Substance abuse and HIV risk behaviours amongst primary health care service users in Cape Town

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ABSTRACT

Objective: To document prevalence of, and association between, substance use and HIV risk behaviours among primary care patients. **Method:** Cross-sectional survey. Four primary care clinics in Cape Town. We selected clinics using stratified sampling, and systematically selected 131 patients from attendance logs. We assessed substance use with the Alcohol, Smoking and Substance Involvement Screening Test, and HIV risk with items addressing injection drug use, blood-sharing rituals, and sexual risk behaviours. **Results:** Substances most used at hazardous levels were tobacco (28.2%) and alcohol (14.8%). Among possible HIV risk factors, highest prevalence was participation in blood-sharing rituals (25%), and having had an STI (19.8%). An association between substance use and sexual risk behaviours was only found among those aged 18-24. **Conclusion:** In younger patients, presence of substance use or HIV risk behaviours increases the probability that the other is present.

Keywords: Substance abuse, HIV risk behaviours, Primary care

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Introduction

HIV infection and substance use are two of the most important public health challenges[1], particularly in developing countries.[2] South Africa has one of the world's highest prevalence rates for HIV, with a considerable proportion of its infected population receiving its healthcare through the public health system.[3] In terms of substance use, the drug for which specialist treatment is most frequently sought is alcohol, followed by cannabis and methaqualone.[4] Recent increases in treatment demand have also been noted for cocaine, heroin and (especially among those under twenty years of age) methamphetamine.[4]

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Those who depend on the public health system for treatment of HIV infection also rely on it for diagnosis and treatment of alcohol and drug problems. Despite this, the prevalence of substance use and of HIV risk behaviours in the primary care population in Cape Town is largely unknown.

Although an association between substance use and HIV risk has been well documented in developed countries[1,5,6], there may be differences between developed and developing world contexts.[2] For instance, there is a large body of literature from the developed world that addresses the risks of needle-sharing among injection drug users.[1] South Africa, however, has a relatively low prevalence of injection drug use[7] and heterosexual contact is the primary mode of transmission of HIV.[8] 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[9,10], while data regarding the adult population are not available.

This study aims to document the prevalence of hazardous substance use and sexual risk behaviours among patients attending primary care clinics in the public health system in Cape Town, and to investigate the association between sexual risk behaviour and substance use. Such information might fill critical gaps in knowledge in view of the need for improved prevention and greater access to treatment for HIV infected people.[8]

METHODS

Participants

Primary care clinics serving the under- and un-insured in Cape Town fall under two health services, the Community Health Services Organisation and the Health Directorate of the City of Cape Town. The former traditionally provides curative services and the latter preventive, but several clinics falling under City jurisdiction also offer primary care services. We divided the clinics providing a comprehensive primary care service into strata according to the race of the clinic patient population (apartheid race definitions were used because the legacy of apartheid continues to result in differential access to health resources).[11] The three strata were: clinics that served a population that was 80% or more Coloured; clinics that served a population that was 80% or more Black; and clinics that served a broader range of race groups. This latter stratum (n=26 clinics) was approximately twice the size of the former two, which were of almost equal size (n=9 and n=14). We thus randomly selected two clinics from the latter stratum, and one from each of the other strata.

Within each clinic, we selected patients for interview by first constructing a log of every patient who registered at the clinic that day and who had come for a primary care service. We then selected every nth patient from that log. The sampling fraction differed at each clinic according to the number of patients typically admitted each day. Since relatively fewer younger people attend these clinics, we also sampled every patient between the ages of 18 and 24, in order to ensure that this age group was sufficiently represented in the study.

Measures

We developed the questionnaires in English, and they were then translated into Afrikaans and Xhosa and checked by back-translation.

Demographic characteristics

Demographic data collected included age, race, gender, marital status, education, employment status, and number of children. As a measure of socioeconomic status, we used items drawn from the South African census that have been shown to indicate relative deprivation in urban areas.[11]

Substance use

The ASSIST (Alcohol, Smoking and Substance Involvement Screening Test[12]) was used to assess prevalence of problematic alcohol and drug use and includes cannabis, cocaine, amphetamines, sedatives, hallucinogens, inhalants and opiates, as well as a category for "other drugs". It was adapted for local conditions in two ways. Firstly, methaqualone (Mandrax) was added to the list of drugs, as it is one of the most used drugs in South Africa. Secondly, local drug names were used: for instance, "dagga" was used instead of cannabis, and "Mandrax" instead of methaqualone. Among tobacco products, we also list use of a pipe and of snuff, both of which are used (albeit less often than cigarettes) in South Africa. These changes were confirmed during interviews with health care providers.

The ASSIST allows for the calculation of a specific substance involvement score for each substance reported in the prior three months. These run from 0-16 for tobacco, and 0-20 for each other drug.[13] Each score can be further categorised in terms of low-(including zero use), medium- and high-risk use for each drug (except tobacco). Low risk scores are 0-3 for tobacco, 0-5 for alcohol, and 0 or 1 for other drugs. Medium risk, which indicates hazardous or problematic use of the substance, is scored as 6-15 for alcohol and 2-15 for other drugs. High risk indicates high risk of dependence on the substance (that is, that the patient is experiencing substance-related health, legal, financial or social problems), and reflects scores of 4 or more for tobacco, and 16 or more for alcohol and other drugs.[13]

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[14], two developed with substance-abusing populations[15,16], and one developed for primary care settings.[16]

Procedures

We interviewed the nurses, social workers, psychiatric nurses and HIV counsellors at each clinic. Part of the purpose of these interviews was to obtain information about the names used locally for substances. We also explored with the staff members how best to interview patients so as to meet our needs for confidentiality yet not be disruptive to the clinic. Clinics were able to promise us at least one private room for interviews each day. Reception staff were alerted to work with us in constructing an intake log, and nurses to assist us with making sure that patients did not miss their turn to see the doctor after they had been interviewed.

Patients were interviewed in private offices in order to assure confidentiality. We conducted interviews in English, Afrikaans or Xhosa, at the choice of the participant. Participants were interviewed by a fieldworker of the same gender. Anonymity was also maintained. All participants gave free and informed consent for their participation in the study, and their participation did not affect their treatment at the clinic. The study was approved by the Research Ethics Committee of the Faculty of Health Sciences, University of Cape Town; the

University of California, San Francisco Committee on Human Research; and the Kaiser Foundation Research Institute's Institutional Review Board.

Each patient interviewed received an information sheet listing resources for further assessment and/or treatment, both for substance abuse treatment and for HIV counselling. Where interviewers identified patients as being at risk, they encouraged them to make contact with services, assisting them to do so if necessary.

In addition, we compiled comprehensive lists of the age, race and gender of every patient attending the clinic on the days we interviewed patients, including those not selected for the study sample. This information was used to estimate population-level statistics from our data.

Analysis

First, in order to assess whether our sample accurately represented patients attending the primary care centres in the study, we compared the interviewed patients with the group of all patients who came to the clinic on the days we were there. Differences in age, race and gender between the full patient group and the sample were assessed using chi-squared tests of association and Wilcoxon ranksum tests. In addition, the proportion of refusals and "missed" interviews was compared by clinic, and the interviewed group was compared with the refused/missed group by age group, race and gender, using chi-squared tests of association.

In the analyses of prevalence and association, Stata 8's suite of survey commands (svy) was used to address the fact that clinics were the primary sampling units (clusters) and to estimate population means and confidence intervals after applying the weighting variable.[17] Weights adjusted for differences in age, gender, and clinic location between the sample and larger clinic population.

We then calculated the proportion of the population who fell into categories of medium- or high-risk substance use, for each substance; and who reported each HIV risk indicator.

In order to examine the association between substance use and HIV risk behaviours, we created several variables. One, indicating substance misuse, was created by assigning a "1" to any respondent who had scored in the medium- or high-risk ranges for any drug (except tobacco). In terms of HIV risk, we concentrated on the sexual risk factors. We did not include injection drug use or blood-sharing rituals in this analysis, as injection drug use has very low prevalence, and the risk of blood-sharing rituals has not been fully established. Thus a "risky sex" indicator was calculated so that it was scored "1" if the participant had answered "yes" to any of the sexual risk behaviours. Otherwise, it was scored "0".

First we explored the association between medium and high substance use risk and risky sex in the full sample, using a Pearson chi-squared test of association. Then, given that an association between these risk behaviours has been found in populations of South African adolescents[9,18], we used logistic regression analysis to regress medium and high risk substance use on the risky sexual behaviour indicator, and included in the model a term allowing for an interaction between substance use and age group (age 18-24=1, those older served as the reference group). The model also included age group, gender, and marital and employment status as control variables. Throughout, listwise deletion was used to deal with missing values.

Results

Participants

Proportions and confidence intervals for demographic characteristics are reported in Table I. No significant differences were found between the sample and the full group of patients attending the clinics, with regard to age, race or gender.

Table I: Demographic characteristics (population estimates)

	Estimate	*Confidence Interval*
AGE:		
18-24 (%)	12.8	3.5 – 22.1
Over 24 (%)	87.2	78.0 – 96.5
Mean age (years)	47.9	34.9 – 60.8
RACE (%):		
Black	57.7	0.0 – 100.0
Coloured	42.3	0.0 – 100.0
White	0.0	0.0 – 0.2
Male gender (%)	36.2	34.2 – 38.3
Female gender (%)	63.8	61.7 – 65.8
Mean number of children	3.4	2.5 – 4.3
MARITAL STATUS (%):		
Married or living as married	51.4	42.7 – 60.1
Never married and living alone	27.2	15.2 – 39.1
Other	21.4	11.7 – 31.2
LANGUAGE SPOKEN AT HOME (%):		
English	28.4	(0.0 – 81.0)
Afrikaans	42.9	(0.0 – 100.0)
isiXhosa	59.5	(0.0 – 100.0)
EDUCATION (%):		
Grade 6 or less	21.3	0 – 50.7
Some high school	69.1	35.6 – 100.0
Completed high school	7.5	2.7 – 12.3
Some college	2.2	0.0 – 5.2
EMPLOYMENT STATUS (%):		
Full-time	13.5	4.1 – 22.8
Part-time	7.8	0.0 – 20.3
Self-employed	1.0	0.0 – 4.4
Student	2.1	1.4 – 3.0
Homemaker	6.0	0.0 – 14.0
Retired	32.6	0.0 – 76.2
Disabled	2.0	0.0 – 6.1
Unemployed	35.0	6.3 – 63.7
HEAD OF HOUSEHOLD EMPLOYED (%):	36.9	13.6 – 60.1
AMENITIES:		
Has electricity at home (%):	96.8	93.2 – 100.0
Has running water inside the home (%):	89.0	82.9 – 95.2
Has running water on site (%):	98.4	95.8 – 100.0
Lives in shack or traditional dwelling (%):	18.0	8.7 – 27.2

In terms of refusals and "missed interviews", in total, 351 patients were selected for interviewing, 131 were interviewed, 19 refused, and 221 were missed. Patients refused to be interviewed because they were too ill (n=2) or because they did not have the time (n=14) (3 patients gave no reason for refusing). "Missed interviews" included those who could not be interviewed because they spoke languages other than English, Afrikaans or Xhosa (n=2); because they could not comprehend the consent form (n=2); and because the interviewer who was the same gender and spoke the appropriate language was absent on that day (n=18). The largest group (n=179) of "missed interviews", however, was those patients who had already left the clinic when the fieldworkers came to call them for an interview. This typically occurred because the clinic was unable to supply enough rooms in which to conduct interviews simultaneously, and is unlikely to be related systematically to patient characteristics in the study. A complicating factor here was our need to match patients with fieldworkers who spoke the same language and were the same gender: in the busier clinics where fieldworkers needed to take turns to use interview rooms, it was very likely that (for example) an Afrikaans-speaking male patient could have seen the doctor and already left the clinic while two Xhosa-speaking women were being interviewed. We also found that the interviewed patients did not differ from the missed patients by age, race or gender (p>.05 for each comparison), which further suggests that systematic bias is unlikely.

Substance use

The proportions of the patient population falling into the medium- and high-risk categories are reported in Table II. The highest rates were found for tobacco and alcohol use, while no patient reported use of hallucinogens, inhalants or opiates.

Table II: Population estimates of the proportion of patients falling into each category of risk for substance-related problems

	Medium Risk (%) (95% CI)	*High Risk (%) (95% CI)*
Alcohol	11.7 (3.2 – 20.1)	3.1 (0.0 – 9.3)
Cannabis	2.4 (0.0 – 6.1)	1.9 (0 – 7.9)
Methaqualone	0.3 (0.0 – 1.1)	1.6 (0 – 6.8)
Cocaine	1.6 (0.0 – 6.8)	0.0
Amphetamines	0.1 (0.0 – 0.4)	0.0
Sedatives	0.8 (0.0 – 3.5)	0.0
Hallucinogens	0.0	0.0
Inhalants	0.0	0.0
Opiates	0.0	0.0
Tobacco	-	28.2 (0 – 61.3)

HIV risk behaviours

In total, 75.6% of the sample reported either having had no sex in the past year, or reported safe sex – that is, they reporting using a condom at last coitus, or being married and having only one partner. The majority (84.3%) of those who reported having had sex in the last year, reported only one partner; 6.0% reported two partners, and 9.7% more than two. In addition, no-one reported that a sexual partner had ever used injection drugs. Proportions of the sample reporting the other HIV risk indicators are presented in Table III.

Table III: Population estimates of the proportion of patients reporting indicators of HIV risk

	Proportion (%)	*95% CI*
Substance use indicator:		
Ever used injection drugs	0.2	0.0 – 1.1
Sexual risk indicators:		
Partner ever traded sex for drugs or money	2.7	0.0 – 6.8
Partner a man who has ever had sex with men	1.7	0.0 – 5.8
Partner ever had an STI	9.0	0.0 – 20.5
Self ever had an STI	19.8	4.3 – 35.3
Ever had anal sex	2.8	0.0 – 8.1
Other:		
Ever had Khalifa, ritual scarring, ritual circumcision or blood sharing	25	3.2 – 47.0

Associations between substance use and HIV risk behaviours

Risky sexual behaviour was not associated with medium- or high-risk substance use in the full sample (χ^2=2.12, df=1, p=0.15). However, logistic regression showed that the interaction between substance use and age group was significantly associated with risky sexual behaviour (odds ratio = 6.58, 95% CI = 1.88 – 23.07). Post hoc analysis found that, in the younger age group only, there was an association between medium or high use of substances and risky sexual behaviour (odds ratio = 4.20, 95% CI = 1.17 - 14.98).

Discussion

Our data suggest that the drugs most likely to have been used by primary care patients in the Cape Town public health clinics at levels that put them at risk of health, legal, social or financial problems, were tobacco and alcohol. Hazardous use of cannabis, methaqualone, cocaine, amphetamines and sedatives was also reported, but to a far lesser extent, as was true of injection drug use. These data are similar to data on treatment demand in South Africa, although our data reflect lower use of cocaine and heroin.[4] It is possible that use of cocaine and heroin is more prevalent among more affluent sectors of the population than those who use the public health system, and that it is likewise this affluence that make it possible for them to afford treatment.

The highest prevalence among the HIV risk factors was reported for the blood-sharing rituals. As HIV infection may be spread through the use of instruments that have not been properly sterilised, future studies should investigate the actual risk associated with this factor. The second largest group at risk for HIV infection was those patients who reported having had sexually transmitted infections, which implies an important role

for primary care providers in using the presence of such an infection as an opportunity to discuss prevention.

Our finding that substance use and risky sexual behaviours co-occur in the younger age group is in accord with findings of other studies[10,18], but the lack of association in the older age group is not.[1,5,6] However, in our sample, the majority of the older age group either reported being in stable relationships or not having had sex in the past year. Thus, regardless of substance use status, they were at lower risk for contracting HIV. It may also be that this lack of association is inherent in the nature of the patient population: older patients may attend the clinics for treatment of chronic diseases that impede sexual functioning, while the younger patients are more likely to come for acute care needs. Future studies with a larger sample are necessary to explore whether this lack of association is robust, and if so, under what conditions.

However, our results do point to needs for screening and intervention services. Substance use presents naturally in the primary care population, so that these facilities often provide an advantageous location for providing effective interventions.[19-21] Similar arguments hold for HIV/AIDS[22], and primary care physicians have the ability to play significant roles in altering these behaviours, aiding in the identification, screening, and counselling of their patients.[23]

This is particularly so for younger patients, given the association between substance use and risky sexual behaviour that our data suggest for this age group. Half of all new infections occur in this age group, making it imperative that they be specifically targeted in interventions if we are to stop the spread of this disease.[8] The presence of substance use or sexual risk behaviour should alert the clinician to the potential presence of the other. Similarly, these risk behaviours are likely to begin at ages younger than 18[9], and future studies should also include younger age-groups.

Several limitations to our study need to be considered. First, the sample of clinics was small and we cannot generalize these findings to the larger public health system of Cape Town, where characteristics of both the clinics and the population they serve may differ. We only had one cluster in two of the three strata and so were unable to assess precision within or variance between the strata. A larger study with more clusters per stratum will overcome this limitation, as well as make it possible to explore other subgroup effects in more detail. It is possible that certain risk behaviours cluster within (for instance) certain age groups or genders, or that there could be key differences between substance users who score in the medium risk range and those scoring in the high risk range. In addition, our sample included no patients who identified themselves as White or Asian, probably because patients from these demographic groups are more likely to use private health care facilities.

Second, the high number of patients we selected but failed to interview may limit the generalizability of our findings. However, that the high rates of missed/refused interviews is related to random, structural factors such as insufficient interview rooms (rather than a systematic bias) is supported by our finding that we most often missed patients in the clinics where the fewest interview rooms were available to us. Further, the fact that there were no differences between those that were interviewed and those who were selected but not interviewed in terms of age, race or gender, is reassuring. Future studies should attempt to address this, and to explore whether our findings are replicated in larger, more representative samples.

In addition, our data cannot comment on causal connections between substance abuse and HIV risk behaviours. Longitudinal studies are necessary to explore this further.

Finally, our data precede the most recent increase in "tik" (methamphetamine) use. A later study is likely to find that rates of use of this drug have increased, as treatment demand in Cape Town has recently increased.[24]

Conclusion

Despite the limitations in our study, it is clear that substance use and HIV risk behaviours do occur frequently among the primary care patients attending community health centres and city clinics in Cape Town. In particular, in younger patients, the presence of either substance abuse or HIV risk behaviours implies that the other is likely to be present. Health care workers in these settings have a potentially important role to play in prevention, and should not miss opportunities to screen for risk behaviours.

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