

# The profile of the overdose patient presenting at Paarl Hospital Emergency Department

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***This study was conducted during the authors' Family Medicine clinical rotation.***

## Abstract

### Background

Overdose is a common problem often seen in emergency departments in South Africa. A subjective evaluation by doctors and nurses at Paarl Hospital indicated that there was a high incidence of patients who had overdosed presenting at this hospital. They found this distressing and felt that there should be an enquiry into the phenomenon. The aim of this study was to determine the profile of the overdose patient presenting at Paarl Hospital, the number of cases per day of the week and per month of the year, which drugs were used most commonly, as well as the seriousness of the incident. The study also looked at whether the hospital's policy regarding psychiatric evaluation protocol was being followed. Finally, some recommendations were made concerning possible intervention efforts.

### Methods

A review was done of cases involving all patients with overdoses presenting at Paarl Hospital during the period 1 July to 31 December 2005. Data was collected from 196 medical records using a data collection form.

### Results

***The frequency of overdoses at Paarl Hospital was found to be 1.13 cases per day.*** The results of the study showed that most patients were females with an average age of 27.3 years. Most patients were either unemployed or scholars from low socio-economic circumstances. Tricyclic antidepressants and paracetamol were the drugs used most commonly and 42.3% of the patients took more than one drug. Few cases of overdose resulted in serious morbidity, with only 8.5% admitted to high care. In most cases the attending doctors followed the policy of the hospital regarding psychiatric evaluation.

### Conclusion

Possible preventative interventions should focus on educational initiatives in communities. Patients should be educated about the dangers of their medication and that all medication should be kept out of reach of children and preferably be locked away. Doctors should take note of the drugs most commonly used for overdosing and should be more cautious when prescribing these drugs. It is preferred that patients be seen by the social worker before being discharged, since there is no control over whether the patient will keep his/her appointment at the day hospital. The social worker should be adequately trained to identify patients needing psychiatric evaluation and be able to refer them to the appropriate mental healthcare practitioner.

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## Introduction

Overdose is a common problem in South Africa, yet no studies have been done on the profile of the overdose patient in this country. The only study we could find that looked specifically at the profile of the overdose patient was done in Michigan, USA, in 1985.<sup>1</sup> A subjective evaluation by doctors and nurses at Paarl Hospital indicated that there was a high incidence of patients who had overdosed presenting to this hospital. They found this distressing and felt that there should be an enquiry into the phenomenon.

The objectives of this study were to:

- Document the prevalence of overdose cases presenting at the Casualty Department of Paarl Hospital during a defined study period
- Determine the profile of the overdose patient regarding age, gender, occupation and area of residence
- Determine if there was an increase in the number of cases during certain months and on certain days of the week
- Determine the most common drugs used and the frequency of multiple drug ingestion
- Document the medical seriousness of the overdose incident
- Determine whether the hospital's policy regarding psychiatric evaluation was adhered to in the emergency ward

## Methods

### Design

The study design was a cross-sectional, retrospective study based on a review of records of overdose patients present-

**Table 1:** The number of overdose patients according to occupation

Occupation	Number (n)	Percentage (%)
Student	4	2.0
Pension / Disability grant	9	4.6
Unknown	13	6.6
Working	42	21.4
Scholar*	49	25.0
Unemployed	79	40.3
Total	196	100

\* Scholar is defined as a person attending a primary or a secondary school

ing to the Casualty Department of Paarl Hospital.

### Subjects

All overdose patients presenting to the Paarl Hospital Casualty Department from July 1 to December 31 2005 were considered for inclusion in the study. Of the 207 cases of overdosing recorded in the emergency department register, 11 patient files could not be retrieved. A total of 196 cases of overdose was included in this study.

### Measures

A data collection form was used to gather the information. Data collected included birth date, gender, address, occupation, date of overdose, drug(s) used, previous episode(s), psychiatric evaluation, and whether the patient was kept overnight, admitted or discharged. Information about the race of the patient was not obtained because it was not documented in the files. The retrieved files only included information relevant to the management of the patient in the emergency department. Different files are kept for the rest of the hospital wards.

### Procedures

The two authors identified overdose patients by sifting through the emergency department registers. These files were then retrieved from the records room in the admissions department and the data was entered onto the data collection forms. This data was captured into an Excel file and double checked by the two authors.

### Analysis

Descriptive analysis was used to describe the sample.

## Results

### Sample characteristics

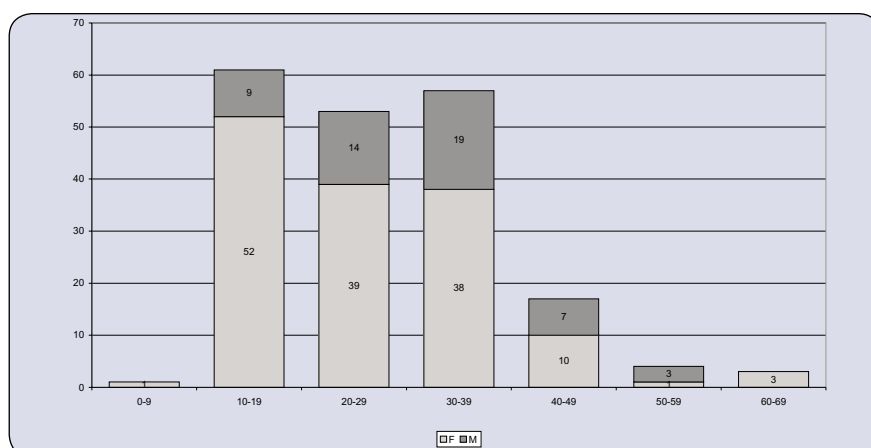
The average age of the overdose patients was 27.3 years, ranging from 8 to 65 years. The highest number of cases occurred in the 10 to 19 age group, with 61 cases, followed by the 30 to 39 age group (57 cases) and the 20 to 29 age group (53 cases). There were 144 (73.5%) female and 52 (26.5%) male cases of overdose. Relatively few cases of male overdoses occurred in the 10 to 19 age group (9), compared to cases in the 30 to 39 age group (19). (See Figure 1.)

### Residential areas

Patients were grouped according to the address of residence given at admission. The total number of overdose patients per area, as well as the number of cases per square kilometre, was looked at (see Table II).

The highest number of overdoses was found to occur in the suburb of Klein Nederburg in Paarl, but the highest number of cases per square kilometre occurred in Fairyland – an informal settlement. Other areas that showed a high number of cases per square kilometre were New Orleans, Amstelhof, Carterville, Weltevrede, Mbekweni and Groenheuwel.

**Figure 1:** Male and female overdose cases per age category (n=196)



The highest incidence of overdoses occurred in the unemployed group, followed by the scholar group (see Table I). When only patients between ages 18 and 65 were considered, the unemployment rate was 53.7%.

**Table II:** Frequency of overdoses in area of residence

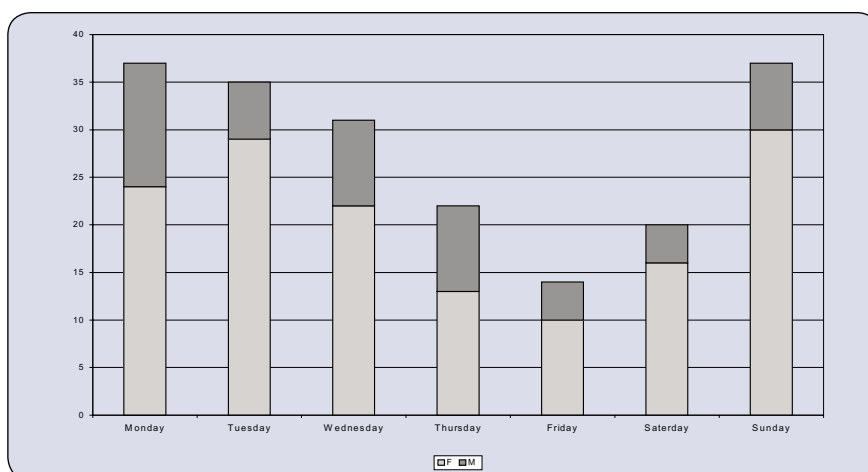
Area	n	n/km <sup>2</sup>
Paarl	113	3.78
Klein Nederburg	31	17.22
Mbekweni	17	11.89
New Orleans	16	14.29
Amstelhof	11	13.10
Fairyland	11	34.38
Rest of Paarl	10	0.48
Groenheuwel	9	11.25
The Haven (Nightshelter)	4	N/A
Charleston Hill	2	1.23
Denneburg	2	2.08
Wellington	43	5.13
Rest of Wellington	13	2.55
Van Wyksvlei	9	10.00
Hillcrest	9	10.71
Carterville	5	12.50
Weltevrede	5	12.50
Newton	2	3.70
Farms	23	N/A
Franschhoek	5	N/A
Drakenstein prison	3	N/A
Ceres	2	N/A
Malmesbury	2	N/A
Hermon	2	N/A
Barrydale	1	N/A
Clanwilliam	1	N/A
Darling	1	N/A

### Timing of overdoses

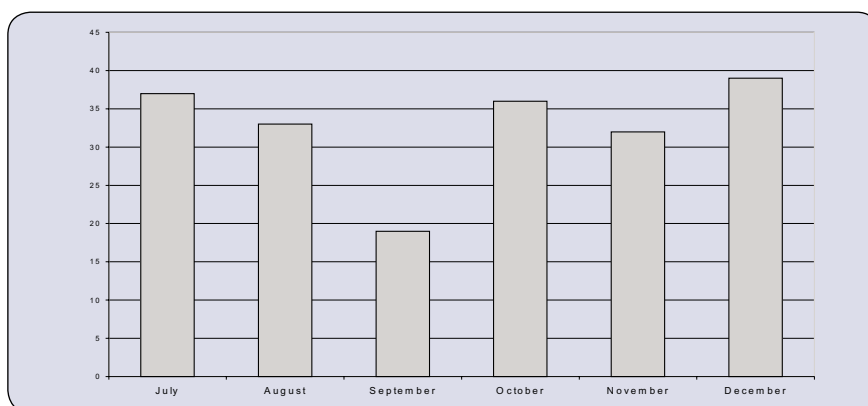
This study showed that Sundays and Mondays had the highest incidence of overdoses presenting to the hospital and Fridays the lowest (see Figure 2). There was a downward trend of overdoses from Monday to Friday. The average number of cases of overdoses per day was 1.13 (range 0-4 per day). Since this study only looked at a six-month period, an annual trend in overdoses could not be evaluated. This study only showed a significant decrease of overdose cases in September (see Figure 3).

### Drugs used

The information pertaining to which drugs were used was obtained from the files and included both the patient's recollection of drugs taken and/or positive plasma drug levels (see Table III). The most common agents used were tricyclic antidepressants (n=40; 20.4%) and paracetamol (n=40; 20.4%). More than one type of drug was used in 42.3% of cases and 16 (5.0%) had concurrent alcohol usage.

**Figure 2:** Number of overdoses per day of the week (n=196)

n = number of cases  
 n/km<sup>2</sup> = number of cases per square kilometre (density)  
 N/A = not applicable

**Figure 3:** Number of cases per month of the year (n=196)

### Medical seriousness of overdose

The medical seriousness of the overdoses was determined by looking at the outcome of the clinical course of the patient. Of the 196 patients, 23 absconded, 7 refused further treatment, 2 were transferred to a private hospital and 11 files did not contain information about what happened to the patient. This resulted in a total of 153 patients who either were discharged on the same day, kept overnight, admitted to the medical ward or admitted to the high care unit (see Table IV). Most of the patients presenting at Paarl Hospital with an overdose were kept overnight. The number discharged the same day was 43 and the number of patients admitted to the medical ward was 44. Only 13 patients (8.5%) were admitted to the high care unit. The only difference between male and female patients possibly worth noting was found in those patients admitted to the

high care unit. A greater percentage of females (9.73%) than males (5%) were admitted.

### Psychiatric evaluation

There is no psychiatrist or psychologist at Paarl Hospital to evaluate overdose patients. These patients are therefore seen by a social worker. Of the 196 cases, 22 patients either absconded or refused further treatment before they were seen by or referred to a social worker and 11 files' notes were insufficient to determine whether they were seen by or referred to a social worker. Another two patients were referred to a private hospital for treatment. Of the remaining 161 cases, 61 were seen by a social worker in the emergency ward, 53 were given an appointment to see the social worker at the local community health centre and 47 did not see a social worker in the emergency ward or receive an appointment. This last group

**Table III:** The most common drugs used in overdoses

Drug used	Frequency (n)	Percentage of cases (%)
Tricyclic antidepressants	40	20.4
Paracetamol	40	20.4
Antibiotics	23	11.7
Non-steroidal anti-inflammatory drugs	21	10.7
Anti-hypertension drugs	20	10.2
Benzodiazepines	19	9.7
Alcohol	16	8.2
Domestic agents	17	8.7
<i>Paraffin</i>	4	2.0
<i>Pesticides</i>	5	2.6
<i>Rat poison</i>	3	1.5
<i>Cleaning agent</i>	1	0.5
<i>Washing agent</i>	1	0.5
<i>Petrol</i>	1	0.5
<i>Turpentine</i>	1	0.5
<i>Glass</i>	1	0.5
Theophyllin	13	6.6
Cold/flu medication	13	6.6
Epilepsy medication	11	5.6
Iron tablets	10	5.1
Vitamins	10	5.1
Anti-histamines	7	3.6
Selective serotonin re-uptake inhibitors	3	1.5
Recreational drugs	3	1.5
Diabetes medication	2	1.0
Anti-retroviral drugs	2	1.0
Unknown	32	16.3
Other*	15	7.7

\* Other drugs included antispasmodics, anti-emetics, anti-propulsives, morphine, digoxin, steroids, anti-psychotics and oral contraceptives.

**Table IV:** Clinical course of patients

	Females (n)	Percentage of females (%)	Males (n)	Percentage of males (%)	Total (n)	Percentage of total (%)
Discharged same day	31	27.4	12	30.0	43	28.1
Kept overnight	39	34.5	14	35.0	54	34.6
Admitted to ward	32	28.3	12	30.0	44	28.8
Admitted to high care	11	9.7	2	5.0	13	8.5
Total	113	100	40	100	153	100

included 30 patients who were admitted to a hospital ward after being seen in the emergency ward.

Enquiry about previous overdose at-

tempts was not documented in all cases. Previous overdose attempts were noted in 29 cases. Of these 29 cases, 10 were seen by a social worker in the emer-

gency ward, 7 were given appointments at the day hospital, 6 were not seen or given an appointment and 6 patients absconded or had incomplete notes.

## Discussion

### *Prevalence and demographic distribution*

This study found that the average age of overdose patients was 27.3 years, which did not correlate with the preconceived idea of the staff that the majority of overdose patients in the Paarl area were teenagers. Other studies have predominantly focused on adolescent suicide attempts.<sup>2,3</sup> The high number of patients in the 20 to 30 and 30 to 40 age group in this study would justify paying more attention to these age groups in follow-up studies, as well as in prevention efforts. The 73.5% female predominance is higher than results from other studies.<sup>4</sup>

The unemployment rate for patients between the ages of 18 and 65 in this study was 53.7%. According to the 2001 census, unemployment in the Drakenstein municipality was 14.7% and therefore the high rate of unemployment in the overdose patients cannot solely be attributed to the unemployment rate of the Drakenstein municipality.

Most of the patients come from a low socio-economic background. The highest number of overdoses was found to occur in the suburb of Klein Nederburg in Paarl, but the highest number of cases per square kilometre occurred in Fairyland. Fairyland is an informal settlement with a high density of people and very poor socio-economic circumstances. Previous studies have also shown a relationship between low socio-economic circumstances and increased suicide risk.<sup>3</sup>

There is a general perception at Paarl Hospital that overdoses occur mostly over weekends. This study did not substantiate that perception. Sundays and Mondays had the highest frequency of overdoses and Fridays the lowest. It should be borne in mind, however, that overdose patients may occasionally only present to the emergency department the day after the incident. The average number of cases of overdoses per day in the period of 1 July to 31 December 2005 was 1.13, ranging from zero to four cases per day. The large number of overdoses has a direct impact on the hospital's resources.

Since this study only looked at a six month period, an annual trend of

overdoses could not be determined. This study only showed a significant decrease of overdose cases in September. It could be attributed to the seasonal change from winter to spring, but no substantial explanation for that phenomenon could be obtained.

#### *Common agents used*

The most common agents used were tricyclic antidepressants (20.4%) and paracetamol (20.4%). More than one type of drug was used in 42.3% of cases and in 16 cases (5.0%) there was concurrent alcohol usage. Tricyclic antidepressants and paracetamol likely were the most common agents used because they are easy to obtain. Tricyclic antidepressants are a prescription drug prescribed for a variety of conditions, including depression, anxiety, chronic pain and insomnia. Paracetamol, which is prescribed for pain, is an over-the-counter drug that therefore is readily available. Tricyclic antidepressants and paracetamol were found to be less commonly used in previous studies, while a higher frequency of simultaneous usage of alcohol was found.<sup>5</sup> The higher frequency of tricyclic antidepressants could be attributed to the fact that these drugs are old antidepressants that are not commonly used overseas, but commonly used in South Africa.

#### *Seriousness of overdose*

In this study, only 8.5% of patients were admitted to the high care unit, showing that most of the overdoses were not medically serious. Relatively more females than males were admitted to high care. Previous studies showed that males taking an overdose generally show a higher suicide intent.<sup>6</sup> This study did not support that outcome, since relatively more female patients were admitted to high care than male patients. Another explanation for this could be that the men may have died before being admitted.

#### *Psychiatric evaluation*

The protocol relating to the psychiatric evaluation of an overdose patient in Paarl Hospital's Casualty Department stipulates that all patients should be seen in the hospital by a social worker before being discharged. This is not always possible, especially over weekends when there is no social worker on duty. Only one social worker is on duty during the week, which means that the patients cannot always be seen on the

same day. If the social worker cannot see the patient immediately and no beds are available, the doctor may use his/her discretion to discharge the patient in the care of a responsible person. In such cases the doctor should make an appointment for the patient with the social worker at the local community health centre, but there is uncertainty whether these patients actually keep their appointments.

A total of 61 patients were seen by a social worker in the emergency department and 53 were given an appointment to see the social worker at the local community health centre. Overall, 17 patients were discharged from the emergency department without being seen by or receiving an appointment with a social worker. Of the 57 patients admitted to the hospital, 30 were not seen by a social worker in the emergency department before being admitted. It is not possible to comment on whether these patients were seen by a social worker after being admitted, since the purpose of this study was only to determine whether the hospital's policy was followed in the emergency department. The protocol was therefore not adhered to in at least 17 cases (8.67%).

#### *Recommendations*

Despite the high number of overdoses presenting at Paarl Hospital, it is not clear what preventative efforts have been implemented in the community. Possible preventative interventions should be focusing on educational initiatives. This could include crisis management, information on where to get help, character development and information on commonly used medical drugs. This could be done by schools, nongovernmental organisations, churches, support groups and clinics. The new curriculum that was recently implemented at primary and secondary school level includes a subject called *life orientation*. It will be interesting to see whether this has an impact in the long term.

During the collection of data from the files, one thing that was noticed was that the drugs taken by the patients were not necessarily their own. Patients should be educated about the dangers of their medication and that all medication should be kept out of reach of children and preferably be locked away. Doctors should take note of the drugs most commonly used for overdosing and should be more cautious

when prescribing these drugs.

Paarl Hospital has an adequate protocol concerning psychiatric evaluation and this should be adhered to. However, it would be preferable for patients to be seen by the social worker before being discharged, since there is no control over whether the patient will keep his/her appointment at the day hospital. This could lead to patients who really need help being lost to follow-up.

Psychiatric disorders increase the risk of patients attempting suicide.<sup>7,8</sup> The social worker should therefore be adequately trained to identify patients needing psychiatric evaluation and be able to refer them to the appropriate mental healthcare practitioner.

#### **Conclusion**

The frequency of overdoses at Paarl Hospital was found to be 1.13 cases per day. The general profile was that of a female, average age 27 years, unemployed and living in low socio-economic circumstances. Most cases presented on Sundays and Mondays.

The most common drugs taken were tricyclic antidepressants and paracetamol, with 43.3% of patients taking more than one drug.

Most cases of overdoses were not found to be medically serious and the overdoses were not found to be more medically serious in males than in females.

Paarl Hospital's policy regarding psychiatric evaluation was adhered to in most cases. However, it would be better if more patients could be seen by a social worker before being discharged from hospital, rather than just being given an appointment.

The limitations of the study include the fact that no comment could be made on the seriousness of the particular attempt, as a diagnosis was not necessarily made. Also, no differentiation could be made between accidental overdoses, parasuicide and true suicide attempts.

Finally, attention should be paid to putting into place educational initiatives aimed at informing the public about which resources are available in crises and how to access them.

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