

SUBSTANCE MISUSE IN YOUTH ADMITTED TO A PSYCHIATRIC EMERGENCY UNIT

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Objectives. To investigate the pattern of substance misuse in youth admitted to a psychiatric emergency unit of a major hospital, and to compare regular users of cannabis, methaqualone and alcohol with the rest of the sample in terms of selected psychosocial variables.

Study population. Consecutive patients aged 25 years or younger admitted to a psychiatric emergency unit over a 3-month period.

Method. Patients completed a standardised questionnaire containing questions about their family, social, economic and educational backgrounds. Their current psychiatric folder was examined to ascertain mental state and behaviour on admission as well as previous psychiatric contacts and hospitalisation. Particular attention was paid to the use of cannabis, methaqualone and alcohol. For each substance patients were divided into two groups, namely those who did not use the substance or who used it infrequently, and regular users. Unadjusted odds ratios were used to document the relationship between substance use and the selected psychosocial variables.

Results. One hundred and fourteen patients were assessed, of which number 61 (53.5%) were male and 98 (86%) were single. The group consisted of 37 blacks (32.5%), 56 coloureds (49.1%) and 21 whites (18.4%). Alcohol was regularly used by 30 patients (26.3%), cannabis by 29 (25.4%), methaqualone by 11 (9.6%), and any of these substances by 46 patients (40.4%). Unadjusted odds ratios showed that there was a significant association between regular use of alcohol and cannabis and male gender, dropping out of school, previous psychiatric treatment, and an absence of both depression and suicidal ideation; and between regular cannabis use and bizarre behaviour, auditory hallucinations and disorganised or incoherent

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speech. Methaqualone use was associated with hostile threats.

Conclusions. In the study population substance use was associated with various adverse psychosocial circumstances; these may alert the practitioner to the possibility of substance use. Cannabis misuse was suggested by behavioural, perceptual and speech abnormalities on mental state examination.

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Several community-based studies on substance use among young people,^{1,3} have been carried out in South Africa. A study¹ conducted in 1991 has shown that 42.1% of male and 20.1% of female medical students at the University of Cape Town had or were using cannabis, mostly on an experimental basis, but only 7.9% of male students and 2.4% of female students were using it weekly or monthly. A recent survey among highschool students in the Cape Peninsula showed far more modest levels of substance abuse within the previous 7 days, with 2.4% having smoked cannabis and 26.2% having used alcohol.² At drug counselling facilities in South Africa it appears that, used in combination, cannabis and methaqualone are the drugs of choice for young abusers. In 1996 this combination was being used by 49% of patients, having declined from a high of 67% in 1994, while the use of cannabis alone remains at 16%.³ Internationally, cannabis is considered to be the most widely abused illicit drug.⁴ Cannabis users are becoming younger and more adolescents now use cannabis than tobacco,⁵ although geographically there are differences in usage patterns and these may influence the referrals to emergency room (ER) settings.

Despite this trend, the pattern of drug use among youth admitted to psychiatric emergency units (PEUs) in South Africa has not been documented before. Since the 1980s there appears to have been a marked increase in the number of drug-dependent patients presenting for treatment at PEUs in South Africa⁶ (and Wilson DAB, Welman M, Flisher AJ — unpublished data, 1997). Many of these patients are in their teens or early twenties. The drugs most frequently used in the adult population were cannabis, alcohol and methaqualone, either alone or in combination, with 34.5% of patients receiving a substance use diagnosis.⁶ A University of the Western Cape survey of patients admitted to hospital for drug-related problems in 1981⁷ indicated that more than 90% of patients were using cannabis alone or cannabis and methaqualone in combination (the so-called 'white pipe'). The smoking of crushed methaqualone together with cannabis appears to be an idiosyncratic means of using these two substances. Information from North American centres demonstrates that substance use is common among youth and adolescents attending emergency units and that the commonest substance used is alcohol. Of the

illicit substances, cannabis and opiates are the most frequently taken.⁸⁻¹⁰

Psychosocial factors have also been considered to be important in the development of substance use, although there are some contradictions in the literature in this area. It is commonly held that being male, single, and being reared in adverse psychosocial circumstances (namely, single-parent homes, parents unemployed, family violence and a history of family substance use) are factors associated with higher levels of substance use.¹¹⁻¹⁴ These observations have been based on the empirical observations of both workers in the community and those working in drug counselling centres.³ In exploring this further, Vaillant and others¹⁵ found that with the exception of a family history of substance use, there was no independent correlation between these variables and substance use. However, it is our clinical impression that in South Africa there is indeed an independent correlation.

There is also growing concern over the bizarre presentations and behaviour associated with cannabis abuse among young people. Concern relates to the increased quantities apparently being used, as well as to the potency of cannabis preparations, which have increased from on average 1.5% 9-delta-tetrahydrocannabinol (THC) in 1977, to 7% THC in 1988.¹⁶

It was decided to undertake a survey of all patients under the age of 25 years who were admitted to the PEU at Groote Schuur Hospital over a 3-month period in order to assess the following: (i) their pattern of substance use; and (ii) patients' demographic, educational, occupational, and family characteristics, as well as the service history and mental state characteristics of regular substance users compared with non-users and those using substances irregularly.

MATERIALS AND METHODS

Assessments were obtained from 114 patients aged 25 years and younger admitted consecutively to the Groote Schuur Hospital PEU over a 3-month period. There were two sources of data. Firstly, each patient was interviewed using a structured questionnaire. Data elicited included: (i) specific questions concerning types of substance used and their quantity and frequency of use. Particular attention was given to cannabis, methaqualone, alcohol, barbiturates, benzodiazepines and opiates; (ii) demographic characteristics; (iii) schooling and employment; (iv) parental/family characteristics; and (v) service history (previous psychiatric contacts).

Selected data are presented by population group, as defined by the Population Registration Act of 1950. Although there are dangers of presenting the data according to population group and although these groups do not have anthropological or scientific validity, they are used because there are important differences between the groups for many indicators of health (mediated by political and economic factors).



The second source of data was the clinical notes. These were examined in order to determine the mental and behavioural state of each patient on admission. In particular, the presence or absence of hostile threats, bizarre behaviour, hallucinations, delusions, paranoid reactions, disorganised or incoherent speech, depression and suicidal behaviour or ideation were noted. A clinical diagnosis conforming to the *Diagnostic and Statistical Manual of Mental Disorders (DSM III-R)*¹⁷ diagnostic criteria was also obtained. In instances where the diagnosis of toxic psychosis or parasuicide/overdose was made, the *International Classification of Diseases (ICD 9)*¹⁸ was used.

The prevalence of cannabis, alcohol, and methaqualone use are presented by frequencies and percentages for the following categories: never used, infrequently used (less than monthly), monthly use, weekly use and daily use. Regular use of cannabis or methaqualone was defined as weekly or daily use of the substance. Regular alcohol use was defined as three or more alcoholic drinks per day.

For each of the above substances, prevalence rates for each of the potential correlates are presented as frequencies and percentages, stratified according to whether there was regular use or not. Regular users were compared with the rest of the sample using unadjusted odds ratios and 95% confidence intervals (CIs).¹⁹ In the case of regular cannabis users, the rest of the sample included those using methaqualone (mixed with cannabis), which could have attenuated some of the associations that may have been present for the cannabis group. A small subgroup of individuals who used both alcohol and cannabis regularly were in both regular cannabis use and regular alcohol use categories; again this could have attenuated results. The odds ratio is a measure of association that approximates how much more likely it is for a potential correlate to be present among the regular users compared with the rest of the sample. An odds ratio is declared significant if the ratio is significantly different from a ratio of one. An odds ratio calculated from the data (obtained from the sample) is an estimate of the true (or population) odds ratio, which is unknown. An indication of how close the calculated odds ratio is to the true odds ratios is given by CIs. The 95% CI is such that there is a probability of 0.95 that the interval includes the true odds ratio.

RESULTS

During the study 1 287 patients were assessed in the PEU, with 456 (35.4%) requiring admission to the unit. Of those assessed, 404 (31.4%) were aged 25 years or younger; 128 patients in this age group (31.7%) were admitted. Informed consent for assessments was obtained from 114 patients (89.1% of the potential sample).

Of this sample, 30 (26.3%) were diagnosed as having a psychoactive substance-related disorder, 9 (7.9%) a mood disorder, 22 (19.3%) a psychotic disorder, 31 (27.2%) an overdose or parasuicide diagnosis and 22 (19.3%) any other psychiatric disorder.

Of the 114 patients, 37 (32.5%) were black, 56 (49.1%) were coloured and 21 (18.4%) were white; 61 (53.5%) were male; 98 (86%) were single; 73 (64%) lived with their parents; and 65 (57%) were self referred or referred by their families. The mean age was 20.4 years (range 12 - 25 years; standard deviation 2.78).

The overall school record was poor, with 37 patients (32.5%) not having reached standard 5, 54 (47%) having reached between standard 6 and 9, and 23 (20%) having standard 10 (matric) or higher. Furthermore, 69 (60.5%) had dropped out of school (had left school before standard 8 or before the age of 16) or been expelled, while 49 (43%) had failed more than once. Of the subgroup of 12 patients aged 16 years or younger, only 3 had dropped out of school or been expelled. At the time of interview 22 patients (19.3%) were still scholars. A preponderance of patients (61, 53.5%) were unemployed at the time of admission.

Cannabis, alcohol, and methaqualone were the products used to the greatest extent in this sample (Table I). Four patients reported using benzodiazepines, barbiturates, opiates or other psychotropic drugs, but these cases will not be dealt with in this study.

There were 29 (25.4%) regular cannabis users, 30 (26.3%) regular alcohol users, and 11 (9.6%) regular methaqualone users. Forty-six patients (40.4%) used one or more of these substances regularly.

Tables II and III show the unadjusted odds ratios with 95%

Table I. Frequency of substance use (N = 114)

	Never		Infrequently*		Monthly		Weekly		Daily	
	N	%	N	%	N	%	N	%	N	%
Cannabis†	78	68.4	7	6.1	0	0	10	8.8	19	16.7
Alcohol	63	55.3	19	16.7	2	1.8	20	17.5	10	8.8
Methaqualone‡	99	86.8	3	2.6	1	0.9	3	2.6	8	7.0

* Used less than monthly.

† Cannabis without methaqualone.

‡ Methaqualone with cannabis.



Table II. Psychosocial correlates of regular cannabis use — descriptive data and unadjusted odds ratios (with 95% CIs) (N = 114)

	No regular cannabis use (N = 85)		Regular cannabis use (N = 29)		Unadjusted OR	(95% CI)
	N	%	N	%		
Demographics						
Gender						
Male	36	42.4	25	85.2	8.33	(2.7 - 25.0)
Marital status						
Single	71	83.5	27	93.1	2.66	(0.60 - 12.50)
Ethnicity						
Coloured	50	58.8	6	20.7		
White	15	17.7	6	20.7	3.33	(0.93 - 11.9)
Black	20	23.5	17	58.6	7.08	(2.44 - 20.56)
Age						
20 - 25 years	55	64.7	20	69.0	1.21	(0.49 - 2.99)
Standard at school and employment						
Standard 5 or less	29	34.1	8	27.6		
Standard 6 - 9	37	43.5	17	58.6	1.66	(0.63 - 4.40)
Standard 10 >	19	22.4	4	13.8	0.76	(0.20 - 2.90)
Dropped out/ expelled from school	45	59.9	24	82.8	4.27	(1.49 - 12.24)
Employed	26	30.6	5	17.2	0.64	(0.24 - 1.72)
Family characteristics						
Raised by both parents	54	63.5	15	51.7	0.62	(0.26 - 1.44)
Parent/s used substances	26	30.6	11	37.9	1.39	(0.58 - 3.34)
Parent/s with mental illness	10	11.8	3	10.3	0.86	(0.22 - 3.39)
Family violence	30	35.3	11	38.0	1.12	(0.47 - 2.68)
Parent/s employed	63	74.1	17	58.6	0.50	(0.20 - 1.20)
Parent/s > 5 years schooling	37	43.5	12	41.4	0.92	(0.39 - 2.15)
Living with parents	54	63.5	19	65.5	1.09	(0.45 - 2.64)
Psychiatric contact and mental state findings						
Previous psychiatric contact	41	48.2	18	62.1	1.76	(0.74 - 4.16)
Previous psychiatric hospitalisation	27	31.8	15	51.7	2.30	(0.97 - 5.44)
Previous treatment for alcohol/substance use	3	3.5	4	13.8	4.37	(0.92 - 20.86)
Hostile threats	8	9.4	6	20.7	2.51	(0.80 - 7.98)
Bizarre behaviour	24	28.2	16	55.2	3.13	(1.31 - 7.48)
Hallucinations/delusions	25	29.4	15	51.7	2.57	(1.08 - 6.11)
Paranoia	12	14.1	7	24.1	1.94	(0.68 - 5.52)
Disorganised/incoherent speech	10	11.8	9	31.0	3.38	(1.21 - 9.42)
Depressive symptoms	35	41.1	1	3.5	0.05	(0.01 - 0.39)
Suicidal behaviour/intent	44	51.8	4	13.8	0.15	(0.05 - 0.47)

CIs for regular use of cannabis and alcohol for selected psychosocial variables. Eleven patients were regular methaqualone (mandrax with cannabis) users and were found to be significantly associated with hostile threats on mental state examination (unadjusted odds ratio of 5.31 with a 95% CI of 1.32 - 21.36).

On admission, bizarre behaviour, auditory hallucinations/delusions and disorganised speech were significantly ($P < 0.05$) more likely to characterise regular

cannabis users than the rest of the sample. An ICD 9th diagnosis of toxic/cannabis psychosis was made as a primary or secondary diagnosis in 31 patients with these features. Of this number, 21 (67.7%) confirmed the regular use of cannabis, 7 (22.6%) denied the use of cannabis and 3 (9.7%) indicated that they used cannabis infrequently. Of the 11 methaqualone smokers (who use it together with cannabis), 8 received the diagnosis of toxic/cannabis psychosis.



Table III. Psychosocial correlates of regular alcohol use — descriptive data and unadjusted odds ratios (with 95% CIs) (N = 114)

	No regular alcohol use (N = 84)		Regular alcohol use (N = 30)		Unadjusted OR (95% CI)
	N	%	N	%	
Demographics					
Gender					
Male	38	45.2	23	76.7	4.0 (1.67 - 100.0)
Marital status					
Single	72	85.7	26	86.7	1.08 (0.32 - 3.66)
Ethnicity					
Coloured	45	53.6	11	36.7	
White	15	17.9	6	20.0	1.64 (0.52 - 5.18)
Black	24	28.6	13	43.3	2.22 (0.86 - 5.69)
Age					
20 - 25	52	61.9	23	76.7	2.02 (0.78 - 5.25)
Standard at school and employment					
Standard 5 or less	28	33.3	9	30.0	
Standard 6 - 9	39	46.4	15	50.0	1.20 (0.46 - 3.12)
Standard 10 or more	17	20.2	6	20.0	1.10 (0.33 - 3.63)
Dropped out/ expelled from school	46	54.8	23	76.7	2.71 (1.05 - 7.01)
Employed	24	28.6	7	23.3	0.58 (0.22 - 1.51)
Family characteristics					
Raised by both parents	53	63.1	16	53.3	0.67 (0.29 - 1.56)
Parent/s used substances	27	32.1	10	33.3	1.06 (0.44 - 2.56)
Parent/s with mental illness	8	9.5	5	16.7	1.90 (0.57 - 6.34)
Family violence	29	34.5	12	40.0	1.26 (0.54 - 2.98)
Parent/s employed	62	73.8	18	60.0	0.53 (0.22 - 1.28)
Parent/s > 5 years schooling	44	52.4	5	16.7	5.56 (1.92 - 16.67)
Living with parents	54	64.3	19	63.3	0.96 (0.40 - 2.28)
Psychiatric contact and mental state findings					
Previous psychiatric contact	38	45.2	21	70.0	2.85 (1.18 - 6.80)
Previous psychiatric hospitalisation	28	33.3	14	46.7	1.75 (0.79 - 4.09)
Previous treatment for alcohol/substance use	2	2.4	5	16.7	8.20 (1.50 - 44.90)
Hostile threats	8	9.5	6	20.0	2.38 (0.75 - 7.53)
Bizarre behaviour	27	32.1	13	43.3	1.61 (0.69 - 3.80)
Hallucinations/delusions	26	31.0	14	46.7	1.95 (0.83 - 4.59)
Paranoia	14	16.7	5	16.7	1.00 (0.33 - 3.06)
Disorganised/incoherent speech	14	16.7	5	16.7	1.00 (0.33 - 3.06)
Depressive symptoms	31	36.9	5	16.7	0.34 (0.12 - 0.99)
Suicidal behaviour/intent	41	48.8	7	23.3	0.32 (0.12 - 0.82)

DISCUSSION

Alcohol, cannabis and methaqualone were the products most used by the youth in this sample, with males the predominant regular users of these substances. However, except for limited schooling on the part of parents of alcohol users, there were no other family factors associated with regular substance use. Dropping out or being expelled from school was associated with regular cannabis and alcohol use. Patients who used alcohol and cannabis regularly made considerable use of

psychiatric services, and acknowledged that substance use contributed to their use of this service. There was an association between bizarre behaviour, auditory hallucinations and/or delusions and disorganised speech, and regular cannabis use.

Alcohol, cannabis and methaqualone were the products most used by the youth in this sample; use of cocaine, opiates, minor tranquillizers and amphetamine/amphetamine-like substances, were not found among these PEU admissions. This is



consistent with the findings of a study conducted among South African adults⁹ (and Wilson DAB, Welman M, Flisher AJ — unpublished data, 1997), and (with the exclusion of methaqualone) among North American adolescents.¹⁰ The low prevalence of methaqualone use (9.6%) was of interest in the light of its perceived use in the South African community³ and its apparent adverse influence on behaviour. The fact that 40.3% of the sample were using one or more of these substances and that they may have contributed to their admission to the PEU is a public health concern.

The majority of the regular substance users were male, with 60.7% of all male patients using substances regularly. This male preponderance is consistent with the findings of previous studies.^{4,9,10} However, the relatively small proportion of cannabis users among coloured patients in this study contradicts previous findings.^{3,7}

It is generally accepted that drug-related behaviour is the consequence of the interaction between the drug, the individual and society. We investigated whether selected individual and social features were associated with regular substance use. Vaillant and others¹⁵ have already debunked the earlier belief that there is a general dependence-prone personality type that derives from poor personal and family circumstances, while accepting that adolescents raised in a substance-using family are more likely to abuse substances.¹¹⁻¹³ This association with parental substance use was not observed in the present study. Furthermore, European and North American studies have found that factors such as poverty, unemployment, break up of local communities, peer pressure and breakdown of parental authority may predispose to substance use.¹²⁻¹⁵

However, in this sample parental unemployment, personal unemployment, unstable home backgrounds (single-parent families, family violence and fostering of the child), and parental mental illness were not associated with regular substance use. Several possible explanations are forthcoming. Firstly, the community using the hospital usually consists of patients who are indigent or who have no medical insurance. This group would be less likely to be employed, would tend to have lower education levels, and would be more likely to have other characteristics associated with poverty, such as higher levels of mental illness and single-parent households. This homogeneity would make it more difficult to detect any effects that are independently associated with substance use. Secondly, our sample consisted of patients admitted to the PEU. Among the indications for admission there may have been concern about the suitability of the patient's home circumstances with regard to managing a distressed patient (i.e. single parent, violence or parental substance use). Again, this would make it more difficult to detect any independent associations with substance use. Thirdly, the sample we were examining was hospital-based, whereas some of the evidence for the

association of substance use with poverty, unemployment and breakdown of families was produced by community-based studies.¹¹⁻¹³ Finally, the relatively small sample size reduced statistical power to detect differences that exist in the population.

We found that dropping out or being expelled from school was associated with regular cannabis and alcohol use, which could have precipitated premature withdrawal from school. Alternatively, it could have placed these individuals in social circumstances where the use of substances is the norm. This association between substance use and school dropout was also observed in a community-based study.²⁰ The consequences of not completing school have been summarised by Flisher and Chalton²⁰ to include the following: lowered academic skills; reduced probability of secure employment and income; poorer mental and physical health; increased use of services due to drug-related problems because of risk-taking behaviour, which is evident in this sample.

There is a high chance that young patients who use substances will come into contact with psychiatric services, and any repeated user of the PEU should be questioned thoroughly about substance use. A majority (51.8%) of patients admitted to the PEU had had previous psychiatric treatment and 36.9% had had previous psychiatric hospitalisation. In both the group who had previous psychiatric treatment and those who had previous psychiatric admissions, one-third of patients acknowledged regular substance use. Those who had previously received treatment for substance use were more likely to admit to using alcohol or cannabis regularly. These positive answers may be because of the comprehensive nature of the questions asked and the non-judgmental nature of the interviewers, as well as a general awareness in the community that substances can cause problems. If asked appropriate questions, therefore, a confirmatory history of substance use was obtained from the majority of substance abusers.

These figures suggest that young substance users frequently seek psychiatric treatment and to date are not being effectively managed in the long term. There is increasing literature on the phenomenon of hazardous alcohol use (which can be extended to illicit substances as well) in youth and the necessity of intervening effectively and comprehensively at an early stage of the disorder.²¹

We found that regular cannabis use was associated with bizarre behaviour (overactive, eccentric), auditory hallucinations and/or delusions, and disorganised speech. The presence of these features should indicate the necessity for a comprehensive drug history. When this mental state and behaviour pattern is seen by the attending doctor in the South African clinical setting, the most frequent diagnosis made is that of toxic psychosis. In this study, when the diagnosis of toxic psychosis was made, the majority of patients gave a history of cannabis use, with or without the use of



methaqualone and alcohol. The anomaly of using an ICD 9 diagnosis occurred because *DSM-III-R* did not have a category of intoxication delirium or a cannabis-induced psychotic disorder, both of which are now available in *DSM IV*,²² and either of which could have been used to diagnose these patients. Toxic/cannabis psychosis had been described in Western countries, Africa and Asia,²³⁻²⁵ the main features being paranoia and depersonalisation (both not observed in our sample), delusions, and excitement (equivalent to our bizarre behaviour) — we had one additional feature, namely disorganised speech. This disorder is usually reversible on withdrawal of the drug.

It is interesting to note that in this study a strong correlation was found between regular alcohol (and cannabis) use and the absence of the features of depression and suicidal ideation, which is dissimilar to studies reported elsewhere.¹⁰ It is possible that the non-drug users may have been admitted because of depression and/or suicidal intent, which would possibly account for this finding.

The significant odds ratio of methaqualone (with cannabis) use and hostile threats on mental state examination is also important. No association was found with cannabis alone. It may be that methaqualone in combination with cannabis renders these individuals more aggressive than those taking only cannabis. From our own hospital observations, as well as reports from drug users and newspapers, it would appear that this observation may be valid. What makes these individuals more aggressive? Are they only more aggressive when intoxicated; are levels of verbal and physical aggression higher than in those who only use cannabis; is increased impulsivity a factor? These areas deserve further study.

Further limitations of this study deserve mention. The cross-sectional design should result in the cautious interpretation of causal inferences. The study involves a hospital-based sample and there is therefore a bias in the patients who arrive at the emergency setting, possibly excluding segments of the population who wouldn't use these services, who don't know about them, or who can't get to them. The results were drawn from a questionnaire and hospital notes were filled in by a variety of doctors. Although due care was taken in checking the data, inaccurate or incomplete data is a possibility.

This study concluded that in a PEU one should have a high index of suspicion of cannabis- and/or alcohol-related disorders in young males who have dropped out from school and who have previously been treated for substance use. If, in addition, the clinical features include bizarre behaviour, hallucinations and/or delusions and disorganised speech, a cannabis delirium or psychosis should be considered.

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