

**SAFETY IN MINES RESEARCH ADVISORY
COMMITTEE (SIMRAC)**

Final Report

**SIM 020103 'Alcohol and cannabis use among South
African mine workers**

Dr F Ajani

1.0 INTRODUCTION

Alcohol misuse is a major public health concern in South Africa today. Cannabis (popularly known as dagga locally) constitutes the main drug of abuse in Africa (2) and early reports of its use on this continent date back to the 11th century in Egypt (ref 7). In South Africa, the prevalence of alcohol dependence among adults is estimated as 10% (ref 10), while that of risky drinking among workforces such as the mining industry has been estimated at 25% or more (7).

In the workplace, substance abuse is associated with employee illness, occupational accidents, increased health services utilisation, and decreased productivity (3,4). Despite the fact that South Africa is one of the major mining countries in the world, there is paucity of data locally on alcohol and cannabis use among mineworkers.

1.1 Prevalence of substance use

In a South African gold mine, the prevalence of risky drinking among workers, the majority of which were in unskilled or semiskilled occupations, was found to be 32% (8). In other studies in South Africa, the highest rates of alcohol abuse as a household problem (32%) were reported among unskilled manual workers, while the lowest rates (9.1%) occurred among professionals (9). Among miners in Argentina, 34% were found to be weekly alcohol drinkers, while 65% chewed coca leaves daily (10). In 1984, the Addiction Research

Foundation in Canada reported that 11% of adults in Ontario above 18 years old used cannabis (11).

1.2 Prevalence of accidents in which tests for substance use were positive

In a review of trauma patients in a large mine hospital in South Africa, blood alcohol concentration (BAC) was over 0.08g/100ml in 5% of cases of occupational injuries (ref 13). In a South African pulp mill, blood alcohol was found to be positive in 18% of cases of injury.

In studies carried out in a Zambian Copper mine, alcohol tests were positive in 30% of accident cases; among a different group of mineworkers at this mine, one third of those subjected to a pre-shift random breathalyser testing, tested positive for alcohol with a reading of over 17.6mmol/l in 9% of cases; and two-thirds of another group of employees who had been suspected to be under the influence of alcohol and referred for alcohol testing, had alcohol levels exceeding 35.2mmol/l (ref 3, old 17 and 18). In a study among fatalities in the workplace including the mining industry over an eight-year period in Alberta, Canada, 4.3% had alcohol levels greater than 0.08g/100ml, the legal limit for driving a car in Alberta (Alleyne BC used before i.e. now ref 11). In the same study over a four-year period, urine was positive for cannabinoids in 8.5% of cases.

1.3 Factors associated with substance use

Historically, practices in the Mining and Agriculture industries such as the “dop” system, migrant labour system, availability of cheap or free alcohol, and availability of alcohol on credit, may have contributed towards increased alcohol use in the South African workforce. The “dop” system, officially prohibited in 1961, entails payment of workers with alcohol in lieu of wages (12,13).

Factors such as being inexpensive and easy to procure, infrequent enforcement of criminal prosecution for cannabis-related offences, a perception that its use is not problematic, may contribute towards cannabis use (1). Poverty, boredom, and inadequate health education, have also been associated with substance use (14). In a South African gold mine the lifestyle of miners such as living apart from families for prolonged periods was found to encourage unhealthy alcohol consumption (14).

Higher rates of alcohol use have been found among miners who have only ever worked underground compared to those who work aboveground, and among miners with a heavy workload (10). Daily use of coca was also found to be significantly higher among miners with a heavy workload (10). Stressful working conditions as are found underground, and heavy workloads may encourage alcohol and drug use, which may serve as a coping mechanism (15,16). Stress, loneliness, and boredom have also been cited as reasons for alcohol use among South African mine workers (8). In other studies in South Africa, alcohol was reported to be a problem in 32% of households of which

the head was an unskilled manual worker compared to 9.1% of households of which the head was a professional or a white-collar worker (ref 12).

1.4 Effects of substance use

1.4.1 Effects of alcohol use

Alcohol has a depressant effect on the central nervous system (CNS) (ref 6). Delayed effects of acute alcohol intoxication include interference with hand/eye coordination, precision in manipulation, and object-positioning tasks (ref 4). Other effects of alcohol include decrease in concentration, reaction time, and decision-making ability decrease in concentration, reaction time, and decision-making ability, increased risk of human error, and accidents (ref 6). Absenteeism, sick leave, and accidents have been found to be higher among workers who use excessive alcohol (3,17). Excessive alcohol use is also associated with social problems like violence, and can predispose to illnesses such as hypertension, gastritis, liver cirrhosis, gout, tuberculosis, and physical dependence with withdrawal symptoms, and depression (19). It can also lead to an increase in labour relations problems due to arguments, increased stress and workload on co-workers, and increased cost due to factors such as sickness and absence, re-training and loss of expertise (ref 6). Table 1.1 summarises problems associated with alcohol in the workplace (ref 6).

Table 1.1 Human and financial considerations and consequences for employer and employee in relation to alcohol-related problems

Increase in	Labour turnover
	Accidents (severe and minor)
	Arguments and disagreements
	Risk of human error
	Stress and workload on others
	Grievance and compensation claims
Decrease in	Concentration
	Reaction time
	Decision-making ability
	Productivity
	Efficiency
Cost of	Re-recruitment
	Sickness and absence
	Early retirement
	Re-training and loss of expertise
	Loss of business
	Disciplinary action
Other problems	Unpunctuality
	Poor managerial decisions
	Disciplinary problems
	Extended periods of ill health and absence
	Industrial relations
	Inappropriate/unnecessary sickness and absence

1.4.2 Effects of cannabis use

Regular cannabis use has been associated with impaired social and occupational functioning (20). The primary psychoactive constituent is delta-9-tetrahydrocannabinoid (THC) (21). Cannabis use results in feelings of euphoria and relaxation, and acute effects include impairment of mental function (ref 5) such as impairment of attention, short-term memory loss, and

loss of coordination (22,23,24, ref 9). Chronic effects include psychological dependence characterised by deterioration in psychosocial functioning; subtle cognitive deficits, particularly attention, learning, and executive functioning (organising and integrating of information); possible triggering of onset of schizophrenia; increased vulnerability to respiratory illnesses; impaired lung function; and precancerous changes in lung tissue (1,20).

1.5 Screening tools for substance use

1.5.1 Screening tools for alcohol dependence

Screening tools for alcohol misuse include the CAGE, the AUDIT (Alcohol Use Disorder Identification Test), and the brief MAST (Michigan Alcohol Screening Test) questionnaires (7, 25,26,27). They are specific and reliable, and help to screen individuals who require further assessment for alcohol dependence. Laboratory tests or test combinations that can be used for screening recent, heavy and sustained alcohol abuse include mean corpuscular volume (MCV), aspartate aminotransferase (AST), alanine aminotransferase (ALT), gamma glutamyl transferase (GGT), and uric acid (28, ref 6). Of these tests GGT, elevated in over 80% of alcohol abusers, is the most useful (ref 8). However, the findings of blood tests cannot be taken in isolation of thorough assessment and accurate clinical judgment as these tests can also be raised in other conditions such as chronic hepatitis (ref 6).

Breathalyser testing can be carried out to detect acute intoxication but cannot assess chronic misuse. On ingestion, alcohol is rapidly absorbed from the upper gastrointestinal tract. Peak concentrations of ethanol are attained approximately one hour after ingestion and factors influencing levels attained include the rate at which the drink was taken, whether it was consumed with food, rate of gastric emptying, and body habitus (28). Between 2% to 10% is eliminated in urine and breathe (28).

1.5.2 Screening tools for cannabis use

Cannabis is usually smoked but may be ingested, either incorporated into food, or as a liquid extract (tea). It is rapidly absorbed from the lungs into the blood with quick onset of effects. When ingested however, onset is slower but effects more prolonged. The natural metabolites of cannabis (cannabinoids) are found in blood, bile, faeces, and urine. It may be detected in the latter within hours of exposure (30). These metabolites being fat soluble, are stored in the body's fatty tissues including the brain, for prolonged periods after use (30). It may be detected in urine months after last exposure, depending on the frequency and intensity of use (31).

Qualitative screening for detecting cannabinoids in urine can be carried out using commercially available rapid tests and laboratory tests with varying levels of reported sensitivity and specificity. However, confirmatory laboratory tests, which also quantify the amount of cannabinoids in the urine, exist, of

which the preferred method is the Gas Chromatography/Mass Spectrometry (GC/MS) method (31).

1.6 Measures for control of substance use among mine workers

The South African Mine Health and Safety Act of 1996 states that an employer must provide conditions for safe operation, and every employee must take reasonable care to protect their own health and safety, and that of other workers who may be affected by an act of omission on their part (32). It also states that no persons in a state of intoxication, or in a state likely to render him incapable of caring for himself or others in his charge, will not be allowed to enter a mine. This is also stipulated in Regulation 4.7.1 of the Minerals Act 50 of 1991 (33).

However, there are no clear guidelines for implementation and the level of interpretation of this responsibility varies mine to mine, from those in which there are no clear substance use guidelines, to those with draft policies, and to those with policies. Where policies exist, they describe the mine regulations in terms of substance use, under what circumstances testing will be carried out including post-accidents, how it will be carried out, and how results will be dealt with.

In New South Wales most mines have an alcohol policy, which may include random testing, pre-shift self-breathalyser testing, and awareness programs

(34). Buy-in of stakeholders is however of utmost importance in any control program.

In 1995, the International Labour Organisation (ILO) adopted a code of practice on the management of alcohol and drug related issues in the workplace (35). This code emphasises a preventive approach and embraces the following principles:

- Joint assessment by employers, workers and their representatives of the effects of drug use on the workplace and their cooperation in developing a written policy for the workplace
- Consideration of alcohol and drug related problems as health problems, and a need to deal with them without discrimination, like any other problem in the workplace
- Recommendation that drug and alcohol policies should cover all aspects of prevention, reduction, and management of alcohol and drug related problems, and integration of relevant information, education and training programs where feasible, into broad-based human resources development, working conditions, or occupational safety and health programs.

- Establishment of ethical principles which are vital to concerted and effective action, such as confidentiality of personal information, and the authority of the employer to discipline workers for employment-related misconduct, even where it is associated with the use of alcohol and drugs.
- Consideration of fundamental legal, ethical, and moral issues involved in testing body fluids for alcohol and drugs and determination of when it is fair and appropriate to carry out such testing.

The Occupational Alcohol Program (OAP) of the 1970s was one of the earliest attempts at addressing alcohol misuse in the workplace (36). This has been replaced in recent times by Employee Assistance Programs (EAPs) which are broader based and aim at addressing all personal problems that are affecting, or that have a potential to affect an employee (6,37).

1.7 Motivation for this study

The cost of alcohol and drug abuse to South Africa has been estimated at R 2 Billion per year (38, 39). The Health 712 study (14) to which this study is an addendum, gave an insight into the prevalence, knowledge, attitudes and practice of alcohol and cannabis use among mineworkers in South Africa. This study will help to delve further into the earlier findings to provide deeper understanding of substance use among mineworkers in relation to health and safety. It will also help to find out more about accidents in which substance

use may have played a role, so that recommendations can be made to stakeholders to improve health and safety based on evidence.

1.8 Study aim and objectives

1.8.1 Overall Aim

To determine the prevalence of accidents in which alcohol and dagga tests were positive and factors which influence the use of these substances among mineworkers in South Africa.

1.8.2 Specific objectives

- To determine the prevalence of accidents in which alcohol and dagga tests were positive at study mines.
- To delve more into knowledge, attitudes, and practices, regarding alcohol and cannabis use as follow-on to Health 712 study.
- To develop a protocol of recommendations for control of alcohol and dagga use, which will be made available to all stakeholders, so that appropriate recommendations can be implemented.

- To propose the implementation of above recommendations to one of the participating mines in order to evaluate this protocol in a study mine.

2.0 METHODOLOGY

2.1 Study design

This is a cross sectional analytic study with qualitative and quantitative methodologies.

Focus group discussions and a record review of substance use related-accidents were carried out as part of phase two of the Health 712 study on alcohol and cannabis use among mineworkers. Further analysis of the findings of the structured interviews in the Health 712 study was also done.

2.2 Study population

All the seven mines (P1, P2, G1, G2, D1, C1, O1) that participated in the structured interviews in the Health 712 study were invited to participate (see Health 712 report).

2.3 Focus group discussions

2.3.1 Study sample

Two discussion groups were scheduled in each of the seven participating mines. One group comprised of mine management representatives and supervisors, while the other group consisted of Union representatives and

Health & Safety (H&S) representatives. Each discussion group comprised of workers in similar job categories, in order to facilitate free discussion. As shown in table 2.1, a total of ten focus group discussions involving eighty-four mine employees, were carried out at six of the seven mines (mines P2, G1, G2, C1, O1, D1) as some groups could not be assessed at some mines at the time of the study due to logistic difficulties. As management representatives and supervisors work at different sites at mine D1 and could not be accessed at the same time for a discussion, two separate discussion groups were carried out for this category of employees.

Each group comprised of five to fifteen participants as shown in table 2.2. Participants were notified through management and Union representatives at respective mines and their daily routine was taken into consideration before the discussion date and time were scheduled.

Table 2.1 Number of discussion groups carried out at study mines

Mine	No of discussion groups with Union/H&S representatives	No of discussion groups with Management representatives
P1	Nil	Nil
P2	1	Nil
G1	1	1
G2	1	Nil
D1	Nil	2
C1	1	1
O1	1	1
Total	5	5

Table 2.2: Number of focus group discussion participants per mine

Mine	No of Union/H & S representatives	No of Management reps/supervisors	Total
P2	7	Nil	7
G1	5	7	12
G2	8	Nil	8
D1	Nil	11	11
C1	10	15	25
O1	11	10	21
Total	41	43	84

2.3.2 Focus group discussion guidelines

A questionnaire was designed to record socio-demographic information about each participant (Appendix B). The discussion guidelines (Appendix C) consisted of open-ended questions, which helped to delve further into findings of the structured interviews on the practice of alcohol and dagga use among mine workers and recommendations towards control.

2.3.3 Pilot study

This questionnaire was piloted among a group of people not included in this study and amendments were made as required.

2.3.4 Data collection

Before commencement of the discussion, there was an agreement by participants in each group on the language medium, which was selected by taking languages spoken by participants into consideration. Discussions among employee representatives/supervisors were carried out in English while that of Union/Health & Safety representatives were carried out in English in some mines and in local languages in others.

Discussions were moderated by an experienced facilitator well versed in local languages and were completed within an hour and a half depending on the work schedule of participants. All discussions were tape-recorded. A note-taker was also present to capture the mood of the discussions and record salient responses on paper. Before commencement of discussions, participants were assured of confidentiality, written consent was obtained (Appendix A) and questionnaires on socio-demographic data were completed.

2.3.5 Data analysis

Translation and transcription of focus group discussion tapes was done by an experienced researcher, and data was analysed by eliciting common themes from responses.

2.4 Record review of accidents related to substance use

2.4.1 Study sample

The seven mines that participated in the survey (mines P1, P2, G1, G2, D1, C1, O1) were eligible to participate in the record review, which covered a period of five years (1999-2003). However, mine G1 was excluded from this aspect of the study due to logistic difficulties.

2.4.2 Instrument of measurement

A questionnaire about accident and medical surveillance-related alcohol and dagga testing was developed (Appendix E). It helped to determine the proportion of mine accidents in which alcohol or dagga was implicated, and the proportion of mineworkers that were found to be using these substances during routine medical surveillance. Aside from questions on numbers of accidents and medical surveillance results in which alcohol and dagga had been implicated, questions were also asked about the mine protocol for carrying out these tests, so that this could be taken into consideration when comparing results between mines.

2.4.3 Pilot study

The questionnaire was piloted for understanding among a group of people not included in the study, and amendments were made as required.

2.4.4 Data collection

The questionnaire was sent electronically to participating mines for completion by a management representative, and clarifications were made telephonically.

2.4.5 Data analysis

Descriptive statistics was carried out and comparison of results was made between mines.

2.5 Limitations of the study

Metabolites of cannabis (cannabinoids) are cleared slowly from the body (ref 11) and may be present in urine up to one month after use. Therefore, the presence of cannabinoids in urine at the time of an accident may not necessarily mean that there was impairment of judgment due to dagga at the time of the accident, although if further tests are carried out to determine the level of metabolite in the urine at the time of the accident, and metabolite levels are significantly high, it may strongly suggest recent use and the possibility that cannabis may have had a role to play in the accident.

However, even if substances are found to have been present in significant quantities, the cause of an accident may have been multi-factorial, and may not have been solely due to substance use.

Due to unavailability of relevant records or required tests not being carried out by some mines, the record review did not yield adequate information to estimate percentages of accidents in which tests for alcohol and cannabis were positive, and percentages of medical surveillance tests in which alcohol and cannabis were positive, making it difficult to identify trends or make meaningful comparisons between mines. However, where these tests are being done, comparisons could be made on mine protocols for carrying them out.

3.0 FINDINGS OF FOCUS GROUP DISCUSSIONS

Participants in each mine were divided into two groups comprising of management representatives/supervisors and Health & Safety/Union representatives to facilitate free discussion between groups (section 2.3.1). Participants were asked questions about mineworkers and the mining industry in general, not just their own job categories (appendix ...) and there was an agreement between both groups (management representatives/supervisors and H&S/Union representatives) groups on most issues. Comparisons are noted where there was a difference in opinion between groups. In order to preserve anonymity, the quotes included in this section have not been identified according to the group in which the discussion took place.

3.1 Socio-demographic profile of participants

Tables 3.1 to 3.5 below describe age, sex, and level of education of participants by mine, and job category (i.e. Union/H & S representatives and management representatives/supervisors). In these tables 'NA' (not applicable) refers to mines where focus group discussions for that category of mineworkers were not carried (section 2.3.1).

3.1.1 Age of participants

The mean age of Union/H & S representatives was 35 years while that of management representatives/supervisors was 42 years (table 3.1).

Table 3.1: Mean age of participants by mine

Mine		P2	G1	G2	D1	C1	O1	Mean age (years)
Mean age (years)	Union/H & S reps	38	29	38	NA	37	35	35
	Management reps/supervisors	NA	40	NA	45	40	42	42

NA-Not applicable as focus group discussion for this category of employees not carried out due to logistic difficulties.

3.1.2 Gender of participants

The majority of participants in both groups comprising Union/H & S representatives (97.6%) and management representatives/supervisors (90.7%) were male (tables 3.2 and 3.3). There were however more females in the management/supervisors group (9.3%) than in the Union/H & S group (2.4%).

Table 3.2: Gender of Union/H & S representatives by mine

Gender	Percentage of participants (n)						
	P2	G1	G2	D1	C1	O1	Total
Male	100% (7)	80% (4)	100% (8)	NA	100% (10)	100% (11)	97.6% (40)
Female	Nil	20% (1)	Nil	NA	Nil	Nil	2.4% (1)
Total	100% (7)	100% (5)	100% (8)	NA	100% (10)	100% (11)	100% (41)

NA-Not applicable as focus group discussion for this category of employees not carried out due to logistic difficulties.

Table 3.3: Gender of Management representatives/Supervisors by mine

Gender	Percentage of participants (n)						
	P2	G1	G2	D1	C1	O1	Total
Male	NA	85.7% (6)	NA	90.9% (10)	100% (15)	80% (8)	90.7% (39)
Female	NA	14.3% (1)	NA	9.1% (1)	Nil	20% (2)	9.3% (4)
Total	NA	100% (7)	NA	100% (11)	100% (15)	100% (10)	100% (43)

NA-Not applicable as focus group discussion for this category of employees not carried out due to logistic difficulties.

3.1.3 Level of education

The majority of Union/H & S representatives (78%) in the discussion groups had highest level of education of standard 6 to 10, while more than half of the management representatives and supervisors (60.5%) had post-matric qualification (tables 3.4 and 3.5).

Table 3.4: Highest level of education of Union/H & S representatives by mine

Highest level of education	Percentage of participants (n)						
	P2	G1	G2	D1	C1	O1	Total
Std 1-5	Nil	Nil	Nil	NA	Nil	Nil	Nil
Std 6-10	85.7% (6)	80% (4)	75% (6)	NA	50% (5)	100% (11)	78% (32)
Post-matric	14.3% (1)	20% (1)	25% (2)	NA	50% (5)	Nil	22% (9)
Total	100% (7)	100% (5)	100% (8)	NA	100% (10)	100% (11)	100% (41)

NA-Not applicable as focus group discussion for this category of employees not carried out due to logistic difficulties.

Table 3.5: Highest level of education of management/supervisors by mine

Highest level of education	Percentage of participants (n)						
	P2	G1	G2	D1	C1	O1	Total
Std 1-5	NA	Nil	NA	Nil	Nil	Nil	Nil
Std 6-10	NA	57.1% (4)	NA	9.1% (1)	40% (6)	60% (6)	39.5% (17)
Post-matric	NA	42.9% (3)	NA	90.9% (10)	60% (9)	40% (4)	60.5% (26)
Total	NA	100% (7)	NA	100% (11)	100% (15)	100% (10)	100% (43)

Not applicable as focus group discussion for this category of employees not carried out due to logistic difficulties.

3.2 Practice, perceptions and attitudes of mineworkers regarding alcohol use

3.2.1 Introduction

As an icebreaker, participants were asked to describe the thoughts that come to their minds when they hear the word 'alcohol'.

3.2.1.1 Links that participants made to alcohol

When asked to describe thoughts that come to their minds when they hear the word alcohol, there was consensus among all groups, the majority of whom linked alcohol to phrases such as *"partying"*; *"relaxation"*; *"entertainment"*; *"jollyng with friends"*; *"lekker"* (Afrikaans word for "good"); and *"bonding"*; that refer to the entertainment value of alcohol. Some of them however alluded to a confidence-boosting attribute.

While participants referred to the entertainment value of alcohol in a very light and jocular mood, they alluded to the consequences of its misuse in a sober mood, with phrases such as *"getting drunk"*; *"babalaas"* (Afrikaans slang for hangover); *"alcoholism"*; *"not thinking properly"*; and *"out of control"*. Alcohol was linked to its consequences in the workplace, with phrases such as *"drunken driving"* (at work and in other public places), *"accidents"*; *"absenteeism"*; *"decreased productivity"*; *"human relations problems"*; and *"dismissals"*. They also associated alcohol with consequences of misuse in

other social environments like the home and the public with phrases such as “*crime*”, “*assault*”, “*police*” (being on the wrong side of the law); “*domestic violence*”, “*financial strain*” (from spending money excessively on alcohol); “*divorce*”; and “*suicide*”.

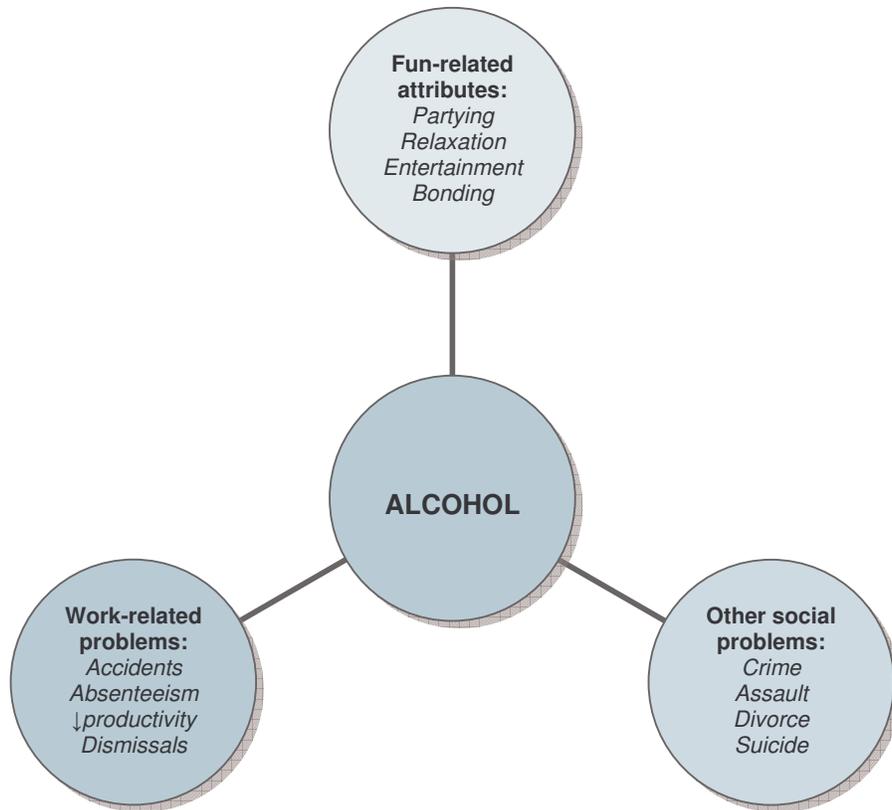


Figure 3.1: Associations made by participants to alcohol

3.2.2 Practice of alcohol use

3.2.2.1 Where mineworkers drink alcohol and whom they usually drink with

Most participants in all groups said that mineworkers usually drink in commercial places such as taverns; '*shebeen*' (local slang for bars in settlements) in surrounding mines; and mine hostel bars where available. They also drink in other social settings like parties (including mine functions) and at home.

When asked whom mineworkers usually drink with, most participants said that the majority usually drink with their friends, but sometimes they drink alone or with family members.

3.2.2.2 Drinking patterns of mineworkers

When asked about when mineworkers usually drink, the majority of participants felt that availability of leisure time/work-shift cycle, payday, season of the year, and nature of work had important roles to play in this regard.

Night shift workers find it difficult to sleep throughout the day and may end up drinking before their shift

Some participants said that although most mineworkers drink after work (on a daily basis for some) with an increase during weekends, some workers consume alcohol before their work shift. Some participants made a link between availability of leisure time and work shift cycle with respect to alcohol consumption. They felt that more idle time seemed to be available to night shift workers compared to day shift workers, encouraging pre-shift alcohol consumption among night shift workers. These workers (night shift workers) were said to find it difficult to sleep throughout the day, when people are traditionally awake. Their sleep (night shift workers) was also said to be disturbed by the comings and goings of other mineworkers in other shifts who share their hostel rooms, contributing to challenges night shift workers face in dealing with a change in circadian rhythm. These night shift workers were said to oftentimes go shopping to while away the time, and would wind up drinking till it was almost time to report for their shift, by which time they would be intoxicated.

“You (night shift workers) are at home for the whole day. One may say let me grab two (cans of beer) before work and it leads to more. You have more leisure time comparatively. When you work during the day, you go home at night and sleep. You cannot sleep for the whole day therefore you have more access to alcohol. You go shopping and end up drinking.”

Some participants felt that this category of mineworkers consumed alcohol more frequently in general, than other mineworkers who work in the day shift because in addition to drinking before their shifts, night shift workers like many of their colleagues, would also drink during weekends. In contrast to the pre-shift drinking pattern of night shift workers, day shift workers were said to usually drink post-shift.

“Night staff drinks during the day. Day staff goes immediately after shifts straight to the bars.”

Some participants however noted that day shift workers had less time to drink post-shift after long working hours, compared to the more leisurely pre-shift time available to night shift workers.

A few participants also said that some mineworkers bring alcohol to work and drink it during working hours.

“Some drink at work.”

Less supervision in mines at night may encourage pre-shift drinking by night shift workers

Some participants felt that in addition to availability of more leisure time among night shift workers, less supervision during night shift compared to day shift, also encouraged alcohol misuse among night shift workers who are less likely to be discovered, should they misuse alcohol before reporting for work at night.

People drink more at the month end

There was also said to be increased drinking after payday, which though is usually referred to as "month end", is sometimes weekends in some mines, depending on the job category of the worker. Increased drinking at this time was said to be generally due to availability of more funds after salaries had been paid, but was sometimes out of a need for self-gratification on completion of another month of hard work. Some participants also said that there was increased drinking during festive seasons.

"People drink at the month end to thank the body for hard labour."

Mineworkers who work under more stressful conditions tend to drink more

Some participants also said that alcohol misuse was more common among mineworkers in lower job categories, especially those who work underground, who carry out more physically demanding jobs such as drillers and operators,

and who seemed to have more stressors in their social environment compared to workers in higher job categories (section 3.2.3.1). Some participants however noted that in underground mines, those who worked on the surface were not exempt from alcohol misuse and that some workers who had been transferred from underground to surface due to reasons such as illhealth, already had pre-existing alcohol addiction while working underground.

3.2.3 Perceptions regarding alcohol use

3.2.3.1 Perceptions about why some mineworkers misuse alcohol

Alcohol as stress reliever/relaxant: The majority of mineworkers use alcohol to deal with stress and occupy their minds

There was a consensus among participants in different groups that stressful working conditions which are uncomfortable and dangerous, were a major contributor to misuse of alcohol which was seen as a coping mechanism among mineworkers. This was said to be more so in underground mines where fear of working underground was an added stressor. Other stressors were said to include pressure to meet production targets and get bonuses; financial problems due to low salaries; boredom, frustration, and decreased family responsibilities, especially where mineworkers live in hostels away from their families.

"In deep mines, people drink more due to stress and job conditions. Alcohol is an alternative to fear of danger. You are constantly confronted with this idea at the back of your mind that a rock could fall. You are pushed to produce more and get your bonuses. The place is dusty, noisy and moist. Underground is not the best working environment, not at all. You drink to calm down and relieve stress. And whether that is right is debatable. What could you say?"

"A lot of them (mineworkers) drink a lot. This is to occupy their minds. We live in single sex hostels. No family responsibilities. You were home two weeks ago and had experienced problems. Come back having not solved it. You are avoiding thinking about your problems. It (alcohol) is a way of dealing with your obstacles."

"Lower level staff lives in hostels. No cooking. No children. No responsibility. No wife to scold you. You do not do gardening. No family responsibility. 'U ma e hlulu' (Zulu for someone who lives in a cage/camp)."

"You (as a hostel dweller) have fewer commitments. You are idling. No library. Hostellers drink a lot."

"Leisure/free time is equal to drinking time for lower level staff."

A few participants however felt that there had been an increase in addiction to alcohol among mineworkers in their mine since the EAP program was discontinued during a restructuring process and social workers who used to follow up workers who misuse alcohol were no longer available.

Alcohol can be used to deal with stress but it leads to a vicious cycle of more stress

Some participants in different discussion groups noted that using alcohol as a coping mechanism for stress (Fig 3.1-stress A) paradoxically compounds problems because it often led to alcohol addiction and a vicious cycle of more stress (Fig 3.1-stress B). They said that for instance where someone resorts to alcohol to cope with financial stress, he was likely to eventually develop more stress because the money that may have been used to solve financial problems may have been spent on purchasing alcohol, leading to more financial stress and additional problems such as disciplinary problems at work.

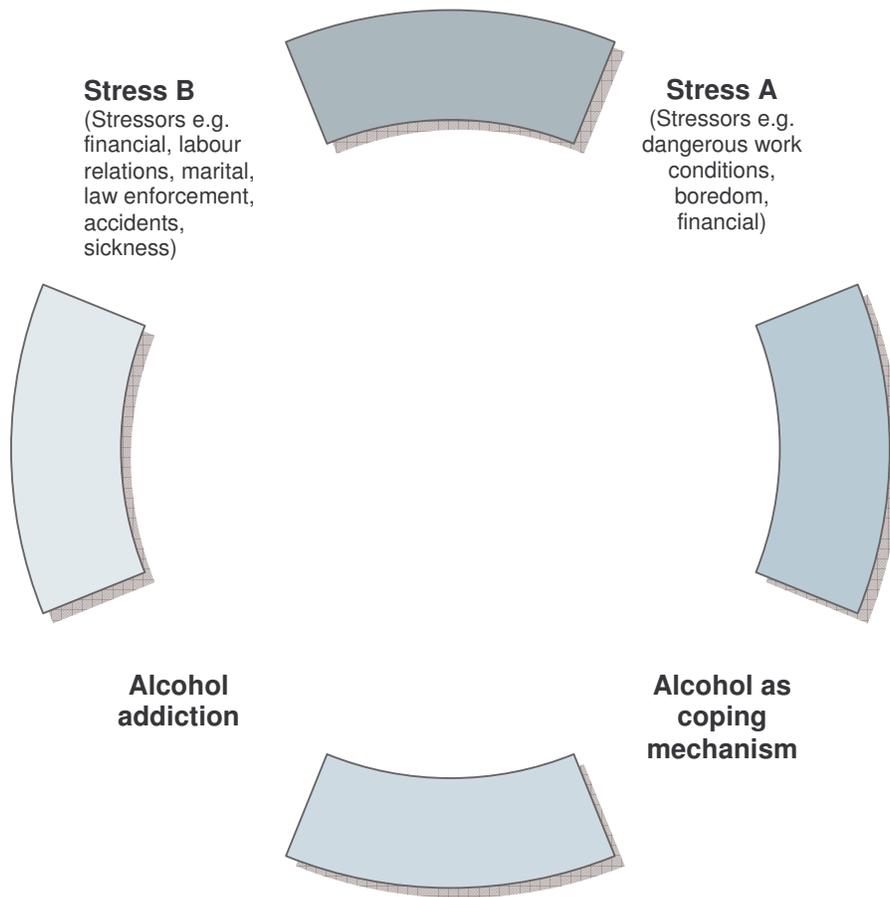


Figure 3.1: Vicious cycle of alcohol misuse

3.2.3.2 Perceptions about why some mineworkers do not misuse alcohol

Some mineworkers do not misuse alcohol because they are able to find alternative activities and because they want to uphold their values

Some participants felt that some mineworkers do not misuse alcohol (despite being exposed to similar stresses as those who misuse alcohol) because they engage in other leisure activities such as sports (e.g. soccer and chess) and also watch television programs to prevent boredom. Some participants felt that a need to uphold family values (instilled while growing up) and expectations, and religious beliefs, prevented some workers from misusing alcohol, while others felt that self-discipline and a desire to achieve goals regarding their financial obligations helped some to avoid alcohol misuse. Some others felt that some workers did not misuse alcohol because they were aware of consequences such as labour relations and marital problems. Some participants however felt that EAPs also had a role to play in controlling alcohol misuse as counselling was offered to people who were bored and confused and their drinking habits were regularly monitored.

3.2.4 Attitudes regarding alcohol misuse

3.2.4.1 Attitudes towards mineworkers who misuse alcohol

Those who misuse alcohol 'break' team spirit but they can behave responsibly when not under the influence of alcohol

Some participants expressed disapproval of mineworkers who misuse alcohol as they were said to 'break' team spirit. They were said to take short cuts while carrying out their duties exposing others to accidents, and sometimes overloaded other mineworkers with work due to absence from work when they had alcohol related problems, all of which made them lose the trust of their colleagues.

However, a few participants were sympathetic towards mineworkers who misuse alcohol saying that the problem was addiction as those who misuse alcohol behaved in an appropriate manner when sober and only developed personality changes when under the influence of alcohol.

"It is not the person that is problematic, but addiction is the problem. Addicted people have the ability to be good. It is excessive usage of alcohol that makes them bad guys. Most of them are good guys when sober. If he starts drinking, he loses it within a short time. Alcohol is not the problem, addiction is."

3.3 Practice, perceptions and attitudes of mineworkers towards dagga use

3.3.1 Introduction

In opening, participants were asked about what comes to their mind when they hear the word dagga.

3.3.1.1 Links that participants made to dagga

When asked what comes to mind on hearing the word dagga, the majority of participants in all groups linked dagga to an energy-boosting attribute with phrases such as *“extra energy”*, *“can operate heavy machines alone”*, *“can do what (more strenuous work) he cannot do under normal circumstances”*, *“stamina”*, and *“powerful to do the work”*. While some participants linked dagga to quickening of the mind with phrases such as *“more clever”* (quick thinking in problem solving), *“tree of knowledge”*, others said that it slows down one’s reaction time in cases of accidents.

Unlike alcohol which the majority of participants linked to adverse outcomes, fewer participants linked dagga to negative effects on behaviour, describing it with phrases such as *“confused”*, *“aggressive”* and *“rash in thinking”*. Like alcohol misuse, some participants linked dagga to crime and clashes with the law but unlike alcohol, there was no immediate link of dagga to workplace accidents. A few participants linked dagga to medicinal properties saying it

was used locally to treat illnesses such as flu and some ailments in babies which affect the fontanelle.

3.3.2 Practice of dagga use

3.3.2.1 Differences in patterns of dagga use among mineworkers

Dagga use is more common among those who carry out more physically demanding jobs

The majority of participants felt that dagga use is more common among underground workers; those whose jobs are the most physically demanding (such as operators, drillers, and drivers) and who feel they need an energy boost from dagga; and those who need to be alert for long periods (section 3.3.3.1).

“The guys that work hard physically (use dagga). They believe dagga gives them strength.”

“Operators use dagga, those who use heavy machines and do heavy work. It makes them feel more energetic. They are often overwhelmed by work. After using dagga, the work is as easy as ABC.”

“They (dagga users) become braver. They can think well. It gives them strength. I think dagga is useful. That is why it is used mainly by those who

work in dangerous areas like hanging rocks. It makes them brave to work underground.”

“Those who do mechanical jobs (use more dagga), who need to be awake for a long time and whose jobs are perceived as dangerous, like drivers. It is known as the ‘tree of knowledge’.”

A few participants in some mines however felt that contract workers at their mines commonly use dagga. They also noted that contract workers did not undergo the same induction procedures about substance use at the mine as fulltime workers. Most participants were however not aware of substance use status of contract workers. These participants said that they, as fulltime workers, were not very closely associated with part-time workers, most of whom lived in different lodgings.

3.3.2.2 When mineworkers usually use dagga

It is sometimes difficult to know when others use dagga as it is not always used publicly, but some people smoke it openly before and during the shift

Some participants said it was difficult to know when mineworkers usually use dagga because it was not always used openly. Others however said that though one may not actually see dagga being used openly, it was sometimes possible to know that it had recently been used, when they perceived its characteristic smell in change rooms and among some groups of people.

Few participants however said that dagga was sometimes openly smoked during working hours by miners working on surface as they could easily access dagga where they had hidden it on the mine, while use of dagga before the shift was more common among those who work underground and who could not take dagga underground.

“Let’s say they (underground workers) arrive here in the morning; before going underground, they smoke.”

“But for some of the surface people it’s easily available like he said, somewhere in the stockyard. So during the shift they have access to get the stuff and smoke it.”

3.3.3 Perceptions regarding dagga use

3.3.3.1 Perceptions about why some mineworkers use dagga

Dagga as energy booster: Dagga gives people an energy boost

While alcohol was said to be used mainly to cope with psychological stressors in the mining environment such as boredom and living apart from family members in hostels, the majority of participants said dagga was used mainly to cope with physical stressors, as it was widely believed to give users extraordinary strength. Although the majority of participants felt that dagga actually boosts physical energy, a few others suggested that it increases

mental stamina, making workers able to cope with very physically demanding jobs for longer periods than they would ordinarily have been able to do.

“They (dagga users) can work through the night without a break. I know someone who could not get anything done before he smokes. After smoking, he will be way ahead of you. It gives adrenaline.”

One participant however noted that it would be better if people worked harder naturally, rather than due to the influence of dagga.

“Talking about people who are working harder or whatever after smoking dagga...we want people to work hard normally.”

Dagga as stress reliever: Dagga is easily accessible and is an alternative way of coping with stress but without the overt physical manifestations associated with alcohol intoxication

Some participants said that some people use dagga because it is cheap (cheaper than alcohol), can be used to relax and relieve stress like alcohol, but signs of use may be hidden, unlike alcohol where signs such as vomiting due to a hangover may give away the alcohol use status of an individual.

“It’s cheaper than alcohol, as a means to be able to cope (with stress).”

“Lots of them smoke it because it doesn’t have the same after-effects as alcohol.”

“If you’re taking alcohol the next day you have a heavy ‘babalaas’ (hangover) and you throw up and stuff like that. Dagga is not the same.”

A few participants however said that dagga helped sharpen one's mind and enhanced thinking and problem solving skills.

Dagga as anxiolytic: Dagga calms people and makes them bold to face dangerous underground working conditions but it makes them more prone to accidents

Some participants said that dagga makes people bolder to go and work underground under conditions that are considered dangerous (Fig 3.2-A). However, a few of them added that like alcohol, it paradoxically exposes such people to more danger, as they were more prone to accidents due to slow reaction time (Fig 3.2-B).

“Dagga has a way of making underground not to look dangerous anymore. But it makes them not to react as quickly as they would have if sober. It is like someone who is in the street and a car is coming but he is not running away. Dagga increases production but in this industry, production with blood is failure. We produce (name of mine product), not blood.”

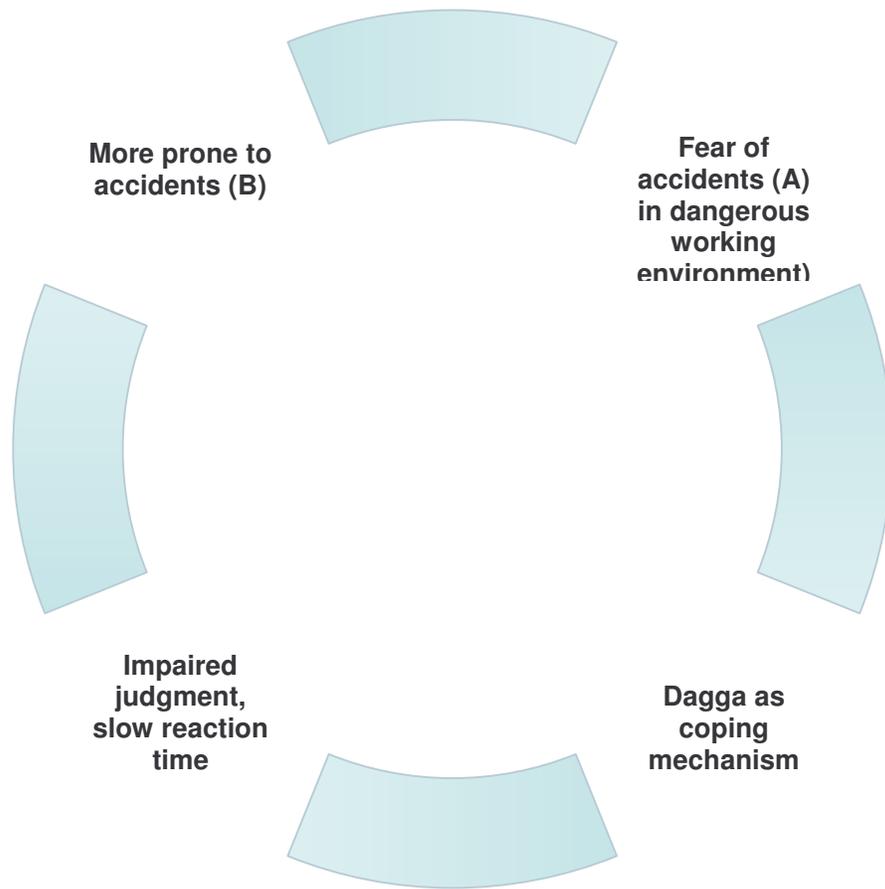


Figure 3.2: Vicious cycle of dagga use

Other reasons why people use dagga

Although some participants said that dagga is used while entertaining and socialising, there was less emphasis on its entertainment value unlike alcohol. A few participants however said that some mineworkers use dagga because they had been using before they started working at the mine. They said some people had started using it due to peer pressure while growing up, and some used it because other family members used it, while for some it was part of a sub-culture such as Rastafarianism.

“A lot of the people are brought up with that way of life; it becomes a norm. Your dad smokes it, you smoke it, your brother smokes it; it just becomes a way of life.”

3.3.3.2 Why some people do not use dagga

Those who do not use dagga have strong moral values and are aware of consequences of using dagga

Participants gave various reasons why they felt some mineworkers did not use dagga although they were in the same environment as their colleagues who use dagga. These reasons were similar to those given for not using alcohol and include self-determination; self-discipline; strong moral values and ability to differentiate between right and wrong; religious reasons; and awareness of consequences of use such as health problems, brushes with the law and family problems.

3.3.4 Attitudes of participants towards those who use dagga

Those who use dagga are usually hard working and do not cause problems unlike those who use alcohol, so we turn a blind eye to their use

Majority of participants seemed to be tolerant of dagga users because they were perceived as hard workers who got their jobs done quietly. They were said to be unlike those who misuse alcohol who showed more obvious signs of misuse and were less productive (due to absenteeism and inability to effectively carry out their duties when intoxicated).

“If it (dagga) gets him working harder, why not? I’ve seen the guy working, I know he’s gonna deliver the goods.”

“And the other thing is that some guys, they are very calm. They don’t give you problems.”

“As long as they do it (use dagga) and it doesn’t interfere with me or the job they’re doing.”

“Dagga smokers are better (than alcoholics). Alcoholics are useless; they sleep underground. Dagga smokers are hard workers.”

Those who use dagga jeopardise safety, can be aggressive, and give a bad reflection of the mine

A few participants in different groups said that although they were not aware of dagga-related accidents at their mine, dagga especially if used too frequently, increased the risk of injuries and accidents due to lack of clarity of mind. They also felt that dagga users were often aggressive, and gave the mine a bad image.

"Obviously if you overdo it (dagga use), it becomes a safety hazard".

"Once you start depending on it (substance dependency), then we smell trouble".

"The guy is not altogether there, he can't think straight, he can't drive vehicles, he can't do anything. It's a safety issue".

"He has misperception of everything".

"He doesn't have co-ordination".

3.4 Participants perceptions and awareness of health and safety issues among mineworkers

3.4.1 Participants' perception of positive and negative effects of working in the mines

Working at the mine exposes you to physical hazards and psychological stress

When asked to discuss effects of working at the mine, participants laid emphasis on the adverse health effects. While there was more emphasis by management representatives in some mines, on mental stress related to reaching production targets, the majority of Union/Health and Safety representatives were more concerned about physical hazards at the mine such as dust, lung diseases, noise which could cause deafness, wet conditions and gases which they were exposed to underground. They also referred to injuries from accidents at the mine such as rock falls and locomotor accidents.

“(The effect of working in mines on our health is) Very bad. There is high risk underground. The gases. We breathe artificial air. The air is poor and we inhale gases. If you start working (in the mine) at the age of 30, by 65 (years of age), you are scrap.”

Some participants in groups comprising of Union/Health & Safety representatives also said that mineworkers who live apart from their families

in single-sex hostels experienced some psychological stress from feelings of diminished masculinity. Some of these participants also felt that prolonged separation from spouses encouraged infidelity and increased the risk of contracting Acquired Immunodeficiency Syndrome (AIDS).

“Separating men from women takes their dignity. You live 600km from your wife and only go home after three months. Your family is destroyed. It is like Robben Island. It is abusive. We are no longer people but baboons.”

Relatively decent pay and team spirit are positive things about working in the mine, but it comes at a price

When participants were probed about anything at all that was positive about working in the mine, participants in the groups comprising of Union/Health & Safety representatives said that even for miners with no educational background, the pay was comparatively better than what other people with similar (e.g. shop cashiers) or even higher educational backgrounds (e.g. teachers) were getting in other industries. They also said they got production bonuses and death benefits whether or not the miner died due to workplace-related causes. Some of these participants however disagreed, saying that the benefits came at a very high price and were not worth it because they were not available to mentor their children who lacked respect for them, and who did not perform well academically.

“Mineworkers’ children do not get educated. They are dropouts. My children see me once a year for 30 days. They do not respect me. They are destroyed.”

Some participants in groups comprising of Union/Health & Safety representatives also noted that development of team spirit was a positive aspect of working in the mine.

“Positive things about working in the mine. Yes, teamwork. You can’t survive in a mine if you can’t look after yourself and your buddies. So it’s just buddy-buddy system. You can’t survive if you don’t look after your mate or he doesn’t look after you.”

3.4.2 Participants awareness of alcohol and dagga use among mineworkers in relation to health and safety

When participants were asked about effects of alcohol misuse on health, they alluded to safety and security issues at the mine such as accidents, assault, and damage to company property, and did not refer to health effects. However with respect to dagga, there was more emphasis on its effects on health (including changes in behaviour), with very few participants linking it to accidents and safety. Adverse health effects of dagga described by participants include reddening of the eyes, lung diseases, substance dependency, memory loss, lack of concentration and coordination, and

personality changes such as aggressiveness which could lead to labour relations problems).

“Rapid memory loss is one of the things (adverse health effects of dagga).”

Some participants said that although both alcohol and dagga could lead to behavioural changes, it was less so with dagga than with alcohol. Some participants however said it was difficult for them to determine effects of dagga as it was not always used openly, making it difficult to identify users and its effects.

There was a disagreement among some participants in different groups regarding a link between dagga use and accidents. While a few participants felt that dagga use could lead to mine accidents, most others did not think so, while some expressed uncertainty in this regard saying that they were unaware of any proven dagga-related accidents at their mine.

3.5 Participants' perceptions of challenges in controlling substance use among mineworkers and suggestions for control

Participants were asked about the range of control measures at their mines and how well they felt these programs were working. Measures described varied from mine to mine and include training programs, random breathalyser testing, disciplinary measures, and EAPs. However, the majority of participants described these programs mainly in relation to alcohol misuse. Some of them did not think that these programs even when in existence at their mines, adequately targeted dagga use.

Sections 3.5.1 to 3.5.3 describe participants' perceptions of challenges facing substance use control among mineworkers and in some cases they also discussed their suggestions for control, some of which were specific for dagga. Due to variations in current practices at different mines, some of the challenges described are more relevant in some mines than others.

3.5.1 Challenges relating to mine approach to control of substance use among mineworkers

3.5.1.1 Perception of insufficient mine commitment towards dagga control

Majority of participants felt that it was generally easier to get away with using dagga in mines than alcohol, and that there was a need for a change in mine philosophy regarding dagga use. Some participants in a mine where the approach to alcohol use was that of 'zero tolerance' (e.g. every breathalyser result containing alcohol is regarded as positive irrespective of the level) felt that this attitude should be extended to dagga.

“(Approach should be) same as alcohol on the mine, zero tolerance.”

3.5.1.2 Perception of lack of commensurate disciplinary measures for dagga use

Some participants felt that dagga use at the mine did not carry any serious consequences. A few of them also said they could not recollect any instances where any employee had undergone stiff disciplinary measures (such as termination of employment) for using dagga, while others said that though some people had been disciplined, the disciplinary action consisted only of repeated warnings without follow through to stiffer penalties, despite these people being found using dagga several times.

Although some participants felt that disciplinary actions could deter use of substances, some felt that it did not have lasting effects and was only effective sporadically, for instance when people become aware of impending disciplinary action on a colleague due to alcohol misuse and fear that they could also go through the same fate, should they be found misusing alcohol around the same period.

“When someone gets a final warning for dismissal, obviously this gets to go around the mine. So now obviously everyone coming to work is gonna think there is a chance that I could be pulled in this morning”.

“You see, if you shoot the birds, they run away and come back again.”

3.5.1.3 Perception of lack of holistic approach to substance control

Most participants said that stand-alone measures such as disciplinary action, did not effectively deter people from misusing substances, and suggested a holistic approach with programs geared towards rehabilitation and management of root causes of substance misuse.

“The mining industry has been very weak at treating employees as a whole being. They neglect where he comes from and his family and culture. To them he is another piece of machinery. They exercise punitive measures during disciplinary hearing instead of coming up with programs that investigate why the person is behaving in this way. They are only interested in production.”

“Quick warnings do not affect behaviour. It has to be a couple of strategies.”

Participants suggested a need for continuous and comprehensive strategies, such as sound EAPs which among other things seek to determine factors which contribute to dagga use, and develop alternative activities to dagga use.

“In order to influence behaviour, you need to implement a continuous process.”

“EAP is continuous and evaluative. When you take dagga from them, put something productive, replace it with something, otherwise it won't work. Find out why he is smoking. A reasonable person will not smoke dagga. It is not constructive.”

A few participants however noted that though EAPs were available at their mines, dagga users were not being referred there unlike those with alcohol problems, making efforts at dagga control futile.

“When a guy is caught under the influence he should report to the EAP. Guys, with dagga, it's not happening here.”

3.5.1.4 Perception of inadequate link between EAPs and social environment of mineworkers

Some participants also felt that even though EAPs are available at their mines, they seemed far removed from the social environment of mineworkers.

“Do not develop programs and put them far. Do not take bread and hang it there and ask the dog to jump for it.”

They suggested several roleplayers who could help to bridge this gap including mineworkers who live in hostels who should be made part of the EAP to monitor those who use substances in hostels. They also felt that social workers and welfare officers should be allocated to each hostel as part of the program. Some participants felt that family members should be included in the management of those who are addicted to substances and that they should be a part of the counselling process, as they (family members) will be able to assist in giving an accurate account of mineworkers' progress to counsellors.

3.5.1.5 Lack of use of trained counselors in counseling of dagga users

Some participants felt that counselling should be done on a continuous basis and by trained personnel, as counseling given to those found to be using dagga at some mines was thought to be ineffective because it was said to be carried out on a one-off basis by supervisors who are not trained to do so and whose main goal is production.

“The problem with our counselling is that supervisors do it; who are lay counselors and have not been trained. They do not have the time to follow up cause their main task is production. Constructive counseling takes place over a duration of time.”

35.1.6 Participants' perception of ineffectiveness of awareness programs

Some participants felt that even though awareness programs about substance use were available at their mines, they did not effectively fulfil their function because the majority of mineworkers had become indifferent to the programs. They also felt that these programs were sometimes implemented with a "top-down approach, and in some mines, did not adequately cater for contract workers as discussed below.

Perception of apathy of mineworkers to awareness programs

While the majority of participants agreed about the importance of disseminating information to mineworkers about hazards of substance abuse through educational programs, some participants expressed frustration at this approach. Some of them said that many steps had been taken at their mines towards increasing awareness (e.g. displaying of posters and yearly induction courses), and that workers knew the rules regarding substance use. They however felt that most employees had gotten used to seeing all the material, had become indifferent to them, and did not necessarily abide by the

regulations or give adequate consideration to the programs except when they had disciplinary problems and were faced with possibility of dismissal.

Perception of “top-down” approach to awareness programs

Some participants felt that although educational programs about substance use existed at their mines, they comprised of stiff instructions with “do's and don'ts”, with inadequate involvement of mineworkers and inadequate explanation about why certain things shouldn't be done and consequences of such actions.

“The education here is not education but instruction. The induction when you come home is about dos and don'ts. Education is being made to understand the consequences.”

Some also felt that the programs sometimes did not adequately cater for people who cannot read or write.

“Writing on paper is also not effective. Some of us cannot read or write.”

Perception of inadequate dissemination of information about substance use to contract workers

A few participants felt that contract workers at some mines did not go through adequate induction courses related to substance use at the mine like fulltime workers, and so were not fully aware of what the mine policies were.

3.5.1.7 Perception of inefficient search procedures at mine gate

A few participants felt that because employees are only searched on the way out of the mine (for theft of mine property) and not when they are going in, some workers bring dagga into the premises (sometimes in their lunch boxes) and smoke it before leaving the mine.

“One more thing; when the people go into the gate, nobody checks you when you go inside, they just check you when you come out. They don’t worry what you take in; they worry what you take out. So the guys can carry weed (dagga) as much as they like into the mine. If he wants to smoke, he would bring it in and smoke.”

3.5.1.8 Perception of difficulties in continuous shift supervision

Some participants felt that it was difficult to control dagga use at all times because it was not always possible for supervisors to be with employees throughout the work shift and that people who wanted to use dagga could do so when supervisors had left.

“I mean if your supervisor is sitting in the office and you are working...I mean he is not gonna be there for eight hours of the shift; you will see him in the morning and that’s it. So you’ve got basically from eight o’clock in the morning until one o’clock in the afternoon; you can smoke whenever you please.”

3.5.1.9 Perception of lack of transparency in employee selection for random breathalyzer testing

Participants at some mines said that although random testing was being carried out at their mines, the majority of mineworkers disliked it because they felt that the selection process was not transparent and that it targeted certain categories of workers.

3.5.10 Perception of need for expansion of dagga testing protocols

Some participants suggested that dagga testing should be carried out for all employees during the initial pre-employment examination and during subsequent periodic examinations carried out at the mine.

“I think one of the things; firstly before you even get into a problem of having somebody smoking dagga; do dagga tests on initial examination and also periodical examinations and when you come for your annual medical examinations.”

3.5.11 Perception of inadequate enforcement of operating time of hostel bars

Some participants said that there was a need to enforce operating times of hostel bars because though there was a stipulated time when the mine should close every evening, operators of hostel bars did not usually adhere to this and would stay open for as long as there were people willing to buy alcohol.

They felt this encouraged people to drink for longer hours and could increase the possibility of people coming to work under the influence of alcohol.

3.5.12 Perception of inadequate extracurricular activities

Some participants felt that in order to minimize boredom and keep workers constructively occupied in their leisure time, there was a need for provision of facilities for extracurricular activities such as libraries; soccer and athletics fields; chess; and karate; especially for mineworkers who live in hostels. Some participants felt that employees at management level should also participate in these sporting activities. Some participants also felt that skills development programs (some of which had previously been existent in one of the participating mines) such as bricklaying training and certification, boiler making, and driving schools were important.

3.5.13 Perception of fewer obligations for mineworkers who live apart from their families

A few participants felt that mineworkers who live in single sex hostels have fewer obligations as they lived apart from their family members, and could easily resort to substance use. They felt there was a need for provision of family units where mineworkers could live with their family members. Some of these participants however said that when consideration is being made for employees who should be moved from hostels to family units, those who were addicted to alcohol should be first in line, to facilitate their rehabilitation.

“We need to build family units. Be close to children so that we can have responsibilities.”

“Stop separating mineworkers from the general population.”

3.5.14 Perception of need to improve working conditions

A few participants alluded to a need to improve working conditions such as by providing appropriate machinery to lift heavy loads which they would normally be expected to lift manually, as they felt this also contributed to stressful working conditions among mineworkers.

3.5.15 Perception that incentives for good safety records play a positive role in controlling dagga use among mineworkers

Some participants expressed pride in an award their mine was given for an outstanding safety record and said this was an incentive to maintain their record which could otherwise be broken by dagga users who some felt increased the risk of accidents.

“At this mine, we are very safety conscious; and we don’t want people on the mine smoking dagga. You go underground, for instance the machine operator, he is under the influence of dagga and he can thereby destroy our safety record.”

3.5.2 Challenges relating to knowledge, attitudes and perceptions of participants about substances

3.5.2.1 Perception of limited responsibility of co-workers in control of dagga use

Some participants felt that it was not their responsibility to take any action if they found their co-workers using dagga. They felt the responsibility is that of the supervisor, should he be around at the time.

“If I see my next door neighbour smoking (dagga), what am I gonna do about it?”

“When you are smoking dagga it has got nothing to do with me. I think when you are a supervisor and some of your subordinates are smoking, you’ve got a responsibility to ensure that you call security and they would be able to handle the situation because dagga is still illegal on the premises.”

3.5.2.2 Perception of difficulty in verifying dagga use

There was a perception among some participants that it was difficult to prove that someone had used dagga. While some felt that no such tests were in existence, others were aware of these tests, but did not think they were being

carried out by their mines. This is in contrast to breathalyser testing for alcohol, of which all participants seemed to be aware.

“They don’t have anything on the mine where they test you for (dagga). There is no breathalyser (for dagga).”

Some participants said that because it was difficult to prove that someone had used dagga, if they found a co-worker smoking dagga, they would usually pretend not to notice.

“If a guy is smoking it, you turn a blind eye because it’s hard to prove.”

Some participants felt that there was a need not only to put systems in place for dagga testing, but also to make workers aware that these tests will be carried out under laid out circumstances, to prevent the perception that dagga use is likely to go undetected.

“I don’t know how you can test for dagga. Let people know it can be tested for and institute test measures.”

Although some participants were aware of dagga test methods, a few of them felt that the procedure was laborious because urine samples for testing had to be sent to the laboratory, which was sometimes far from the mine, unlike breathalyzer testing for alcohol, which was seen as simpler to do.

3.5.2.3 Perceptions about difficulty in validating adverse health effects of dagga

A few participants also felt that there was insufficient awareness among their colleagues about adverse health effects of dagga and that if it was possible to prove these adverse effects (for example by showing them those who had experienced these problems), it might discourage some people from using dagga.

“More information. We’ve got a lot of people that are working for us and most of them smoke it; but if we can prove that this thing [messes] up your lungs, most of them would stop.”

3.5.2.4 Lack of clarity about relationship between actual alcohol intake and effect on blood alcohol levels

A few participants said that while some mineworkers were aware of the alcohol limit for breathalyser testing at their mines, they did not know how much alcohol they could drink that would not exceed the stipulated limit.

3.5.3 Challenges relating to public perceptions regarding dagga

3.5.3.1 Perception of easy access to substances

Some participants felt that dagga was cheaply available, even more so than alcohol, and was easy to access in the community where some people also planted it in their homes.

“You can get it (dagga) anytime, anywhere.”

A few participants felt that due to the fact that alcohol is cheaply available, there may be a benefit to the public if the price was increased.

3.5.3.2 Perception of public uncertainty about adverse effects of dagga

Some participants felt that a move in some quarters to legalise dagga in South Africa, might have made its use seem innocuous to some, making it difficult to send a clear message about control in the workplace, while the public seemed to be perceiving a mixed message.

“I can just say that; why I say people believe in dagga; because I think seven or eight months back they tried to make dagga legal in South Africa. So the people totally believe in dagga. That’s a belief.”

“The workplace cannot control dagga effectively if the legal standpoint on dagga is unresolved.”

3.5.3.3 Perception of inadequate legal disciplinary measures for offences related to dagga use

There was a perception among a few participants that the South African law was not adequately tough on people found to be using dagga, which they felt could contribute to a public perception that dagga use is not a serious offence.

“The law promotes the use of dagga. In the past, people used to be jailed for dagga. Now you are only given a spot fine. Often we call SAPS (South African Police Service) and they come and give spot fine of R100. No serious fine. They go back to work and no police record, nothing”.

4.0 FINDINGS OF RECORD REVIEW

This section describes findings of the record review of accident and medical surveillance-related alcohol and cannabis testing in participating mines (P1, P2, G2, D1, C1 and O1). However, certain mines have been excluded from some tables in this section depending on whether the type of accident/medical surveillance-related testing under discussion is being carried out at that mine.

4.1 Availability of substance use testing at study mines

Participating mines were asked whether tests for alcohol and cannabis are carried out after accidents (excluding natural disasters) at their mines and if tests for these substances are done in relation to medical surveillance. Accident and medical surveillance-related alcohol and dagga testing are not carried out at mines P2 and O1, but are both carried out at mines P1 and D1. Mine C1 however carries out post-accident and medical surveillance-related alcohol testing but not cannabis testing (table 4.1).

Table 4.1: Availability of accident/medical surveillance-related alcohol and dagga testing at study mines

	Post-accident alcohol testing/year initiated	Post-accident dagga testing/year initiated	Medical surveillance-related alcohol testing	Medical surveillance-related dagga testing
P1	Yes (1999)	Yes (1999)	Yes (1999)	Yes (INA)
P2	No	No	No	No
G2	No	No	Yes (2002)	Yes (2002)
D1	Yes (1997)	Yes (1997)	Yes (1997)	Yes (1997)
C1	Yes (INA)	No	Yes (2004)	
O1	No	No	Yes (INA)	No

**INA-Information Not Available*

4.1 Accident-related substance testing

This section describes accident-related substance testing among mines P1, D1, and C1 in which this category of testing is carried out. Mine C1 however does not carry out accident-related cannabis testing and is excluded from the relevant tables.

4.1.1 Mine protocol for accident-related substance testing

Respondents were asked questions relating to their mine protocol regarding accident-related alcohol and cannabis testing, including the types of accidents in which these tests are carried out, and test methods used.

4.1.1.1 Circumstances in which accident-related substance testing is carried out

In mine P1, substance use testing is carried out in all accident cases irrespective of the type. In mine C1 testing is carried out (for alcohol only) in motor vehicle accidents (MVA), while in mine D1 testing is carried out in MVAs; accidents in which there has been severe property damage; where there has been injury to people; and where the people involved in the accident are suspected to have been under the influence of alcohol (table 4.2).

Table 4.2: Circumstances in which accident-related substance testing is carried out

	Circumstances in which accident-related alcohol testing is done	Circumstances in which accident-related dagga testing is done
P1	All accident cases	All accident cases
D1	Motor vehicle accidents Severe property damage Injury to people Suspicion of intoxication	Motor vehicle accidents Severe property damage Injury to people Suspicion of intoxication
C1	Motor vehicle accidents	Accident-related dagga testing is not practiced

4.1.1.2 Alcohol testing methods used

Table 4.3 describes the alcohol testing procedures used by participating mines. On-site breathalyser testing is the usual test carried out in all participating mines. However, in mines P1 and D1, blood samples can be taken for alcohol as discussed in table 4.3.

Table 4.3: Alcohol testing procedures used by study mines

Mine	Usual test method	When done	Other test methods used	When done	Level of blood alcohol classified as positive
P1	On-site breathalyser sampling	Within 30 minutes of an accident	Blood sampling in clinic	For confirmation of positive breathalyser results	Any positive reading irrespective of the level
D1	On-site breathalyser sampling	Immediately after accident	Blood sampling in hospital	If worker is injured such that he is unable to blow into breathalyser For confirmation of positive breathalyser results	0.05mg/l
C1	On-site breathalyser sampling	As soon as is practicable after accident	None	NA	0.02mg/l

*NA-Not Applicable

4.1.1.3 Cannabis testing methods used

Table 4.4 describes the cannabis testing methods used by mines P1 and D1, excluding mine C1 which although carries out accident-related alcohol testing, does not carry out accident-related cannabis testing. On-site urine dipstick testing is carried out in mines P1 and D1, however in mine P1, confirmatory tests for cannabis are carried out where dipstick tests are positive.

Table 4.4: Cannabis testing procedures used by study mines

Mine	Usual sampling method	Other sampling methods
P1	On-site urine dipstick testing	Confirmatory lab urine test where dipstick tests are positive
D1	On-site urine dipstick testing	Not done

4.1.2 Percentage of accidents in which tests for alcohol and dagga were positive

Tables 4.5 and 4.6 display the percentage of accidents in which alcohol and dagga testing was positive between 1999 and 2003. However, in some instances, this information could not be estimated due to unavailability of necessary information.

4.1.2.1 Percentage of accidents in which alcohol testing was positive

In mine D1, alcohol testing was negative in all eligible accident cases (section 4.1.1.1) between 1999 and 2003. In mine P1, information was not available to estimate this information between 1999 and 2000. In this mine (P1) in 2001 and 2002, none of the alcohol tests carried out in 160 and 205 cases of accidents respectively was positive. However, in 2003, 1% of all accident cases and 0.9% of accidents in which alcohol testing was actually done was positive for alcohol. In mine C1, although accident-related alcohol testing is carried out, no records were kept of the number of tests done and test results. These findings are displayed in table 4.5.

Table 4.5: Percentage of accidents in which alcohol testing was positive

Year & Mine		Total No of accidents/yr (A)	No of cases of accidents in which alcohol testing was done/yr (B)	% of accidents in which testing was done/yr	No of cases of accidents with positive alcohol tests/yr (C)	% of total accidents A in which alcohol tests were positive/yr (C/A)	% of accidents B in which alcohol tests were positive/yr (C/B)
1999	P1	INA	INA	–	INA	–	–
	D1	INA	INA	–	Nil	Nil	Nil
	C1	180	NRK	–	NRK	–	–
2000	P1	INA	INA	–	INA	–	–
	D1	INA	INA	–	Nil	Nil	Nil
	C1	81	NRK	–	NRK	–	–
2001	P1	168	160	95.2%	Nil	Nil	Nil
	D1	INA	INA	–	Nil	Nil	Nil
	C1	54	NRK	–	NRK	–	–
2002	P1	224	205	91.5%	Nil	Nil	Nil
	D1	INA	INA	–	Nil	Nil	Nil
	C1	16	NRK	–	NRK	–	–
2003	P1	227	205	90.3%	2	0.9%	1%
	D1	INA	INA	–	Nil	Nil	Nil
	C1	21	NRK	–	NRK	–	–

INA = Information Not Available

– = Inadequate information to compute necessary data

NRK = No Records Kept (by the mine in this regard)

4.1.2.2 Percentage of accidents in which cannabis testing was positive

Table 4.6 displays the percentage of accidents in which cannabis testing was carried out in mines P1 and D1. Mine C1 which does not carry out this category of testing has been excluded from this table. In mine D1, tests for cannabis were negative in all accidents cases in which testing was done between 1999 and 2004, but there was inadequate information to carry out this estimation for mine P1 between 1999 and 2001. However in mine P1 in 2002, cannabis testing was positive in 4.5% of all accidents, and 4.9% of accidents in which cannabis testing was carried out. These values were lower in 2003 in this mine with cannabis testing positive in 3.5% of all accident cases, and 3.9% of accident cases in which cannabis testing was done.

Table 4.6: Percentage of accidents in which cannabis testing was positive

Year & Mine		Total No of accidents/yr (A)	No of accidents in which cannabis testing was done/yr(B)	% of accidents in which testing was done/yr (B/A)	No of accidents with positive cannabis tests/yr (C)	% of total accidents with positive cannabis tests/yr (C/A)	% of accidents B with positive cannabis tests/yr (C/B)
1999	P1	INA	INA	—	INA	—	—
	D1	INA	INA	—	Nil	Nil	Nil
2000	P1	INA	INA	—	INA	—	—
	D1	INA	INA	—	Nil	Nil	Nil
2001	P1	168	160	95.2%	INA	—	—
	D1	INA	INA	—	Nil	Nil	Nil
2002	P1	224	205	91.5%	10	4.5%	4.9%
	D1	INA	INA	—	Nil	Nil	Nil
2003	P1	227	205	90.3%	8	3.5%	3.9%
	D1	INA	INA	—	Nil	Nil	Nil

INA = Information Not Available

— = Inadequate information to compute necessary data

4.2 Medical surveillance-related substance testing

4.2.1 Mine protocol for medical surveillance-related substance testing

Sections 4.2.1.1 and 4.2.1.2 describe the schedule of medical surveillance-related alcohol and cannabis testing, and test methods respectively.

4.2.1.1 Schedule of medical surveillance-related alcohol and cannabis testing

Table 4.7 describes the schedule of medical surveillance–related alcohol and cannabis testing carried out at study mines including categories of employees tested and the periodicity of such tests.

Table 4.7: Schedule of medical surveillance-related alcohol and cannabis testing

Mine	Substance tested	Type of testing	Category of employees for whom testing is done	Frequency of test
P1	Alcohol	Random testing	All categories of employees potentially can be selected	Weekly
	Cannabis	As for alcohol	As for alcohol	As for alcohol
G2	Alcohol	(As part of) Annual medical test	Drivers of heavy & light vehicles Operators of heavy machinery	Yearly
	Cannabis	As for alcohol	As for alcohol	As for alcohol
D1	Alcohol	Six-monthly test	All truck operators	Six-monthly
	Cannabis	As for alcohol	As for alcohol	As for alcohol
C1	Alcohol	Pre-employment testing	All new employees	Pre-employment
	Cannabis	Annual testing	All employees	Annually
O1	Alcohol	Random testing	All categories of employees potentially can be selected	Thrice-weekly
	Cannabis	Medical surveillance for cannabis not done		

4.2.1.2 Test methods used for medical surveillance-related alcohol and cannabis testing

While mines P1, D1 and O1 estimate alcohol levels during medical surveillance using breath samples, G2 and C1 use blood samples. Mines P1, G2, D1 and C1 estimate cannabis levels using urine dipstick (table 4.8)

Table 4.8: Test methods used for medical surveillance-related alcohol and cannabis testing

Mine	Usual alcohol test method	Usual cannabis test method
P1	Breathalyser	Urine dipstick
G2	Blood test	Urine dipstick
D1	Breathalyser	Urine dipstick
C1	Blood test	Urine dipstick
O1	Breathalyser	Cannabis testing not done

4.2.2 Percentage of employees that tested positive for substances during medical surveillance

4.2.2.1 Percentage of employees that tested positive for alcohol during medical surveillance

In mine D1, none of the employees tested positive for alcohol during medical surveillance between 1999 and 2003. There was inadequate information to make this estimation for other mines (table 4.9).

Table 4.9: Percentage of employees that tested positive for alcohol during medical surveillance

Year & Mine		Total mine population /yr (A)	Total No of workers tested for alcohol (B)	% of employees tested for alcohol (B/A)	No of employees that tested positive for alcohol (C)	% of total population who were positive for alcohol (C/A)	% of tested employees who were positive for alcohol (C/B)
1 9 9	P1	1149	INA	_	INA	_	_
	G2		INA	_	INA	_	_
	D1		INA	_	Nil	Nil	Nil
	C1	1557	NRK	_	NRK	_	_
	O1	556					
2 0 0	P1	1118	INA	_	INA	_	_
	G2		INA	_	INA	_	_
	D1		INA	_	Nil	Nil	Nil
	C1	1210	NRK	_	NRK	_	_
	O1	598					
2 0 0 1	P1	1075	INA	_	INA	_	_
	G2		INA	_	INA	_	_
	D1		INA	_	Nil	Nil	Nil
	C1	1094	NRK	_	NRK	_	_
	O1	625					
2 0 0 2	P1	1065	INA	_	INA	_	_
	G2		INA	_	INA	_	_
	D1		INA	_	Nil	Nil	Nil
	C1	563	NRK	_	NRK	_	_
	O1	680					
2 0 0 3	P1	1057	INA	_	INA	_	_
	G2		INA	_	INA	_	_
	D1		INA	_	Nil	Nil	Nil
	C1	693	NRK	_	NRK	_	_
	O1	702					

INA = Information Not Available

_ = Inadequate information to compute necessary data

NRK = No Records Kept (by the mine in this regard)

4.2.2.2 Percentage of employees that tested positive for cannabis during medical surveillance

In mine D1, no employee tested positive for cannabis during medical surveillance between 1999 and 2003. There was inadequate information to make this estimation for other mines (table 4.10).

Table 4.10: Percentage of employees that tested positive for cannabis during medical surveillance

Year & Mine		Total mine population/year (A)	Total No of workers tested for cannabis (B)	% of employees tested for cannabis (B/A)	No of employees that tested positive for cannabis (C)	% of total population who were positive for cannabis (C/A)	% of tested employees who were positive for cannabis (C/B)
1999	P1	1149	INA	—	INA	—	—
	G2		INA	—	INA	—	—
	D1		INA	—	Nil	Nil	Nil
	C1	1557	INA	—	INA	—	—
2000	P1	1118	INA	—	INA	—	—
	G2		INA	—	INA	—	—
	D1		INA	—	Nil	Nil	Nil
	C1	1210	INA	—	INA	—	—
2001	P1	1075	INA	—	INA	—	—
	G2		INA	—	INA	—	—
	D1		INA	—	Nil	Nil	Nil
	C1	1094	INA	—	INA	—	—
2002	P1	1065	INA	—	INA	—	—
	G2		INA	—	INA	—	—
	D1		INA	—	Nil	Nil	Nil
	C1	563	INA	—	INA	—	—
2003	P1	1057	INA	—	INA	—	—
	G2		INA	—	INA	—	—
	D1		INA	—	Nil	Nil	Nil
	C1	693	INA	—	INA	—	—

INA = Information Not Available

— = Inadequate information to compute necessary data

4.3 Summary of prevalence of accidents and medical surveillance in which tests for alcohol and dagga were positive

Table 4.11 summarises the prevalence of accidents/medical surveillance with positive alcohol and dagga tests, as in tables 4.5, 4.6, 4.9, and 4.10.

**Table 4.11: Summary of prevalence of accidents and medical surveillance
in which tests for alcohol and dagga were positive**

		Accident-related testing		Medical surveillance-related testing	
Year & Mine		% of accidents in which alcohol tests were positive	% of accidents in which cannabis tests were positive	% of tested employees who were positive for alcohol	% of tested employees who were positive for cannabis
1999	P1	—	—	—	—
	P2	NA	NA	NA	NA
	G2	NA	NA	—	—
	D1	Nil	Nil	Nil	Nil
	C1	—	NA	—	—
	O1	NA	NA	—	NA
2000	P1	—	—	—	—
	P2	NA	NA	NA	NA
	G2	NA	NA	—	—
	D1	Nil	Nil	Nil	Nil
	C1	—	NA	—	—
	O1	NA	NA	—	NA
2001	P1	Nil	—	—	—
	P2	NA	NA	NA	NA
	G2	NA	NA	—	—
	D1	Nil	Nil	Nil	Nil
	C1	—	NA	—	—
	O1	NA	NA	—	NA
2002	P1	Nil	4.9%	—	—
	P2	NA	NA	NA	NA
	G2	NA	—	—	—
	D1	Nil	Nil	Nil	Nil
	C1	—	—	—	—
	O1	NA	NA	—	NA
2003	P1	1%	3.9%	—	—
	P2	NA	NA	NA	NA
	G2	NA	—	—	—
	D1	Nil	Nil	Nil	Nil
	C1	—	—	—	—
	O1	NA	NA	—	NA

— = Inadequate information to compute necessary data

NA = Not Applicable (Test not carried out by mine)

6.0 DISCUSSION