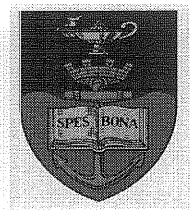
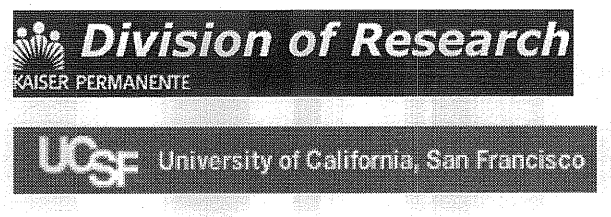
SUBSTANCE ABUSE AND HIV RISK BEHAVIOURS IN COMMUNITY HEALTH CENTRES IN CAPE TOWN





REPORT TO: District and Metro Health Services and Local Authority Health services

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7 March 2006

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Introduction

Why study substance use and HIV risk behaviours among patients attending Community Health Centres?

First, tobacco, alcohol and other drugs contribute to disease and injury, and this is particularly true of tobacco and alcohol in African countries.[1] In South Africa, tobacco is estimated to cause approximately 8% of all adult deaths.[2] Alcohol has been implicated in just under half of all non-natural deaths, and in up to two-thirds of cases at trauma units in three major South African cities.[3]; some South African communities report the world's highest recorded prevalence of fetal alcohol syndrome.[4] Cannabis (dagga) and methaqualone (mandrax) are the most frequently identified illicit drugs in drug-related arrests, psychiatric diagnoses and trauma patients, [5] but treatment demand for cocaine, heroin, and methamphetamine (tik) use is increasing.[5-7]

Secondly, primary health care services provide an advantageous location for intervening in substance use.[8,9] In South Africa, the public health sector is the main provider of primary care,[10] and serves the 80% of the population who cannot afford private care.[11]

Third, we don't really have a clear idea of the risk and protective factors influencing substance use in a general adult South African population. This is because most substance use studies have focused on specific populations or risk factors, such as HIV risk,[12] adolescents,[13-15] trauma,[16] treatment-seeking populations,[5] and fetal alcohol syndrome.[4,17] Knowing about risk and protective factors helps us figure out how to intervene.

Fourthly, South Africa has one of the world's highest rates of HIV infection, with a considerable proportion of its infected population receiving its healthcare through the public health system.[18] However, the prevalence of substance use and of HIV risk behaviours in the primary care population in Cape Town is largely unknown.

Finally, we don't know, in an adult South African population, what the association is between substance use and HIV risk behaviours. Although an association between substance use and HIV risk has been well documented in developed countries,[19-21] there may be differences between developed and developing world contexts.[22] For instance, there is a large body of literature from the developed world that addresses the risks of needle-sharing among injection drug users.[19] South Africa, however, has a relatively low prevalence of injection drug use[23] and heterosexual contact is the primary mode of transmission of HIV.[24] If the association between HIV infection and substance use in the developed world is mediated by injection drug use, the associations between substance use and HIV infection in the developing world would be attenuated. In South Africa, an association between sexual risk behaviours and substance use has been found in some

studies of adolescents and not in others,[25,26] while data regarding the adult population are not available.

What do we know, from studies around the world, about factors that might influence substance use ?

Personal characteristics identified as risk factors include age, race and gender. In South Africa, the racial categories defined under apartheid – Black, Coloured, Indian and White - remain associated with health outcomes[27] and have a long association in South Africa with access both to alcohol and to treatment,[28] particularly in the Western Cape Province.[17] Men and women of different races may use substances less (or more) than other groups, or may be affected differently by different risk factors.[15,29] Young adults who use substances tend to be more at risk for other health risks such as sexual risk behaviors (and hence HIV), violence and suicide. [25,30]

Protective factors include being married,[31,32] having children and being involved in a religious faith,[14,33-35] as well as being better educated,[31,32] being employed,[31,32] being of a higher socio-economic status,[15,31,36] having stressors that are manageable,[31,37] and not feeling depressed or anxious.[38] People who are very stressed, or who are depressed or anxious, also tend to use primary care services more often.[39,40]

So what does this study do?

In this study, we examined prevalence of hazardous use of alcohol, tobacco and other drugs, and of HIV risk behaviours, among demographic sub-groups, in a large, representative sample of patients using the primary care service of the public health system in Cape Town, South Africa.

Methods

Sample

The study employed a multi-stage clustered, stratified sampling design. We initially included all 49 primary care clinics (both Community Health Centres and Local Authority Clinics) providing primary care in Cape Town. Consistent with other South African research, we stratified them by race as defined under apartheid, because of the continuing association between race and health disparities [17,27,28] Information about race is not recorded at the clinics; we relied on nursing and reception staff to estimate proportions of race groups served. Very few Indians live in the Western Cape, and the population served by the public health sector is chiefly Black and Coloured. We stratified clinics into: those serving populations 80% or more Coloured; 80% or more Black; and more diverse. We randomly selected 14 clinics (proportional to the annual number of visits): six from the larger Coloured stratum, and four from each of the proportionately smaller others. This

procedure allowed us to use statistical methods to estimate our findings as if we had surveyed *all* patients coming to *all* CHCs in Cape Town.

We spent a week at a time at each clinic, spending at least four weeks at each clinic at different times of the month, in effect randomly sampling an equivalent month. We chose to do this based on reports from clinic staff that substance users attended clinics more frequently around weekends and paydays.

On data collection days, we constructed a log of all patients who registered. We recorded age and gender from the patient folder, and race as estimated by the research assistant. From the log, we randomly selected patients, using a sampling fraction that identified ten per day. We sampled every patient aged 18-24 since they come to the clinic less frequently and are also particularly at risk for substance use and HIV risk.[30] The patient log data was later used to construct weights to estimate population-level statistics.

Measures

We developed the questionnaire in English, then translated it into Afrikaans and Xhosa. and checked this by back-translation. The questionnaire was developed during a pilot study[30] in which items were modified for cultural relevance (see below).

Risk and protective factors

Demographic data collected included age, race, gender, marital status, education, employment, and number of children. For socioeconomic status, we used items from the South African census measuring relative deprivation in urban areas:[27] access to piped water; access to electricity at home; living in formal housing rather than a shack or traditional dwelling; and employment status of the head of household.

Patients were asked which religion they affiliated with (Christian, Muslim, Other or None), and how often they took part in a religious activity; answers of "once or twice a month" or "weekly" were used to indicate involvement, while answers of "never" or "seldom" to indicate non-involvement. We asked the two screening questions for anxiety and for depression from the Patient Health Questionnaire[41]. To assess stress, we asked which stressors they had experienced in the last year, from the International Classification of Primary Care, Second Edition[42](ICPC-2). The ICPC-2 lists 23 categories of stressors that may be reasons for encounters, to which we added a twenty-fourth: "Have you or anyone else in your household had an unplanned pregnancy?" Rates of births to teenagers are very high in South Africa,[43-45] but this is not addressed in the ICPC-2. In addition to the questions from the ICPC-2, we asked screening questions about traumatic life events: "In the last year, have you experienced any event/s in which your life was threatened or in serious danger, or where you felt you were in serious danger?"; and "In the last twelve months, have you been in any other situation in which you were seriously injured?"

Substance use

We used the ASSIST (Alcohol, Smoking and Substance Involvement Screening Test)[46] to assess prevalence of problematic alcohol and drug use. It was adapted for local conditions in two ways.[30] First, methaqualone was added to the list of drugs, as it is one of the most frequently used drugs in South Africa. Second, local drug names were used (such as "dagga" for cannabis, and "Mandrax" for methaqualone). For tobacco, we included use of a pipe and snuff, both of which are used in South Africa.

Specific scores for each substance reported in the prior three months were calculated (for tobacco, between 0-16, and between 0-20 for other drugs).[47] Each score can be further categorized as low-(including zero), medium- and high-risk use, except tobacco (which is only high or low risk). No- and low-risk scores are 0-3 for tobacco, 0-5 for alcohol, and 0 or 1 for other drugs. Medium risk, which indicates problematic use, is scored 6-15 for alcohol and 2-15 for other drugs. High risk indicates high probability of dependence, and reflects scores of 4 or more for tobacco, and 16 or more for alcohol and other drugs.[47] We dichotomized the risk category at the threshold of hazardous risk so that medium and high risk were coded as "1" and low/no risk was coded as "0" to report prevalence of patients who may benefit from an intervention.

HIV risk behaviours

HIV risk was assessed using questions from a range of instruments. Amongst these are those that have previously been used to investigate sexual risk behaviour in Cape Town health centres,[48] two developed with substance-abusing populations,[49,50] and one developed for primary care settings.[50]

Procedures

Interviewers recruited patients as they waited for their medical visit. Patients were interviewed in private rooms by a trained research assistant, who was the same gender and spoke the same language as the patient. Data were entered by the research assistants on handheld computers. After the interview, respondents were given a list of referral resources to use if they wished to seek help for anything addressed by the interview, and those who had reported risky behaviour were encouraged to do so by the fieldworker.

Analysis

The interview data were weighted to account for clustering, the over-quota of 18-24 year olds, non-response differences (by gender, age, and race) within clinics, and the size of clinics proportional to the full population served by Cape Town's Community Health Centres and Local Authority Clinics.

A total of 6,135 patients were selected for the sample, and 2,618 were interviewed. There were several reasons why selected patients were not interviewed. First, 293 patients were

missed because the interviewer with the necessary gender or language match was absent on that day (136 patients did not speak any of the three languages included in the study). Fifty-eight patients were too ill to be interviewed, and 30 were judged by the interviewer to be too cognitively impaired to consent. Eight patients were accompanied by a child and were not comfortable to be interviewed in the child's presence. Of the remaining sample, 142 refused, and by far the largest group (n=2,866) was those patients who, when sought by the interviewers, were not available.

The highest interview rate (68%) was obtained among Coloured women, followed by Coloured men (48%), Black women (41%), and Black men (37%). Fifty-six percent of people over the age of 25 and 50% of those in the 18-24 age group were missed. Three clinics in particular, each serving a majority Black population, had high non-response rates, which helps to explain why our non-response rates are generally higher among Black patients. We planned the sampling fraction based on the space for interviews and the predicted waiting time as estimated by each facility's clinicians, but this was not consistent. Depending on physician staffing patterns, some clinics had shorter waiting periods; some also had fewer interview rooms, so that selected patients would already have seen a practitioner and left the clinic. In the clinics, patients are seen on a first-come, first-served basis. Given that the non-response rates appear to be primarily related to practical arrangements within the clinics, it is unlikely that there is systematic bias in terms of the variables of interest (or of sample characteristics such as race or gender). The weighting adjusts for non-response differences by age, gender, and race.

Ten patients (eight Black women and two Black men) had missing data for substance use questions and were excluded from analysis. Listwise deletion was used to manage other missing variables. We developed separate logistic regression models for hazardous use of tobacco, alcohol and other drugs. Because of the low numbers of White and Indian respondents, only data from Black and Coloured respondents were included in the substance use analyses. In each case age group, gender and socially defined race group were included first, and as the main variables of interest, were retained in each model. Each model started with a one-variable model, then a two-variable model, and so on. Variables found to be significant were also tested for interactions with other significant variables. Significant variables and interaction terms were included sequentially until a final "best" model for substance use was derived.

All patients were included in the HIV risk behaviour analyses. Bivariate analyses were used initially to explore associations between hazardous substance use and sexual risk behaviour.

Results

Sample

The weighted sample was majority female (64%) and aged 25 and older (91.3%). There were few Indian (0.1%) and White (1.3%) patients; the majority were Black (59.5%) or Coloured (39.1%); 44.5% were married, 83% had children, and only 3.7% described themselves as having no religion. Most were interviewed in isiXhosa (58%); 38% were interviewed in Afrikaans and 24% in English. A minority (6.2%) had no education, while 31.1% had Grade 6 or less. The majority (53%) had some high school education but without graduating. Only 29.5% were employed and for 44.0%, the head of household was unemployed. Twenty-two percent lived in informal housing, 9% had no electricity, and 6% had no access to piped water. Respondents reported a mean of 4.9 stressors in the last year (range: 1-24), and 60.3% reported experiencing between one and five. Most frequently mentioned were problems with: money (53.5%), having sufficient food (29.9%), employment (42.6%) and health (31.5%). The majority (66.2%) reported anxiety or depression in the past month.

Substance use

In all subgroups, hazardous use of tobacco was most common, followed by alcohol and then other drugs (Table 1). Among the other drugs, cannabis (dagga) had highest prevalence: 2.04% (95% CI=1.12%, 3.66%). For alcohol and other drugs (excluding tobacco) together, prevalence among those aged 18-24 was 22.1% (95% CI=17.6%,26.5%), while prevalence among those aged 25 and more was 13.6% (95% CI=10.0,16.4%).

Table 1 Weighted prevalence of hazardous substance use in the last three months by sub-group (N=2,608)

Subgroups	Tobacco		Alcohol		Other drugs	
	Prevalence	95% CI	Prevalence	95% CI	Prevalence	95% CI
Age-group						
18-24	32.1	[24.0,41.4]	16.7	[13.9,19.9]	8.4	[6.1,11.4]
Over 24	27.7	[20.5,36.3]	12.2	[10.5,14.2]	2.9	[2.1,4.1]
Gender						
Male	43.1	[37.9,48.3]	26.5	[23.4,29.9]	7.4	[5.3,10.2]
Female	19.5	[10.7,32.9]	4.6	[3.20,6.5]	1.1	[0.5,2.4]
Race[1]						
Black	19.7	[15.8,24.4]	12.3	[10.6,14.2]	2.48	[2.0,3.1]
Coloured	40.6	[36.5,44.8]	12.9	[9.6,17.1]	4.9	[2.8,8.4]
Marital status						
Unmarried	27.2	[19.6,36.3]	13.4	[10.9,16.3]	4.3	[3.0,6.1]
Married	29.3	[22.6,37.0]	11.6	[10.3,13.2]	2.3	[1.5,3.5]
Has children						
No	28.8	[22.6,36.0]	24.5	[16.3,35.1]	8.1	[5.2,12.4]
Yes	28.0	[20.5,36.9]	10.1	[7.1,14.2]	2.4	[1.3, 4.4]
Employment status						
Unemployed	25.7	[16.7,37.3]	9.8	[8.0,12.0]	2.6	[1.8,3.6]
Employed	33.9	[28.0,40.4]	19.2	[14.5,25.0]	5.4	[4.0,7.3]
Education status						
None/elementary only	26.7	[18.3,37.3]	9.13	[6.4,12.9]	2.3	[0.8,6.8]
Some high school	31.3	[25.1,38.4]	15.3	[13.1,17.9]	4.4	[3.0,6.3]
Graduated high school or more	16.0	[9.6,25.4]	11.2	[7.2,17.0]	2.4	[1.4,4.1]
Socio-economic Status						
0	40.0	[9.8,80.4]	38.1	[17.3,64.4]	7.7	[1.7,29.0]
1	14.8	[8.3,25.2]	5.4	[2.5,11.3]	0.8	[0.2, 2.3]
2	25.8	[17.5,36.1]	20.8	[10.2,37.8]	6.3	[3.1,12.6]
3	29.5	[22.7,37.4]	11.3	[8.8,14.4]	3.1	[2.2,4.5]
Head of household employed						
No	25.0	[14.4,39.7]	8.7	[5.8,12.9]	1.7	[0.6, 5.0]
Yes	31.6	[27.0,36.6]	17.6	[13.2,23.1]	5.5	[3.6,8.4]
Religious involvement						
No	30.3	[21.4,41.1]	17.9	[14.6,21.7]	4.8	[3.5,6.4]
Yes	25.8	[20.0,32.5]	7.1	[5.3,9.5]	2.0	[1.1,3.5]
Stressors						
0-5	26.1	[20.5,32.6]	11.2	[9.6,13.1]	2.7	[1.9,4.0]
6-10	32.5	[22.1,45.0]	13.6	[9.8,18.6]	4.4	[3.0,6.4]
>10	28.9	[20.2,39.4]	17.7	[8.8,32.3]	5.0	[2.2,11.0]
Depression or Anxiety						
No	24.4	[21.6,27.5]	11.2	[7.6,16.1]	1.4	[0.5,3.9]
Yes	30.9	[21.5,42.1]	13.7	[10.8,17.3]	4.6	[3.5,6.0]

[1] Results for White and Indian participants were omitted from the race analysis, because the numbers of participants were too small to estimate prevalence accurately. All participants are included in the gender and age analyses.

An initial model for tobacco use revealed that an apparent race effect among women was due to very low prevalence among Black women: for Black women compared with other groups, the odds ratio is 0.04 (95%CI=0.01,0.22). In other words, Black women are 96% *less* likely to use tobacco than other groups (Black men, and Coloured men and women). Because of this difference between Black women and other groups (who were similar to each other), we analysed the data separately. Table 2 shows the odds ratio for tobacco use for the two groups. Among 18-24 year-olds, Coloured people and Black men were likely to use tobacco at hazardous levels. In both groups, hazardous use was associated with higher stress, and respondents who reported religious involvement and those with some high school education were less likely to meet criteria for hazardous use of tobacco.

Table 2 Odds ratios and 95% confidence intervals for factors associated with hazardous tobacco use

	Black men and Coloured men and women (n=1,742)[2]	Black women (n=559)
Age group		
25+	1.00	1.00
18-24	1.57* (1.11,2.23)	2.21 (0.37,13.12)
Religious involvement		
No	1.00	1.00
Yes	0.59* (0.37,0.94)	0.12+ (0.06,0.24)
Education		
Graduated high school or higher	1.00	
Some high school	0.55+ (0.38,0.81)	0.05* (0.00,0.58)
Stressors[3]	1.03* (1.00,1.05)	1.43+ (1.21,1.69)
Mental health		
No depression or anxiety	1.00	
Depression or anxiety	1.50 (0.96,2.34)	0.23 (0.02,2.81)

Table 3 shows the results of the model examining hazardous alcohol use. As with tobacco, men were more likely to have hazardous alcohol use relative to women, and younger men reported lower rates relative to men aged 25 and older. Hazardous alcohol use was also associated with the respondents' employment, with the respondent having some high school education (compared with less or more education), and with higher levels of stress. Religious involvement appeared to be a protective factor, and having children approached significance as protective. Aside from the interaction between race and gender, no other interactions terms were significant.

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[2] Because of the very low prevalence of tobacco use among Black women, data was analysed separately for Black women and for the other groups.

* $p<0.05$

+ $p<0.01$

[3] Treated as a continuous variable.

Table 3 Odds ratios and 95% confidence intervals for factors associated with hazardous alcohol use (N=2,311)

Risk/protective factor	Odds ratio (95% confidence interval)
Gender	
Female	1.00
Male	7.85[+] (4.58,13.47)
Age-group	
25+, female	1.00
18-24, female	1.52 (0.67,3.44)
25+, male	1.00
18-24, male	0.23[+] (0.16,0.81)
Religious involvement	
No	1.00
Yes	0.43[+] (0.29,0.62)
Has children	
No	1.00
Yes	0.27 (0.07,1.01)
Head of household employed	
No	1.00
Yes	1.84 (0.92,3.66)
Respondent employed	
No	1.00
Yes	1.46[*] (1.06,2.00)
Education	
Elementary school or less	1.00
Some high school	2.09[+] (1.46,2.99)
Graduated high school or more	0.89 (0.57,1.40)
Stressors[4]	1.13[+] (1.08,1.19)

Hazardous use of other drugs (Table 4) had very low prevalence among Black women--only 3 Black women reported any use of other drugs. Interaction terms were tested but were not significant--thus the effects of the risk factors were similar across gender and race, even though drug use prevalence differed. Both Coloured men and women were significantly more likely to use other drugs at hazardous levels compared with Black men, and Coloured men were most at risk. There was no age effect. Both employment and higher stress were significantly associated with increased use of other drugs. Religious involvement was identified as a protective factor.

[+] $p<0.01$
[*] $p<0.05$
[4] Treated as a continuous variable.

Table 4 Odds ratios and 95% confidence intervals for factors associated with hazardous use of other drugs (N=2,312)

Risk/protective factor	Odds ratio (95% confidence interval)
Race and gender	
Black men	1.00
Coloured men	5.04[+] (2.40,10.61)
Coloured women	1.96[*] (1.08,3.56)
Age group	
25+	1.00
18-24	1.88 (0.69,5.14)
Religious involvement	
No	1.00
Yes	0.33[+] (0.24,0.46)
Has children	
No	1.00
Yes	0.25 (0.06,1.01)
Respondent employed	
No	1.00
Yes	2.03[+] (1.31,3.14)
Education	
Elementary school or less	1.00
Some high school	1.68 (0.39,7.18)
Graduated high school or more	0.43 (0.16,1.19)
Stressors[5]	1.17[*] (1.04,1.31)

To examine whether specific religions were more associated with hazardous alcohol, tobacco, or other drug use, we examined associations between hazardous use and religion. We found that Muslims had the lowest prevalence of hazardous alcohol use (4%, 95%CI=1.4,6.7) and those with no religion highest prevalence (33%, 95%CI=27.3,38.9). For tobacco risk, those with no religion had a higher prevalence (50%, 95%CI=43.0,57.8) than Christians (26%, 95%CI=17.4,35.0%), but not Muslims (40%, 95%CI=33.1,47.8). For prevalence of other hazardous drug use, there were no significant differences by religion.

[+] $p<0.01$
[*] $p<0.05$
[5] Treated as a continuous variable.

HIV Risk Behaviours

HIV risk behaviours were examined from two perspectives: their prevalence, and their association with substance use.

Table 5 Weighted prevalence of HIV risk behaviours in the last twelve months

	Total N	N	Prevalence (%)
In the last year did you have a...			
partner who ever traded sex for drugs or money[α]	2469	88	2%
partner who was a man who has ever had sex with men[α]	2491	45	<1%
partner who used injection drugs[α]	2456	55	<1%
partner who had an STI[α]	2390	216	5%
had multiple sex partners (2+)[α]	2597	576	15%
Have you ever....			
had an STI[α]	2576	464	18%
had anal sex[α]	2600	64	1%
unsafe sex*[α]	2592	260	6%
Risky Sex Scale			
Mean # of risky sex acts (Mean, SE)			0.5 (0.04)
Mean number of risky sex acts (>/=1)			1.6 (0.07)
Risky Sex Indicator Scale Scores	N		
0	1648		71
1	502		17
2	255		8
3	104		3
4	43		1
5	29		1
6	13		<1
7	7		<1

*defined as (being married and having more than 1 partner or not being married having at least 1 partner) and not using a condom

[α] Items that make up Risky Sex Scale

Almost a third (29%) of the participants reported at least one sexual risk behaviour. It is clear from Table 5 that the biggest risk categories are those who have had an STI, those who have had multiple sexual partners, who have had unsafe sex, and whose partners have had STIs.

In bivariate analyses, hazardous substance use (n=557) was related to each sexual risk behaviour (see Table 6 for details). Those using substances at hazardous levels were more likely to have reported sexual risk behaviours, than those with low-risk or no substance use (mean 1.1 vs. 0.37, $p<0.01$). Men were more likely to drink alcohol just before sex, last time they had sex, compared to women (14% vs. 2%, $p<0.0001$). In addition, compared to those with low substance use, hazardous substance users were more likely to drink alcohol just before sex (34% vs. 1%, $p<0.001$). Hazardous substance users were more likely to know their own HIV status compared to those with low to moderate substance risk (42% vs. 28%, $p<0.01$), but

had similar knowledge of their last partner's HIV status (50% vs. 47% respectively did not know the HIV status of their last partner). Men were more likely to know their own HIV status compared to women (46% vs. 22%, $p<0.001$). Regarding knowledge of their last partner's HIV status, there were no significant differences between men and women.

Table 6 Comparison of HIV risk behaviours between hazardous substance abusers and low to no substance users

	Hazardous substance use	Low risk or no substance use	
Sexual risk indicators	**Prevalence (%)**	**Prevalence (%)**	**p-value**
In the last year did you have a....			
Partner who ever traded sex for drugs or money[α]	10	1	<0.001
partner who was a man who has ever had sex with men[α]	3	<1	<0.01
partner who used injection drugs[α]	3	1	<0.01
partner who had an STI[α]	14	3	<0.001
had multiple sex partners (2+)[α]	36	11	<0.001
Have you ever..			
had an STI[α]	31	16	<0.001
had anal sex[α]	5	1	<0.01
unsafe sex*[α]	11	5	<0.01
Knowledge of HIV status			
Self	42	28	<0.01
Last partner (did not know status)	50	47	ns
Risky Sex Scale			
7 items[α] (Mean, 95% CI)	1.1 (0.76, 1.4)	0.37 (0.32, .43)	<0.01
7 items[α] (if involved with >/=1, [Mean, 95% CI])	2.0 (1.7, 2.3)	1.5 (1.4, 1.6)	

*defined as (being married and having more than 1 partner or not being married having at least 1 partner) and not using a condom, [α] Items that make up Risky Sex Scale

Discussion

Which drugs were least used? Which groups had the lowest levels of hazardous substance use?

Tobacco was most likely to be used at hazardous levels, followed by alcohol and then other drugs. We found that age, gender and race groups differed in their rates of use of different substances. Young age was associated with hazardous tobacco use, but only among men was it associated with hazardous alcohol use, and it was not significantly associated with use of other drugs. Women, and particularly Black women, had the lowest rates of use of all substances, and Coloured men and women had higher rates than Black men for use of drugs other than tobacco and alcohol. We found that religious involvement was associated with lower prevalence of all substances use, and higher stress with higher rates.

An important finding is the very low prevalence of hazardous use of substances among black women. This may be because women in Southern Africa face strong cultural

proscriptions against substance use.[51] They may also have less disposable income, be less likely to report their substance use, and be slow to accept new trends (such as drug use).[52] We have other proposals under review that will try to identify protective factors that might keep rates low in this group and be integrated into interventions for other groups.

Although we found that men were more at risk for use of all substances, we also found that Black men were at much lower risk for use of drugs other than alcohol and tobacco than Coloured men and women. One possible factor influencing this finding may be urbanization. The Black population of the Western Cape tends to be less urbanized than other groups, and urbanization may increase risk for substance misuse.[31,53,54] It is also possible that there was a bias against reporting substance use in this group (as suggested, perhaps, by the fact that all the patients with missing substance use data were Black and most were women). Further study should seek to identify whether urbanization and other factors might influence either substance use or its reporting.

Consistent with the cross-national literature,[33,34,55] religious involvement was associated with lower prevalence of hazardous use of all substances. Religion may operate as a protective factor by discouraging drinking, and improving coping and social support.[56]

Which groups had the highest levels of substance use?

Consistent with international literature, we found that men and young people are most at risk for substance use.[1] In the developing world, young people in particular are being targeted by tobacco and alcohol marketing;[1] both treatment and preventive interventions appropriate to this age group should be identified.

Our finding that not finishing high school is associated with hazardous alcohol use strengthens the urgency for intervening with youth. This group comprised those who had achieved some post-primary education but had not graduated from high school. South Africa has a very high dropout rate: approximately 60% of those who begin high school do not graduate,[57] and other studies suggest an association between substance use and high school dropout.[58,59] The high school dropout group may thus be at high risk. By contrast, those who had graduated from high school were at higher risk for reporting tobacco use. Since tobacco use is typically initiated during adolescence,[60] however, intervening at high school may also be important here.

Besides education, the only socioeconomic indicator that played a role in substance use was employment: being employed increased risk for hazardous use of alcohol and other drugs. This finding is at odds with the literature suggesting that unemployment is a risk factor for substance misuse.[31,32] But in this relatively impoverished population, it may well be that having some income makes it possible to buy alcohol or drugs that otherwise simply could not be accessed. Unemployed people in this population may be using their resources for sheer survival, whereas in other populations the unemployed may have more resources to purchase alcohol and drugs. This result, however, both identifies another

high-risk group, and suggests that intervention may be strategically delivered via the workplace.

Our other consistent finding was that higher stress was associated with increased risk for substance abuse: if religious involvement does in fact improve coping, this implies a possibly important protective factor for this population. Religion aside, however, it is clear that interventions to reduce stressors and to improve coping, are particularly important. Since in this population, the most frequently mentioned stressors were economic, interventions to improve employment and the social safety net should be investigated for protective effects against substance use – with, of course, the caveat that employment itself seems to be a risk factor.

What about HIV risk behaviours?

The higher rates of sexual risk behaviours among those who use substances at hazardous levels indicate that substance abuse interventions may be crucial in addressing the HIV epidemic. Also, clinicians identifying HIV risk behaviours in patients should also screen for substance abuse, since presence of the one may indicate presence of the other.

Clinical implications

Integrating screening and intervention into routine primary care visits may be a powerful tool to combat substance abuse. Substance abuse – particularly alcohol and tobacco – is prevalent among adult patients accessing primary care through Community Health Centres, making primary care a convenient point at which to screen and intervene.

If substance misuse is detected in a patient, he or she should also be screened for HIV risk behaviours: patients who misuse substances are also likely to put themselves at risk for HIV infection. Health professionals in primary care settings can play significant roles in altering both substance use and HIV risk behaviours.

How was this study limited?

Our study has several limitations. First, we relied on self-report data; thus the prevalence rates are subject to the same biases found in other studies, such as problems recalling drug use and social desirability of responses.[61] However, the ASSIST has been found to be reliable and acceptable for screening use internationally,[62] and to have validity similar to other established self-report instruments.[63] Secondly, the timing of the study means that the recent epidemic in methamphetamine (tik) use is not reflected in our data, as this was only initiated towards the end of our data collection period.[7] In our next study, we will be able to include a focus on this among patients aged 18-24. We also missed a large number of patients. However, it is most likely that this was caused by factors related to the clinics' ability to process patients, and not to the variables under study. Thus this is unlikely to have introduced a systematic bias. Finally, this is a cross-sectional study and so does not address causal relationships.

Conclusions

Despite these limitations, it is clear that there is a high prevalence of tobacco and alcohol use, and lower rates of other drug use, among patients attending primary care clinics in the public health system in South Africa. The lowest risk group is Black women. Other factors that influence substance use are gender, age, employment and education status, religious involvement and stress. Interventions for high-risk groups are urgently needed, and we have a proposal (currently under review) that seeks to demonstrate the effect of an intervention that is suitable for integration into the busy primary care environment.

Acknowledgements

We thank Beulah Marks, Bonga Maku, Morris Manuel and Asanda Mabusela for their diligent work collecting data. We are also grateful to the Community Health Services Organization and to the Health Directorate of the City of Cape Town, for permission to conduct this research in their facilities. We thank Chris Seebregts, Clive Seebregts and Michael Ndlokovane of the Medical Research Council, who programmed the palm pilots and managed the data. Finally, we thank clinic staff for all their support, and the patients who gave their time to participate in the study. This study was funded by grant R37 DA10572 (Weisner, PI) from the National Institute of Drug Abuse, National Institutes of Health, USA, under NIDA's Southern African Initiative: Emphasizing Collaborative Research.

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Commissioned by District and Metro Health Services and Local Authority Health Services, Cape Town, South Africa

March, 2006

Ward, C. L., Mertens, J.R., Flisher, A. J., Bresick, G.F., Sterling, S.A., Little, F., Weisner, C.M. & Ammon, L.

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