and two years after ART treatment (Source: Aurum Institute, 2007)

When ART is instituted to the HIV positive employee within a two year period, their absenteeism levels are comparable to their absenteeism levels before they started falling ill. This is illustrated in Figure 4. All the contractors answered that they do not have any information with regards to the HIV status of their employees. Whilst contractors reported that they did not have any information with regards to the HIV status of their employees some reported that they may loose as many as 8 people a year due to HIV/AIDS. However, this is less than 1% of the total staff compliment. The researcher estimates that this is a guessed figure as the contractors do not really know and this figure could be significantly more.

Five of the seven contractors reported that they have not had high degrees of absenteeism due to HIV and the high absenteeism which they encounter they do not attribute to sickness due to HIV. The companies reported that they usually have a high absenteeism rate typically after pay weekends and due to seasonal illnesses (for example colds and flu). Only one contractor attributed the high absenteeism to HIV/AIDS.

6. CONCLUSION

The hypothesis provides that HIV/AIDS will have a significantly negative impact on skills availability in opencast South African coal mines. However, based on the analysis of the interviews and questionnaires it is concluded that AIDS has had minimal or no effect on skills availability in opencast coal mines. MG1 have attributed this to the provision of ART and a proper HIV programme. The specialist contractors have however attributed this to the ease with which skills can be replaced due to the abundance of unemployed labour.

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