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EXTENT AND INFLUENCE OF RECREATIONAL DRUG USE ON MEN AND WOMEN AGED 15 YEARS AND OLDER IN SOUTH AFRICA

Peter Njuho[1] & Alicia Davids[2]

[1]HIV/AIDS, STIs and TB Research Programme,
Human Sciences Research Council, Durban, South Africa;
[2]HIV/AIDS, STIs and TB Research Programme,
Human Sciences Research Council, Cape Town, South Africa.

ABSTRACT

Illicit drug use negatively affects development of human and physical capital of any nation. Huge financial resources are allocated to prevent and curb illicit drug use. The use of these drugs continue to spread across race and age groups, despite application of various control measures. The information provided in this paper contributes towards understanding the extent and influence of illicit drugs use in South Africa. A population-based national HIV prevalence, behaviour and health survey conducted in 2008, incorporated questions on the extent and use of illicit drugs. A multistage random population sample of 15 845 persons aged 15 years or older (58% women and 42% men) was included in the survey. The use of combined illicit drugs excluding cannabis was reported by 1.7% of the 13 119 participants, and including cannabis by 4.3 % of the 13 128 participants. The Coloured men (14.3%) were the most likely to use cannabis, where as the Indian women (0.6%) were the least likely. The urban residents (5.4%) were more likely to report use of any illicit drug including cannabis than rural dwellers (2.5%). Illicit drug use has a high association with illnesses thus call for interventions to address this serious problem.

Key Words: Recreational drug use, South Africa, illicit drug use, HIV prevalence survey

INTRODUCTION

General status of illicit drug use

Control of illicit drug use presents major problems relating to an ever growing demand and elusive distribution, conducted by dangerous drug cartels that are always ready to kill in the name of protecting the business. Drug abuse is an increasing problem in affluent societies and carries great social and economic costs through its impacts on crime and health. For instance, it destroys individual's interpersonal relationship with family and friends, environmental and economic structures, and in addition to mental health. Wide use of illicit drugs produces unproductive society, increases crime and deaths, thus becoming a major threat to the nation. The use of illicit drugs spread

Corresponding author: Peter M Njuho, PhD, Senior Research Specialist, HIV/AIDS, STIs and TB Research Programme, Human Sciences Research Council , 750 Francois Road, Cato Manor, Durban 4001, South Africa. Tel. +27-(0)31-2425632; Email: PNjuho@hsrc.ac.za

across different age groups, economic status, education levels, race and other areas. Trade in these drugs which entails underground production, distribution and protection continues to strife despite enormous government resources allocated to curb the problem. (Health24, 2006; Drugaware, 2006; SACENDU, 2006). We need to understand the state of illicit drug use in order to develop effective control strategies. Analysis of data that inform on the current state of illicit drug use becomes essential.

Alcohol remains the primary drug of abuse in South Africa, a phenomena explained by its widespread availability. Similarly, among illicit drugs, cannabis is the most frequently reported drug of use, according to Parry et al (2004). According to NIDA (2009), cannabis is the most commonly abused illicit drug in the United States.

Drug (substance) abuse

Drug abuse is stated as the use of illegal drugs, or the misuse of prescription or over-the-counter drugs. Divergent definitions of the term drug or substance abuse are provided by different research institutions and organizations. For instance, Reber and Reber (2001) define substance abuse as the improper, excessive, irresponsible or self-damaging use of addictive substances. Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) substance abuse refers to the maladaptive pattern of substance use leading to clinically significant impairment or distress, manifest by one or more of the substance symptoms within a 12-month period. The National Drug Master Plan of 2006 defines the term substance abuse as the misuse and abuse of legal substances such as nicotine, alcohol, over-the-counter drugs, prescribed drugs, alcohol concoctions, indigenous plants, solvents, and inhalants, as well as the use of illicit drugs (Visser & Routledge, 2007). Drug abuse patterns vary according to age, social class, occupation, school status, gender and geographic location.

Illicit drug use and adolescents

An in-depth literature review by Frisher et al (2007) outlined parental discipline, family cohesion and parental monitoring as the key predictors of drug use factors associated with increased risk of illicit drug use among young people. In addition, age, peer and easy availability of illicit drug were strongly associated with prevalence of drug use among young people. Illicit drug use which results in clinical dependence is closely related to childhood socio-economic status (Poulton et al. 2002). The consequence of drug use, especially when used at an early age, is grave. For instance, the use of mind-altering chemicals by youth attending school has deleterious effects on school performance (Lennox and Cecchini, 2008). Youth under the influence of illicit drugs do not adequately absorb material taught. The risk of long-term impairment of cognitive ability and memory which includes lack of motivation and self-discipline as well as reduced school attendance is high (Pediatrics, 2007). The use of illicit drugs is often higher amongst older adolescents (aged 15-24 years) than children or adults (Bogard, 2005). In the adolescent years, drug use is highly related to age. The availability and low cost of illicit substances such as glue, solvents and various forms of inhalants make them popular amongst adolescents. In the contrast, the type of substances used by adults is influenced by the financial status of the individual (Brook et al., 2006). We present an overview of the various illicit drugs used and their effect on health, social and economic factors associated with South African people.

Information on various illicit drugs in use in South Africa

A cocktail of illicit drugs in use in South Africa includes cocaine or crack, cannabis or dagga, mandrax or methaqualone, heroin, ecstasy, and methamphetamine among others. According to Simbayi et al (2004), 36 % constituting both adults and youth reported use of alcohol, far exceeding dagga (marijuana) reported by 5% of the respondents. Illicit drug use though low in prevalence has the potential to impact upon health and social functioning in young as well as older people (Parry et al., 2004).

Crack, the cheapest form of cocaine available is more concentrated than the powder form of cocaine, which is snorted. The addictive nature of crack cocaine (sometimes 90 % pure) explains tremendous increase in use of the substance over the last decade across Africa, particularly in countries such as Nigeria and South Africa. Both crack and cocaine have become drugs of choice amongst the high-income upper middle and upper classes (Health24, 2006). According to Leggett et al (2002), White South Africans tested more positive for cocaine than any other group (32%), with Coloureds coming distance second (7%). White females tested highest with 65% of them testing positive. Cocaine stays in the blood system for approximately 3 days in detectable levels and therefore most cases testing positive might actually be an indication of chronic usage. Crack use has also become prominent among vulnerable groups in the society, for example commercial sex workers (Nel, 2005).

According to Parry & Bennett (1998), the use of dagga comes second to alcohol as the most extensively used drug in South Africa. Dagga is consumed by people of all ethnic groups throughout South Africa (Leggett et al., 2002). Forty percent of arrestees agreeing to be urine tested were positive for cannabis (Parry et al., 2004). With regards to drug usage in Black African townships in South Africa, 19% of participants used dagga, 2% cocaine, and 1% injection drugs (Kalichman et al., 2006). Dagga use was significantly higher in Black African townships as compared to a racially integrating township and urban residential neighborhoods.

Available data suggests that (except for dagga) the use of illegal drugs among residents in informal settlements and townships appear to be among the lowest in South Africa. According to Shisana et al (2005), the current use of illicit drugs as reported in the past three months were: cannabis 2.1 % (4.2 % for males and 0.3 % for women), cocaine (0.3%), amphetamine-type stimulants (0.2 %), inhalants (0.1 %), sedatives (0.3 %), hallucinogens (0.1%) and opiates (0.1 %). Mandrax and dagga are the most widely used illicit drugs of choice in the Western Cape. Mandrax abuse was originally concentrated in South Africa's ethnic Indian/ Asian population, but has since spread to other ethnic groups, notably the Coloured community (Nel, 2005).

Heroin was first introduced in South Africa as a brown substance that was usually inhaled, a method named "Chasing the Dragon". Heroin is mainly injected and snorted unlike other illicit drugs. The subculture of injection use is limited among South African consumers, as heroin users prefer to smoke heroin with dagga or inhale the vapours. According to reports by South African Community Epidemiology Network on Drug Use (SACENDU, 2006), a large increase in treatment demand for heroin as a primary drug of abuse has occurred in Cape Town, Gauteng, and Mpumalanga. There has been an increase in availability of cheap heroin which is mixed with cannabis and sold under the name 'Nyaope' (in Pretoria), 'Sugars' (in Durban), 'Unga' (in Cape Town) and 'Pinch' in Mpumalanga.

Household, school and community surveys on drug abuse have been conducted from time to time in South Africa with low levels of heroin use reported. A household survey of youth aged 10-21 years (WHO & UNDCP, 2003) found that 1% of the 193 respondents in urban areas reported lifetime use of heroin and 0 % of respondents in rural areas. According to Shisana and Simbayi (2002) report, 0.01% of the respondents aged 15 years and older had used heroin in the past 30 days, which translate to a prevalence of 4500 users, an underestimate given the nature of household surveys.

A report in Drugaware (2006) website indicates that, ecstasy has made the biggest impact of all illicit drugs in South Africa since the early 1990's. It is a drug that is synonymous with the rave scene, and is currently being abused by a large number of teenagers in South Africa. It is a tablet that is highly underrated for its serious and dangerous side-effects, because the public at large is uninformed. It is generally deemed as harmless by young people, but it does have its dangers. The users of Ecstasy consider it to be reasonably safe since it carries minimal immediate health risk (Knobel, 2006).

In 2006, methamphetamine (known as tik) substantially penetrated the Coloured population in Cape Town (Simbayi et al., 2006), whilst it remained relatively uncommon to other people of South Africa. According to Plüddemann et al (2005), of the over 600 patients coming to drug treatment in the 1st half of 2005 who were under 20 years of age, 49% had methamphetamine ("tik") as their primary drug of abuse (compared to 42% in the 2nd half of 2004, 25% in the 1st half of 2004, 5% in the 2nd half of 2003, and 4% in the 1st half of 2003). Two-thirds (66%) of persons under 20 years of age coming to treatment for substance abuse problems in Cape Town have "tik" as a primary or secondary drug of abuse. The average age of patients who reported methamphetamine as their primary substance of abuse in 1st half of 2005 was 21 years where 76% were male. Majority of the patients (92%) were Coloured, 7% White, 0.5 % Indian/Asian and 0.5% Black Africans.

Illicit drug use not only has a negative impact on the health sector, but also impacts negatively on the family and society in terms of crime and negative effects on economic social development (Parry et al., 2009). Prior clinical and epidemiological studies have shown that a broad array of adverse health consequences may be attributed to illicit drug use. No significant relationship found between injury severity and illicit drug use, based on emergency room studies (Vitale et al 2005). However, weak associations emerged concerning patient and injury characteristics, and illicit drug use.

National governments have responsibility to regularly monitor the health status of its people, formulate policies and implement effective interventions to address the identified problems. This paper presents the findings on the extent and influence of illicit drug use in South Africa, based on data gathered through a national survey (Shisana at al., 2009) for 15 years and older. We present the current state of illicit drug use in South Africa based on the population-based household survey. The findings provide supporting evidence on a national basis, on the importance of developing effective illicit drug use interventions.

METHOD

Population-based national household survey

A cross-sectional population-based household survey conducted in 2008 targeted all persons over 2 years of age living in South Africa and residing in homes, i.e. excluding individuals living in educational institutions, old-age homes, hospitals and uniformed service barracks but including those living in hostels. A multi-stage stratified sampling approach was used. A systematic sample of 15 households was drawn from each of 1 000 census enumeration areas (EAs). In each household, one person was randomly selected in each of four mutually exclusive age groups (under 2 years; 2–14 years; 15–24 years; 25+ years). An overall sample of 13 828 participants aged 15 years and older resulted with response rate of 77.5% Black Africans, 9.1% Coloureds, 10.5% Whites and 2.8% Indian or Asians. Socio-demographic and behavioural information was collected using questionnaires administered by trained fieldworkers (Shisana et al., 2009).

Sample questions on illicit drugs

The third South African National HIV prevalence, Behaviour and Healthy Survey conducted in 2008, incorporated questions on illicit drugs use (Shisana et al., 2009). The questions were formulated according to Henry-Edward et al (2003), the alcohol, smoking and substances involvement screening test (ASSIST). The medications prescribed by the doctor were not recorded. However, if the participant took such medications for reasons other than prescription by the doctor or took them more frequently or at higher dose than prescribed, such medication was recorded in the category of "others". An assurance was given to the participants that information gathered was strictly confidential. Data on the substance use in the past three months, and the frequency of use that ranged from once to almost daily, were gathered using a structured questionnaire.

The substances and common names they are referred to are:

- Cannabis (dagga, marijuana, pot, grass, hash, etc);
- Cocaine (coke, rocks, crack, etc);
- Amphetamine-type stimulants (speed, ecstasy, tik, etc);
- Inhalants (nitrates, glue, petrol, paint thinners, etc);
- Sedatives or sleeping pills (valium, mandrax, serepax, rohypnol, etc);
- Hallucinogens (LSD, acid, mushrooms, PCP, special K, etc);
- Opiates (heroin, morphine, methadone, codeine, etc);
- Others.

Questions investigating the influence of using illicit substances on the performance of individual/job responsibilities; use of drug by injection; besides drugs prescribed by a healthy professional and sharing of injection needles were included in the questionnaire.

Data analysis

Data analysis was performed using STATA software version 10.0 (Stata Corporation, College Station, Texas, USA). The analysis in STATA took into account the multilevel stratified cluster sample design of the study. The estimates of prevalence of illicit drug use variables and associated two-sided 95% confidence intervals are reported. The p-value less or equal to 5% is used to indicate statistical significance. The estimates, 95% confidence intervals and the p-value are adjusted for the multi-stage stratified cluster sample design of the study. We also conducted adjusted logistic regression analysis to calculate adjusted odds ratios and 95% confidence intervals for men and for women separately for illicit drug use (all combined) in relation to socio-demographic variables.

RESULTS

Socio-demographic status of illicit drug use

Table 1 presents the response on illicit drug use by age groups, geo-locality, province, race, education and employment status. The total response on the use of other illicit drugs, except for the use of cannabis categorized further by sex, are presented in percentages together with the associated sample sizes. Over 13 000 participants responded to questions on use of cannabis and other illicit drugs.

Across all age groups, men were 6 times more prevalent users of cannabis (6.1%) compared to women (1.2%). Among the age groups, men aged 20-44 years were twice of any other age group as the main users of cannabis. The consumption of cannabis among women regardless of the age was relatively low, ranging from 0.1 to 1.8 %. Out of 197 pregnant women, 1.1 % reported to be current users of cannabis. The number of respondents using other substances besides cannabis was low and could not therefore be categorized by sex. The findings indicate that other than cannabis, less than 1 % of 13 112 respondents are current users of illicit drugs with cocaine (0.6 %), amphetamine-type stimulant (0.7 %), inhalant (0.7 %), sedatives (0.8 %), hallucinogens (0.5 %), and opiates (0.5 %). Age group 25-34 was consistently at 1.0%, as users of "other" drugs. The older age group is not free of drug abuse with 0.6 % aged 65 and older reporting use of illicit drugs. Sleeping bills were heavily used by older age group, 65 years and older (1.1 %) and compares with the youth aged 24 to 34 years. This suggests current abuse of sleeping bills by the youth as a recreational drug.

There is a huge difference in the use of cannabis between men residing in the urban areas (6.7 %) compared to men in the rural areas (5.1 %). Few women in the rural areas used the cannabis (0.6 %) compared to women in the urban areas (1.5 %). The use of other substances besides cannabis were consistently low (less than 1.0 %) in the urban areas and extremely low in the rural areas (less than 0.5 %). In terms of provinces, men in the Western Cape reported the highest use of cannabis (11.7 %) followed by the Northern Cape (10.6 %) and Free State (10.6 %). The lowest use was in KwaZulu-Natal (4.1 %), not significantly different from the Eastern Cape (4.2 %) and the Gauteng (4.2%). The use of cannabis

Table 1: Percentage of men and women (15 years or older) reporting current (past three months) cannabis and other illicit drug use

Demographic characteristics	Current cannabis use				Cocaine		Amphetamine-type stimulants		Inhalants		Sedatives or sleeping pills		Hallucinogens		Opiates		Any illigal drug except for cannabis	
	Men	Women	Total		Total		Total		Total		Total		Total		Total		Total	
Age	%	%	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
15-19	4.5	1.5	3.2	2265	0.7	2263	0.8	2263	0.8	2263	0.7	2261	0.7	2263	0.7	2263	1.0	1988
20-24	8.1	1.6	4.7	1953	0.5	1952	1.1	1952	1.1	1952	0.6	1952	0.5	1949	0.4	1952	0.7	1715
25-34	7.9	1.8	4.3	2229	1.0	2227	1.0	2227	1.0	2227	1.2	2227	0.7	2227	0.6	2226	1.7	1015
35-44	8.2	0.9	3.7	2276	0.6	2274	0.6	2274	0.6	2274	0.7	2273	0.6	2274	0.6	2274	1.0	2004
45-54	4.8	0.5	2.4	1990	0.2	1988	0.2	1988	0.2	1988	0.8	1990	0.2	1990	0.2	1986	0.6	1758
55-64	3.5	0.1	1.4	1260	0.3	1260	0.4	1260	0.4	1260	0.6	1260	0.3	1260	0.4	1260	1.8	1114
65+	0.4	0.7	0.6	1149	0.5	1149	0.5	1149	0.5	1149	1.1	1149	0.5	1149	0.5	1146	1.7	1015
All	6.1	1.2	3.3	13122	0.6	13113	0.7	13113	0.7	13113	0.8	13112	0.5	13112	0.5	13107	1.2	11540
Currently pregnant	-	1.1	1.1	197	1.1	197	1.1	197	1.8	197	1.1	197	1.1	197	1.1	197	1.1	171
Geolocality																		
Urban	6.7	1.5	3.8	9399	0.7	9390	0.9	9391	0.5	9391	1.0	9389	0.6	9390	0.6	9386	1.1	8295
Rural	5.1	0.6	2.5	3723	0.4	3723	0.4	3722	0.4	3722	0.5	3723	0.4	3722	0.4	3721	1.3	3245
Province																		
Western Cape	11.7	2.0	6.7	1716	0.9	1715	2.2	1717	0.2	1716	1.8	1717	0.6	1716	0.2	1715	0.8	1624
Eastern Cape	4.2	1.0	2.4	1745	0.8	1746	0.8	1745	0.7	1746	1.0	1747	0.8	1745	0.7	1746	0.8	1463
Northern Cape	10.6	1.2	5.6	1001	0.2	1001	0.2	1001	0.2	1000	0.5	1000	0.2	1001	0.2	1001	0.5	954
Free State	10.6	0.1	4.9	874	0.2	873	0.2	873	0.2	872	0.4	873	0.2	873	0.2	873	0.3	737
KwaZulu-Natal	4.1	1.9	2.7	2531	1.5	2528	1.5	2528	1.4	2529	1.7	2529	1.4	2527	1.5	2528	2.0	2122
North-West	6.8	0.1	3.1	1063	0.0	1061	0.0	1061	0.0	1059	0.2	1061	0.0	1061	0.2	1060	1.6	966
Gauteng	4.2	1.6	2.8	2018	0.4	2015	0.2	2014	0.3	2015	0.5	2012	0.2	2015	0.3	1013	1.1	1771
Mpumalanga	5.6	0.5	2.7	1030	0.0	1031	0.0	1031	0.1	1031	0.1	1030	0.0	1031	0.0	1029	2.6	802
Limpopo	5.6	0.1	2.5	1144	0.1	1143	0.1	1143	0.1	1143	0.1	1143	0.1	1143	0.1	1142	0.6	1101
Population group																		
Black African	5.5	0.8	2.8	7868	0.5	7865	0.6	7863	0.6	7861	0.6	7863	0.5	7861	0.6	7862	1.2	6959
White	4.0	3.2	3.5	1572	1.1	1569	0.9	1569	0.3	1568	1.3	1568	0.6	1569	0.4	1565	0.9	1346
Coloured	14.3	2.7	8.4	2354	0.6	2352	2.1	2354	0.3	2354	1.8	2353	0.3	2354	0.3	2352	1.1	2069
Indian or Asian	2.2	0.6	1.3	1300	1.0	1299	0.5	1299	0.4	1300	1.8	1300	0.4	1300	0.6	1300	1.9	1139

Table 1: (Continued)

Demographic characteristics	Current cannabis use				Cocaine		Amphetamine-type stimulants		Inhalants		Sedatives or sleeping pills		Hallucinogens		Opiates		Any illigal drug except for cannabis	
	Men	Women	Total		Total		Total		Total		Total		Total		Total		Total	
Age	%	%	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Education																		
No education	6.4	0.4	2.3	889	0.5	890	0.5	890	0.5	889	0.5	890	0.5	890	0.5	888	0.9	790
Grades 1-5	9.8	0.7	4.8	2413	0.5	2411	0.7	2412	0.5	2412	0.6	2412	0.5	2411	0.6	2411	1.9	2121
Grades 6-7	6.0	0.9	3.2	2174	0.6	2174	0.9	2174	0.6	2174	0.7	2172	0.5	2174	0.6	2173	1.1	1892
Grades 8-11	5.0	1.4	2.9	7105	0.6	7099	0.7	7098	0.5	7098	1.0	7099	0.5	7098	0.5	1096	1.1	6277
Grade 12	3.6	1.6	2.6	341	0.0	341	0.0	341	0.0	341	0.7	341	0.0	341	0.0	341	0.3	290
Higher	7.1	7.8	7.4	122	2.8	121	2.8	121	0.2	120	3.7	121	2.8	121	0.2	121	0.3	99
Employment status/income																		
Not employed	6.0	3.6	4.5	1281	1.7	1280	1.8	1280	1.7	1280	1.9	1280	1.7	1280	1.7	1280	2.4	1116
Less than R12 000 per year	8.8	1.3	4.8	1661	0.6	1657	0.8	1657	0.7	1658	0.9	1658	0.6	1657	0.8	1657	1.6	1501
R12 001 – R48 000 per year	8.1	1.6	5.4	1552	0.7	1550	1.0	1550	0.5	1548	1.0	1549	0.7	1550	0.5	1547	1.6	1388
More than R48 001 per year	3.0	1.8	2.5	1801	0.6	1802	0.4	1802	0.2	1802	1.3	1802	0.3	1801	0.3	1801	1.3	1574

by women was consistently low in all provinces with the Western Cape at 2.0 %. While the use of other illicit drugs besides cannabis, was consistently below 1.0 % in most of the provinces, it remained (1.0 - 2.0 %) in KwaZulu-Natal.

The use of cannabis by men varies across the race with 14.3 % of Coloured, 5.5 % Black African, 4.0 % White and 2.2 % Indian or Asian reporting use of the substance. Among the females, we have Whites (3.2%), Coloureds (2.7 %), Blacks (0.8 %) and Indians (0.6 %) reporting use of cannabis. The Indian or Asian community reported high use of other substances besides cannabis, 1.8 % on sleeping pills and 1.9 % on others, compared to black community, 0.6 % and 1.2 %, respectively. Use of Amphetamine-type stimulants was highest among the Coloured (2.1 %) compared to the other race, especially the Indian community (0.5 %).

The relationship between the level of education and substance use indicates highest use of cannabis among those with higher education (7.4 %) followed by those with less education, grade 1 to 5 (4.8 %). The least use of cannabis is among those with no education (2.3 %). Categorizing according to gender indicates high use of cannabis among men with the highest among those in grade 1 to 5 followed by those with higher education (7.1%). Of surprise is the high use of cannabis by highly educated women (7.8 %) compared to women with any other form of education, women with no education (0.4 %) the least. The small sample size of 122 respondents with higher education compared to other sample sizes (in hundreds), explain the uniqueness in the high percentage. The use of other substances, besides cannabis was very low, in some cases at zero percentage (e.g. grade 12).

Men earning less than R12 000 per year used cannabis most (8.8 %) followed by earners of R21 001 to R48 000 per year and the least users earning R48 001 or more. A contrast is noted among the women where the unemployed women were the highest consumers of cannabis (3.6 %) followed by earners of R48 001 or more (1.0 %). Overall, women were low users of cannabis compared to men. The unemployed were the most users of other illicit drugs besides cannabis. In general, the use of other drugs was very low compared to the use of cannabis.

Illicit drug use either including or excluding cannabis

Table 2 presents percentages of respondents 15 years and older currently using any illegal drug (either including or excluding cannabis), categorized by age groups, geo-locality, province, race and education. Inclusion of cannabis leads to an overall high proportion (4.3 %) compared to when excluded (1.7 %). Use of illegal drugs was highest among the 25 to 34 years old, regardless of inclusion (5.8 %) or exclusion (2.5 %) of cannabis. The use of illicit drugs excluding cannabis by the youngest age group (15-19 years old) and by the oldest age group (65 years) was 1.2 % and 1.9 %, respectively. Inclusion of cannabis had 3.4 % and 2.0 % among 15-19 years old, and among 65 years and older, respectively. The group 20-24 year olds reported use of illicit drugs, regardless of the inclusion or exclusion of cannabis. Pregnant women reported use of illicit drug (1.8 %).

The use of illicit drugs (either excluding or including cannabis) among the urban dwellers was higher (2.0 % and 4.9 %) than among the rural dwellers (1.3 % and 3.3 %). The respondents in the Western Cape reported the highest use of illicit drugs followed by Mpumalanga (2.4 % excluding cannabis) and by Northern Cape (6.2 % including cannabis) provinces. The Free State had the lowest (0.5 % excluding cannabis) and Eastern Cape (2.7 % including cannabis). The Coloureds were the main users (3.5 % excluding and 9.8 % including cannabis). The Blacks were the least users of illicit drugs (1.3 % excluding and 3.4 % including cannabis) followed by the Indian community (2.8 % excluding and 3.6 % including cannabis). The use of illicit drug was least among the uneducated (0.8 % and 2.6 %) and highest among the most educated (3.7 % and 8.3 %) excluding and including cannabis, respectively.

Table 2: Percentage of men and women (15 years or older) reporting use of any illicit drug excluding or including cannabis

Demographic characteristics	Any illegal drug except for cannabis		Any illegal drug including cannabis	
	Yes %	n	Yes %	n
Age				
15-19	1.2	2265	3.4	2266
20-24	1.8	1952	5.3	1854
25-34	2.5	2227	5.8	2230
35-44	1.2	2275	4.3	2277
45-54	1.4	1990	3.5	1990
55-64	1.9	1260	3.0	1261
65+	1.9	1150	2.0	1150
All	1.7	13119	4.3	13128
Currently pregnant	1.8	197	1.8	197
Geolocality				
Urban	2.0	9396	4.9	9404
Rural	1.3	3723	3.3	3724
Province				
Western Cape	3.6	1717	8.2	1717
Eastern Cape	1.2	1747	2.7	1747
Northern Cape	0.8	1002	6.2	1002
Free State	0.5	873	5.2	874
KwaZulu-Natal	2.0	2529	3.1	2531
North-West	1.8	1061	4.7	1063
Gauteng	1.6	2015	4.0	2018
Mpumalanga	2.4	1031	4.7	1031
Limpopo	0.6	1144	3.1	1145
Population group				
Black African	1.3	7866	3.4	7871
White	3.4	1571	5.7	1574
Coloured	3.5	2354	9.8	2355
Indian or Asian	2.8	1300	3.6	1300
Education				
No education	0.8	889	2.6	890
Grades 1-5	2.0	2411	6.0	2413
Grades 6-7	1.6	2170	3.8	2175
Grades 8-11	1.8	7084	4.0	7109
Grade 12	1.0	340	3.3	341
Higher	3.7	120	8.3	122
Employment status/income				
Not employed	2.6	1281	5.3	1282
Less than R12 000 per year	1.9	1658	5.8	1661
R12 001 – R48 000 per year	2.4	1550	6.5	1552
More than R48 001 per year	3.0	1803	4.8	1803

People earning more than R48 001 per year were the most users of illicit drug (3.0 % excluding cannabis) whereas earners of R12 001 to R48 000 per year were the most users of illicit drug (6.5 % including cannabis).

Effect of socio-demographic characteristics on illicit drug use

Table 3 present results on analysis conducted by demographic factors: age, settlement area (geolocality), race (population group), education and income status, in relation to illicit drug (including cannabis) use, by gender, in South Africa. Summary statistics computed consist of odd ratios (OR), 95 % confidence intervals, p-values and the amount of total variation accounted for by the fitted male and female logistic regression models. The confidence interval provides the range within which the true parameter falls into with 95 % confidence. The levels with p-values less than a significance level of 5 % are considered statistically significant. The demographic factors and reference levels (OR=1.000) are: *Age: 15 -19; Geolocality: - urban; Race: Black African; Education: No education; and Employment status/income: Not employed*. A value of OR greater than one refers to the number of times the specified level is more than the reference level, in relation to illicit drug use.

The presented results are discussed recognizing the fact that the fitted models account for very little of the total variation. We discuss the differences of the various levels relative to the reference levels, using the odd ratios. The results indicate that females do not differ significantly in respect of illicit drug use, except for those aged 55-64 years old significantly different (p-value=0.020) from the 15-19 years old. In case of males, none of the age groups had significant effect in respect of illicit drug use compared to the 15-19 years old. However, those in the age group 20-24 years are 1.7 times more likely to use illicit drugs followed by 25-34 years old (1.4 times) than 15-19 years old. The group 45 years and older is less likely to use illicit drug. Males aged 20-44 years old are the most at risk of illicit drug use compared to 15-19 years old. In case of females, only 20-24 years old had a slight higher risk (OR=1.13) on the use of illicit drug compared to the 15-19 years old.

The use of illicit drug is not significantly different (p-value=0.536 for male and p-value=0.569 for female) in respect of settlement area. However, the use of illicit drug by males living in urban settlement is slightly higher (OR=1.16) than in rural settlement. The trend is different with females where the risk is less (OR=0.77).

The use of illicit drugs differs significantly by race in South Africa where White males are 2.3 times more likely to use illicit drugs compared to Black males, followed by Coloured males (2.2 times). There is no significant difference between the Indian and Black males (OR=1.10) in the use of illicit drug. The trend is higher for White (OR=3.75) and Coloured (2.13) females compared to Black females. No significant difference between the Indian and Black females though the former has a slightly lower effect (OR=0.88). The effect of level of education on the use of illicit drugs is strong among males than among females. For instance, the effect of education is significantly lower for those with grades 8-12 level of education compared to those without any formal education for the males. Females with higher education are 1.8 times likely to use illicit drugs compare to female with no formal education.

We find no significant difference between the employed and the unemployed. However, the males earning R12 001 to R48 000 are 1.3 times more likely to use illicit drugs compared to the unemployed. The employed females are less likely to engage in illicit drug use compared to the unemployed females.

The use of illicit drugs by injection for males and females aged 15 years and older was rare. Of the 5159 males responding to the question, 0.5 % report ever used illicit drugs by injection in the past three months. This is slightly higher than female proportion (0.3 % of 7849 females) responding to the same question. Insignificant number (3 persons) reported ever shared injection needles.

Table 3: Logistic regression analysis between socio-demographic characteristics and illicit drug (including cannabis) use by sex

Demographic factors	Men [Pseudo R^2 =0.052] (n=2856)			Women [Pseudo R^2 =0.064] (n=3387)		
	OR	95% CI	P-values	OR	95% CI	P-values
Age						
15-19	1.000			1.000		
20-24	1.701	0.740-3.908	0.211	1.132	0.297-4.311	0.856
25-34	1.420	0.612-3.294	0.414	0.984	0.241-4.017	0.982
35-44	1.192	0.523-2.715	0.676	0.578	0.130-2.567	0.471
45-54	0.680	0.249-1.855	0.451	0.392	0.100-1.539	0.180
55-64	0.472	0.157-1.424	0.183	0.152	0.031-1.889	0.020
65+	0.438	0.113-1.701	0.233	0.468	0.070-3.138	0.434
Geolocality						
Urban	1.000					
Rural	1.162	0.723-1.869	0.536	0.771	0.314-1.889	0.569
Population group						
Black African	1.000			1.000		
White	2.337	1.282-4.260	0.006	3.748	1.789-7.810	0.000
Coloured	2.173	1.424-3.315	0.000	2.131	0.947-4.794	0.067
Indian or Asian	1.103	0.523-2.324	0.797	0.883	0.290-2.685	0.826
Education						
No education	1.000			1.000		
Grades 1-5	0.953	0.366-2.486	0.923	0.964	0.193-4.823	0.964
Grades 6-7	0.418	0.164-1.065	0.068	0.389	0.062-2.446	0.314
Grades 8-11	0.301	0.117-0.776	0.013	0.499	0.084-2.976	0.445
Grade 12	0.237	0.067-0.836	0.025	0.375	0.0456-3.062	0.360
Higher	0.420	0.072-2.456	0.336	1.815	0.213-15.470	0.586
Employment status/income						
Not employed	1.000			1.000		
Less than R12 000 per year	1.116	0.569-2.188	0.749	0.706	0.244-2.047	0.522
R12 001 – R48 000 per year	1.272	0.683-2.369	0.448	0.493	0.156-1.555	0.227
More than R48 001 per year	0.882	0.421-1.850	0.740	0.652	0.202-2.106	0.475

Association between illicit drugs and illnesses

Table 4 presents responses on current health conditions of 15 years and older South Africans, and use of illicit drugs, while under these health conditions, expressed in percentage of sample size, n (respondents to the question). The order (A-S) is an identifier of the pair (current illicit drug use and illness). The common illnesses were chronic allergies or sinus trouble (5.8 % of 4192 respondents), vision problems (3.9 % of 4160 respondents) and asthma (3.3 % of 4197 respondents). The rest of illnesses ranged from, learning problems (1.3%) to the least common, chronic rheumatic disease and diabetes (0.3%). The proportions of respondents currently using illicit drugs and also ill is consistently higher than the proportion of respondents currently ill of any of the sickness, regardless of whether they use or do not use illicit drugs. For instance, 2.8 % are currently using illicit drugs and have anxiety problems, whereas 1.0 % is currently sick of the same illness.

Figure 1 illustrates the relationship between illicit drug use and health conditions of 15 years and older South Africans. A clear pattern exists between illicit drug use and health condition with a perfect match for behavioural,

Table 4: Relationship between illicit drug use and health condition (illness) for 15 years and older, South Africans

Order	Do you currently have any of the following illnesses?	Current illicit drug use and illness		Current illness	
		Yes (%)	n	Yes (%)	N
A	Anxiety problems	2.8	214	1.0	4202
B	Asthma	11.3	212	3.3	4197
C	Attention problems	0.7	212	0.9	4191
D	Behavioral problems	0.6	212	0.6	4185
E	Chronic allergies or sinus trouble	9.5	212	5.8	4192
F	Chronic orthopedic, bone or joint problems	3.2	212	1.0	4194
G	Chronic respiratory, lung or breathing trouble (NOT ASTHMA)	0.5	212	0.9	4193
H	Chronic rheumatic disease	0.5	212	0.3	4192
I	Depression	4.3	212	1.2	4192
J	Developmental delay or mental retardation	0.0	211	0.5	4189
K	Diabetes	2.9	213	0.3	4191
L	Epilepsy (seizure disorder)	3.4	212	0.8	4186
M	Hearing impairment or deafness	0.6	212	1.0	4185
N	Learning problems	0.0	212	1.3	4182
O	Sleep disturbance	3.4	212	1.2	4180
P	Speech problems	0.3	212	0.4	4177
Q	Vision problems	3.9	214	3.9	4160
R	TB	0.4	213	0.9	4144
S	Other	1.3	195	1.5	3644

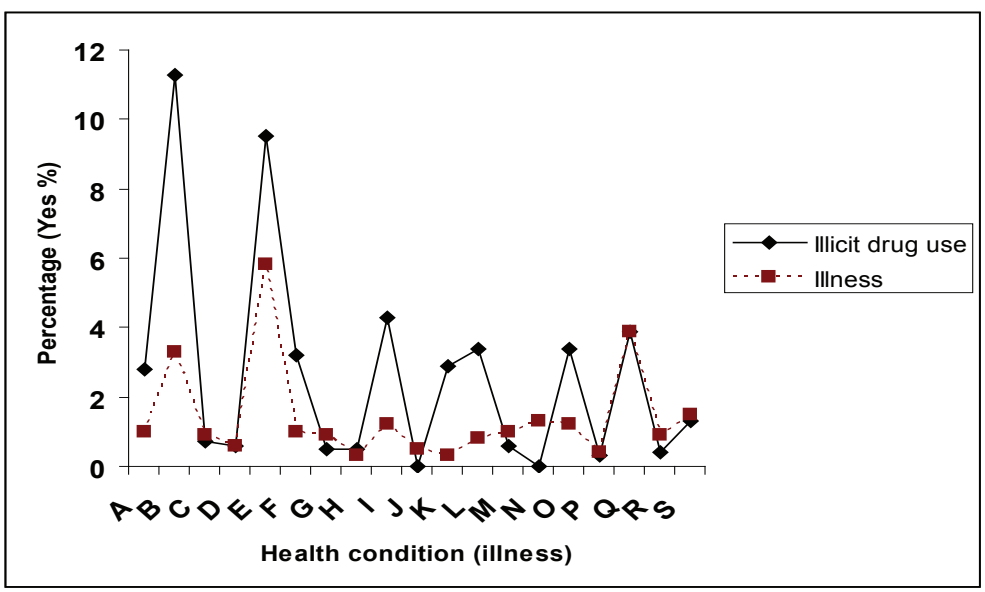

Figure 1. Relationship between illicit drug use and health conditions (illnesses) for 15 years and older South Africans

speech and vision problems. A significant association exists between illicit drug use and incident of the illness, suggesting that, high illicit drug use implies high incident of the illness (r=0.77; p-value=0.0001).

DISCUSSION

The information presented in table 5 demonstrates global problem in the use of illicit drugs where it is relatively low in South Africa compared to the USA and Australia. However, in a period of 3 years (2005 to 2008), use of cannabis (past three months) has increased from 3.9 % to 6.1% for men and 0.4% to 1.2% for women aged 15 years and older, in South Africa. Information that cannabis is the most prevalent drug used among illicit drugs and existence of preponderance among men users exist from other African countries (Gureje et al., 2007). World drug report (UNODC, 2008) place South Africa as the world's third largest producer of cannabis. The findings from the population-based household survey support the high use of cannabis in South Africa, owing to its availability.

Similar increase in the use of other illicit drugs is noted. For instance, cocaine use increased from 0.4 % for men and 0.2 % for women to 0.6 % on average, inhalant use increased from 0.2 % to 0.7 %, and mandrax from 0.5 % for men and 0.1 % for women to 0.8 % on average. The dramatic increase in illicit drug use and disparity between genders suggests change in environmental and socio-economic factors such as poverty level among the communities, neighbourhood disorder and drugs availability.

Males were 6 times likely to use cannabis than females in the same age group. Males in the age group 20 to 44 years were the main users of cannabis. The elderly (65+ years) heavily dependent on sleeping bills compared to other age groups. An abuse of the sleeping bills by youth aged 24-34 years as a recreational drug indicates a major problem. The high use of illicit drugs by men aged 20 to 44 years could be associated to lack of family bonding, family disturbances (conflicts), lack of adequate social support networks, and pressure to meet daily family needs, under economic hardships and high unemployment. High responsibility put on the elderly, especially among the Black community (such as taking care of orphans left by parents who died of HIV/AIDs) leads to high use of sleeping bills as a coping mechanism.

The use of illicit drug differs across settlement areas with males living in urban areas indicating heavy use compared to males living in rural areas. The same is noted across the provinces with Western Cape registering

Table 5: Comparisons of illicit drug use epidemiology: South Africa, USA and Australia

Type of drug	South Africa, 2005 (15 yrs +)[1]		USA, 2005 (12 yrs+)[2]		Australia, 2004 (14 yrs +)[3]	
Current Use of:	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**
Cannabis (past month =USA/AUS, Past 3 mos SA)	3.9	0.4	8.2	6.1	8.9	4.6
Inhalants	0.2	0.0	0.3	0.2	0.4	0.1
Mandrax, sedative, pain reliever, tranquilizers	0.5	0.1	3.0	2.6	1.9	2.2
Cocaine (crack)	0.4	0.2	1.3 (0.4)	0.7 (0.2)	0.4	0.3
Opiates, heroin	0.2	0.0	0.1	0.2	3.1	1.7
Club drugs/ amphetamine type stimulants	0.3	0.1	0.6	0.6	1.6	1.0
Hallucinogens (LSD)	0.2	0.1	06	03	0.3	0.1

[1]SABSSM II (Shisana et al., 2006)
[2]National Survey on Drug Use and Health (NSDUH, 2009)
[3]Australian Institute of Health and Welfare (AIHW, 2008)

highest use of illicit drugs. A consistent low use of illicit drugs by females is noted across the provinces. The main users of illicit drugs among the educated were the highly educated, followed by less educated (grades 1 to 5). Low earners were the main users of cannabis. Of concern is the use of illicit drugs by pregnant women. The Coloured males were 3 times users of cannabis compared to the Black males. However, White females were 3 times users of cannabis compared to Coloured females. The use of cannabis was consistently low among the Indian males and females, but the trend is reversed with respect to the use of other illicit drugs where they lead. Easy availability of illicit drugs, peer pressure among the youth, reduced parental monitoring, economic hardships, and poor family relationships are some of the factors contributing to high use of illicit drugs. The intensity of these factors differ across, gender, age groups, race, level of education, settlement area, and income level.

Evidence exists on the use of illicit drugs by injection with men reporting slightly higher use than women. The sharing of injection needles was extremely rare. A significant association ($r=0.771$; p-value=0.0001) exists between illicit drug use and illnesses as illustrated in figure 1. The common illnesses chronic allergies, vision problems and asthma correlated highly with heavy use of illicit drugs.

CONCLUSION

The dramatic increase in illicit drug use especially cannabis, demands for immediate action by government in terms of policy formulation and addressing socio-economic factors contributing to their use. Interventions directed to specific age groups, race, gender, and provinces are needed in order to reverse the current trend. Society needs to be educated on the ills associated with the use of illicit drugs ranging from mental health, learning disabilities, dysfunctional family interaction, social, and economic problems. For drug education controls to be effective, an account of different motives and patterns of drug use need to be considered. Interventions that address the high level of drug availability and high level of use are urgently needed. Modification of parental monitoring may be effective in reducing drug use by adolescent, in addition to implementation of interventions that address the peer pressure issues. The high association between illnesses and illicit drug use call for communication systems to be established to inform the public of the consequences of illicit drugs.

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REFERENCES

Australian Institute of Health and Welfare. (2007). *National Drug Strategy Household Survey: detailed findings*. Canberra, AIHW.

Bogard, K. L. (2005). Affluent adolescents, depression and drug use: the role of adults in lives, *Adolescence,* 281–306.

Brook, J.S., Pahl, T., Morojeke, N.K., & Brook, D.W. (2006). Predictors of drug use among South African, *J. Adolescences Health*, *38*(1), 26-34.

Drugaware (2006). http://www.Drugaware.co.za. [Accessed on 13th January 2010].

Frisher, M., Crome, I., Macleod, J., Bloor, R., & Hickman, M. (2007). *Predictive factors for illicit drug use among young people: a literature review.* Research Development and Statistics Directorate Report. Home Office. http://www.homeoffice.gov.uk/rds. [Accessed on 5th December 2009].

Gureje, O., Degenhardt, L., Olley, B., Uwakwe, R., Udofia, O., Wakil, A., Adeyemi, O., Bohnert, K.M., Anthony, J.C. (2007). A descriptive epidemiology of substance use and substance use disorders in Nigeria

during the early 21st century. *Drug Alcohol Depend*, *91*(1), 1-9.

Health24 (2006). Cocaine and Crack. Retrieved Month Date, Year, from http://www.health24.com. [Accessed on 26th January 2010].

Henry–Edwards, S., Humeniuk, R., Ali, R., Poznyak, V., & Monteiro, M. (2003). *The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)*. Geneva, World Health Organization.

Kalichman, S. C., Simbayi, L. C., Kagee, A., Toefy, Y., Cain, D., & Cherry. C. (2006). Association of poverty, substance use, and HIV transmission risk behaviors in three South African communities. *Social Science and Medicine*, 62, 1641–1649.

Leggett, T., Louw, A., & Parry, C.D.H. (2002). *Chapter 5: Implications for drugs policy. In T. Leggett (Ed.), Drugs and Crime in South Africa: A study in three cities* (pp. 43-47). Pretoria: Institute for Security Studies (ISS Monograph No 69).

Lennox, R.D. & Cecchini, M.A. (2008). The *NARCONON*™ drug education curriculum for high school students: A non-randomized, controlled prevention trial. *Substance Abuse Treatment, Prevention, and Policy, 3* (8).

Nel, E. (2005). *An overview of the management of the drug situation in South Africa*. Ekuseni Youth Development Center, Newcastle Department of Correctional Services. South Africa. http://www.unafei.or.jp/english. [Accessed on 23rd February 2010].

National Institute on Drug Abuse (NIDA). (2009). *Info facts*. USA: National Institute on Drug Abuse. http://www.drugabuse.gov. [Accessed on 23rd February 2010].

Parry, C.D.H., Carney, T., Petersen, P., Dewing, S., & Needle, R. (2009). HIV-risk behavior among injecting or non-injecting drug users in Cape Town, Pretoria, and Durban, South Africa. *Substance use & misuse, 44*(6), 886-904.

Parry, C.D., Myers, B., Morojele, N.K., Flisher, A.J., Bhana, A., & Donson, H. (2004). Trends in adolescent alcohol and other drug use: Findings from three sentinel sites in South Africa (1997–2001). *Journal of Adolescence*, 27, 429–440.

Parry, C.D.H. (1998). *Substance abuse in South Africa: Country report focusing on young persons.* Prepared for the WHO/UNDCP Regional Consultation for the Global Initiative on Primary Prevention of Substance Abuse Among Young People, Harare, Zimbabwe, February 1998.

Pediatrics. (2007). The role of schools in combating illicit substance use. *American Academy of Pediatrics*, *120* (6).

Poulton, R., Caspi, A., & Milne, B.J. (2002). Association between children's experience of socio-economic disadvantage and adult health: A life-course study. *Lancet*, *360,* 1640-1645.

Reber, A. S. & Reber, E. S. (2001). *Dictionary of Psychology*. England: Penguin Books.

Shisana, O., Rehle, T., Simbayi, L., Parker, W., Bhana, A., & Zuma, K. (2005). *South African National HIV Prevalence, Incidence, Behaviour and Communication Survey 2005*. Cape Town: Human Sciences Research Council Press.

Shisana, O., Rehle, T., Simbayi, L.C., Zuma, K., Jooste, S., Pillay-van-Wyk, V., Mbelle, N., Van Zyl, J., Parker, W., Zungu, N.P., Pezi, S., & the SABSSM III Implementation Team. (2009). *South African national HIV prevalence, incidence, behaviour and communication survey 2008: A turning tide among teenagers?* Cape Town: HSRC Press.

Shisana, O., & Simbayi, L. (2002). Nelson Mandela/HSRC Study of HIV/AIDS: *South African National HIV prevalence, behaviour risks and mass media household survey 2002*. Cape Town: Human Sciences Research Council Press.

Simbayi, L.C., Kalichman, S.C., Jooste, S., Mathiti, V., Cain, D., & Cherry, C. (2004). Alcohol use and sexual risks for HIV infection among men and women receiving sexually transmitted infection clinic services in Cape Town, South Africa. *Journal of studies on alcohol*. 65, 434-442.

Simbayi, L.C., Kalichman, S.C., Cain, D., Cherry, C., Henda, N., & Cloete, A. (2006). Methamphetamine use and sexual risks for

HIV infection in Cape Town, South Africa. *J Subst Use* 2006, *11*(4), 291-300.

Substance Abuse and Mental Health Services Administration. (2009). *Results from the 2008*

National Survey on Drug Use and Health: National Findings. Rockville, MD: Office of Applied Studies.

Plüddemann, A., Parry, C.D.H., Bhana, A., Harker, N., Potgieter, H., Gerber, W., & Johnson, C. (2005). Monitoring Alcohol and Drug Abuse Trends in South Africa (July 1996 - December 2004). *SACENDU Research Brief*, *8*(1), 1-12.

United Nations Office on Drug and Crimes (UNODC). (2008). *World drug report*. Vienna, UNODC.

Vitale, S.G., van de Mheen, D., Garretsen, H.F.L., & van de Wiel, A. (2005). Self-reported alcohol use among Dutch emergency room patients: variations in prevalence rates owing to methodological differences. *Alcohol and alcoholism* (Oxford, Oxfordshire), *40*(6), 524-30.

Visser, M. & Routledge, L. (2007). Substance abuse and psychological well-being of South African adolescents, *South African Journal of Psychology*, *37*(3), 595-615.