

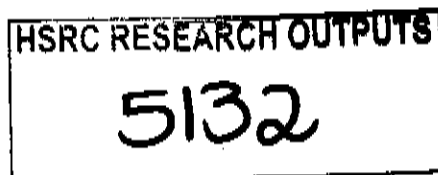
**SUBSTANCE ABUSE TRENDS IN THE WESTERN CAPE**

**A review of studies conducted since 2000**

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## **EXECUTIVE SUMMARY**

A consortium of researchers from the South African Medical Research Council, Human Sciences Research Council, University of Cape Town and Dopstop was established to identify, summarise and integrate findings from substance abuse research conducted in the province over the last eight years. A review of research conducted since 2000 was done and compiled into a summary report of key findings on substance abuse trends in the Western Cape. The report provides recommendations for interventions and outlines gaps in current knowledge that will assist the Department of Social Development in identifying research needs and service planning.

This report reveals that alcohol remains a significant substance of abuse in the Western Cape. Alcohol abuse is often not a key focal point for prevention and treatment services and yet places a tremendous burden on the health and social welfare sectors in both urban and rural areas of the province. Effective interventions that address alcohol use among all race and gender groups are hence required. This report also highlights the growing use of stimulants in the province (such as methamphetamine and cocaine). Stimulant abuse is associated with a myriad of problems, especially sexual risk behaviour. Effective interventions for treating stimulant-related problems are urgently required in the province. Stimulants are also not used in isolation. This report highlights the use of other classes of drugs, such as opiates, cannabis and sedatives to come down from a stimulant-induced high. These drugs pose their own set of health and social problems. In summary, these findings show that no single substance should be viewed in isolation. Substance abuse services should therefore focus on preventing and treating poly-substance use.

This report identifies several gaps in current knowledge on substance use in the province. Given the scale of the substance abuse problem in the Western Cape, funding for research on substance use has been limited. A comprehensive research strategy that includes a province-wide, dedicated household survey focused on substance abuse; continued support for the SACENDU and district social services surveillance systems; regular school-based surveys; and ongoing intervention research is required. Together, this research will provide the DOSD with up to date information on the prevalence of substance use disorders in the province, changing patterns of substance use, geographical areas where treatment and prevention needs are

greatest, and data on substance use in remote and rural areas of the province. To ensure that this strategy is successfully implemented, adequate funding should be ear-marked for these initiatives.

This report also emphasises the need for intervention research to develop effective means of preventing and treating the harms associated with substance use, particularly substance-related injuries and substance related sexual risks. This intervention research should also focus on establishing the cost-effectiveness, efficiency and effectiveness of current prevention and treatment services in the province. Intervention services are also needed to address substance abuse among vulnerable populations, such as rural and Black/African communities and among women.

## **1. BACKGROUND**

In the Western Cape, the rising demand for substance abuse services and calls by communities for additional services has led to the Provincial Department of Social Development allocating additional resources to the prevention and treatment of substance use disorders (SUDs). However, planning around the allocation of these resources has been hampered by several informational barriers. Decision makers within the Western Cape Department of Social Development (DOSD) do not have adequate information on the nature and extent of substance abuse in the province, the extent to which there is unmet substance abuse service needs, where these unmet needs are greatest, and which population subgroups have relatively high unmet needs (Myers, Louw, & Fakier, 2008). This is important to address as an assessment of the distribution of resources in relation to service need could help avoid service duplication and ensure adequate service coverage across the province. Information on substance abuse trends among different population subgroups and within specific geographic areas is also vital for ensuring that interventions are targeted at groups and regions where the need is greatest and service coverage is low (Myers, Louw, & Fakier, 2008).

This report represents a direct response to the Western Cape DOSD's informational needs. Upon request from the DOSD a consortium of researchers from the South African Medical Research Council, Human Sciences Research Council, University of Cape Town and Dopstop was established. The mandate of this consortium was to identify, summarise and integrate findings from substance abuse research conducted in the Western Cape from 2000 into a user friendly report on substance abuse trends in the Western Cape. This report also includes research-driven recommendations for interventions and gaps in current knowledge that need to be addressed through additional research.

## **2. METHODS**

All completed substance abuse research projects, conducted in the Western Cape from 2000 to 2008, were identified using scientific search engines (Embase, Medline, ScienceDirect and Ebscohost), South African databases and by contacting South African substance abuse researchers at tertiary education institutions and research councils. A spreadsheet for extracting key findings and data on study design, sample size, sample characteristics (target population, socio- demographics (including age, gender, race/ethnic group), and geographic

location), substance use variables (types of substances used, frequency and quantity used, mode of use, severity of use), psychosocial problems associated with use, abuse and dependence (sexual risk behaviour, crime, and injury), and need for services (problem severity and treatment need) was developed. This spreadsheet was used as a guide for extracting key findings from theses, dissertations, research reports, and journal articles which stem from the identified studies.

Secondary analyses on the data collected for the Nelson Mandela/HSRC household survey of HIV/AIDS (2002), the Nelson Mandela/HSRC household survey of HIV/AIDS (2005), HSRC local surveys in Cape Town, and the HSRC survey of educators (2004) were also conducted. In addition, where possible, secondary analyses on the data collected for the school and primary health care studies conducted by the University of Cape Town's Department of Psychiatry were conducted. The MRC also conducted secondary data analyses on the 2006/7 Access to Treatment data set. Following this, the aforementioned spreadsheet was used to extract and summarise key findings.

Extracted findings from both the review of current and completed research and the secondary analyses were then compiled into a single summary report. The results from this review and secondary analyses are presented, below, separately for adults and adolescents.

### **3. RESULTS AND DISCUSSION OF KEY FINDINGS FOR SUBSTANCE ABUSE AMONG ADULTS IN THE WESTERN CAPE**

This report summarises key findings by type of substance for adults 18 years of age or older. Where studies examine substance use among persons 15 /16 years of age and older, these are also included. For each substance, we report findings related to prevalence, sociodemographic variables associated with use, and problems associated with use. Research-driven recommendations for interventions and gaps in current knowledge are also identified.

#### **3.1. Alcohol**

##### **Prevalence: lifetime and problem use**

In the Western Cape, alcohol remains the most frequently abused substance. Across household surveys, the prevalence of lifetime alcohol use in the Western Cape ranges from 39% to 64% and the prevalence of risky drinking or problematic use among drinkers ranges

from 9% to 34%, depending on the instruments used to assess problem drinking (SADHS, 2003; Shisana et al., 2004; Shisana et al., 2005; Shisana & Simbayi, 2002) (see Tables 2 and 5). Alcohol has been and remains a problem in the Western Cape, with findings from national household surveys reflecting higher prevalence rates for risky drinking in the Western Cape Province relative to the other provinces Shisana et al. (2005) also found that compared to other provinces, the Western Cape had the highest prevalence of risky drinking (16%), followed by the North West Province (13%) and the Northern Cape (12%). The remaining six provinces had risky drinking prevalence rates below 10%.

In addition, the South African Stress and Health (SASH) study conducted between 2002 and 2004 found that, compared to the other provinces, the Western Cape had the second highest (7.1%) 12-month prevalence of substance use disorders and the highest (18.5%) lifetime prevalence of substance use disorders (Stein et al., 2007). Furthermore, the South African Demographic and Health (SADHS) survey reported that of the nine provinces, the Western Cape had the highest lifetime prevalence (70.3%) and highest past 12 month (55.1%) use of alcohol among males. Likewise, for females, the Western Cape had the highest lifetime prevalence (39.2%) and past 12-month use (28.8%) of alcohol (SADHS, 2003/2004) (Table 2).

While data from the MRC's South African Community Epidemiology Network on Drug Use Project (SACENDU) reveals that the proportion of persons reporting for treatment with alcohol as a primary substance of abuse dropped from 48% in 2000 to 30% in 2007, this does not mean that the prevalence of alcohol-related problems has decreased in the province (Table 7). SACENDU data only reflects substance use among persons who have managed to access available treatment services and is not representative of substance abuse trends in the general population. Due to limited access to services, treatment populations are skewed in terms of race and gender and geographical region – with women, black South Africans, and people from rural and disadvantaged communities remaining under-represented in treatment settings (Myers, Parry, & Plüddemann, 2004). With increasing pressure to treat young methamphetamine using clients, it is highly likely that access to treatment for older alcohol-dependent persons has become increasingly difficult in the Western Cape.

#### Gender & Race

Several studies point to lifetime use of alcohol being higher among males than females (e.g. SADHS, 2003; Ward et al., 2003) (Tables 2-3). For example, the 2003/4 South African



Demographic and Health Survey reported prevalence rates for alcohol use of 70.3% for males and 39.2% for females over the age of 15. Findings on the prevalence of problem drinking (including binge drinking) among men relative to women are more equivocal. Some studies suggest that, among current drinkers problem drinking rates are higher among women relative to men. For example, the SADHS reported that rates for binge drinking<sup>1</sup> on weekends were higher among females (48%) than males (23%) (SADHS, 2003). Similarly, a community-based study on access to treatment reported more daily use of alcohol among female participants than among male participants (Myers, 2007). In contrast, other studies have reported higher levels of problem drinking among men relative to women. For example, Shishana et al (2005) found that 25% of males and 6% of females in the Western Cape consumed alcohol in a hazardous or harmful manner.

Even though these findings are somewhat contradictory, they do reflect high levels of problem drinking among women in the Western Cape. Further evidence of high levels of problem drinking among women in the Western Cape is provided by Shishana et al (2005)'s household survey. This study found that, compared to the other provinces, the Western Cape had the second highest prevalence of hazardous or harmful drinking during pregnancy. High rates of Foetal Alcohol Spectrum Disorders (FASD) in the Western Cape provide further evidence of alcohol misuse among women in this province. The Western Cape reportedly has one of the highest FASD rates in the world. Rural farming communities have been the most widely researched (Wellington, Ceres, Picketberg), with FASD estimates ranging between 65.2 – 89.2 per 1000 children in these communities (Marais et al., 2005; May et al., 2006; Morojele et al., in press; Viljoen et al., 2005) (Table 3). Despite a perception that FASD is a rural phenomenon, other formative work has reported heavy drinking among women during pregnancy among women living in urban black African and Coloured townships (Sawyer, Wechsberg, & Myers, 2006).

Studies also point to higher levels of problem drinking among Coloured communities relative to Black/African, White and Indian communities in the Western Cape. A HSRC household survey reported higher levels of hazardous and harmful alcohol use in Coloured persons in the Western Cape (18%) relative to Black/African (11%), White (7%) and Indian (1%) persons (Shisana et al., 2005) (Table 5).

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<sup>1</sup> In this study, binge-drinking was defined as five or more drinks on one occasion for males and four or more drinks on one occasion for females

### Geographic boundaries

In general, research on alcohol use has not been able to successfully map alcohol-related problems to specific geographic areas. Most studies have looked at alcohol use and related problems at a provincial level rather than in terms of specific enumerator areas or in terms of municipal boundaries. FASD-related research does, however, highlight the need for alcohol-related interventions in the more rural farming areas of the Western Cape. This is confirmed by a HSRC household survey (Table 5) which reported higher levels of hazardous and harmful alcohol use in rural areas of the Western Cape (21%) relative to urban informal areas (17%) and urban formal areas (12%). A similar pattern emerged when binge-drinking was examined. Rural formal areas had higher levels of binge-drinking (20%) relative to urban informal areas (16%) and urban formal areas (15%) (Shishana et al., 2005). Similarly, a study of substance use among educators found higher rates of risky drinking within the West Coast district (8%) followed by the Eden district (6%) and the Boland district (5%) relative to other districts in the Western Cape. The West Coast district also had the highest proportion of binge-drinking (19%) followed by the Eden district (14%) and the Boland district (13%) (Shishana et al., 2004). Apart from this, a non-representative study of access to treatment in the Cape Town metropole (Table 1) reported more daily use of alcohol among substance users in the Tygerberg (69.6%) and the Helderberg (58.7%) sub-districts of the metropole as compared to other urban districts (Myers, 2007) (Table 1).

### Alcohol's burden of harm

The higher proportion of alcohol-related traumatic injuries in Cape Town, relative to other sites confirms the burden of harm alcohol presents to society. In 2001, the proportion of alcohol-positive trauma patients who sustained transport injuries was higher in Cape Town (46%) than in Port Elizabeth (PE) (41%) or Durban (16%) (Plüddemann et al., 2004). In addition, Cape Town was the only site where the proportion of alcohol-positive trauma patients increased significantly from 1999 to 2001 (Table 4). Mortality statistics also reflect the high burden of harm associated with alcohol use in Cape Town, relative to other sites. Findings from the National Injury Mortality Surveillance System reveal that in 2004 the proportion of alcohol-positive deaths due to violence was higher in Cape Town (59%) than in Durban (47%), Johannesburg (47%), or Pretoria (51%). Similarly, the proportion of alcohol-positive deaths due to transport injuries was higher in Cape Town (57%) than in Durban (49%), Johannesburg (48%), or Pretoria (49%) (Matzopoulos, 2005).

Further evidence of this burden of harm is provided by the 3-Metro's study on drugs and crime. Compared to other sites, arrestees in Cape Town were more likely to report being under the influence of alcohol at the time of their arrest; with 23%, 16% and 6% of arrestees in Cape Town, Durban and Johannesburg respectively, reporting being intoxicated at the time of the alleged crime for which they were arrested (Parry et al., 2004b).

Alcohol use is also strongly associated with sexual risk behaviour in the province. The outcomes of studies conducted on HIV prevalence, substance use and associated high risk practices over the last 7-8 years all echo the same concerns: the need for interventions to address the growing substance abuse problem and its linkage with high risk sexual behaviour (Parry et al., 2008; Shisana et al., 2005). For example, studies conducted by Olley et al. (2005), Kalichman et al. (2006) and Wechsberg et al. (2007) found that rates of condom use and other safe sex practices were lower among persons who used alcohol prior to having sex (Tables 3-4). In addition, Shisana et al (2006) found that hazardous or harmful drinking and binge drinking were related with having more than one regular and with having irregular partners.

### **3.2. Methamphetamine/tik**

#### **Prevalence:**

In general, very few household surveys have examined the use of methamphetamine (MA) in the Western Cape. The most up-to-date data emerges from the MRC's SACENDU project which has shown a steady increase in the proportion of patients admitted to treatment with methamphetamine abuse or dependence. In 2002, only 0.3% ( $N = 4/1608$ ) of all patients reported MA as a primary or secondary substance of abuse. This proportion increased to 49% in the first half of 2007 (Plüddemann et al., 2007) (Table 7). Nonetheless, while these findings show a steady increase in MA use in the province, it does not necessarily reflect prevalence rates for MA use in the general population. *To estimate the prevalence of MA use in the general population, various types of research studies should be supported. In addition to SACENDU, regular province-wide household surveys dedicated to the study of substance use disorders would be useful. If conducted regularly, such surveys would be able to track changes in substance use over time. In addition, if the survey is dedicated to the study of substance use, it might be able to address some of the limitations of broad omnibus surveys where substance use is not included as the primary variable of concern.*

Studies have also highlighted that MA is often used in conjunction with other substances. Plüddemann et al. (2008) found that 78.2% of heroin users also reported daily use of MA (Table 8). Similarly Wechsberg et al. (2007), Myers (2007), and Parry et al. (2008) found that substances such as alcohol, cannabis, Mandrax, and heroin were used to come down from or temper a MA-induced high (Table 1, 3, 4). Stimulants, such as methamphetamine are also sometimes used in conjunction with other stimulants, such as cocaine; especially when the first stimulant of choice is not readily available. For example, studies have shown that polystimulant use is common in South Africa. For example, when methamphetamine is a primary drug of abuse, cocaine is often reported as a secondary drug of abuse (Parry et al. (2007). *The use of these other substances is in itself problematic and highlights the need for prevention and treatment services that address polysubstance use rather than services that focus solely on MA use.*

#### Gender and race

From 2002 to the first half of 2007, most persons accessing treatment for methamphetamine-related problems were male, with the proportion of females accessing treatment ranging from 24% to 29%. Coloured South Africans were more likely to access treatment for methamphetamine-related problems than patients from other race groups (with the proportion of Coloureds ranging from 81% to 92%) (Plüddemann et al., 2007) (Table 7). This; however, does not necessarily reflect dramatically lower levels of MA use among Black/Africans and women. Black/Africans and women experience more barriers in accessing services and it is highly likely that these treatment centre statistics are skewed in favour of men and people from other race groups (Myers, Parry, & Plüddemann, 2004).

While a study conducted by Simbayi et al. (2006) found that individuals who had ever used methamphetamine were (i) significantly younger than those who had not used methamphetamine; (ii) men were more likely to have tried methamphetamine than women, (iii) and persons who identified as Coloured were more likely to have tried methamphetamine than Black/Africans or persons from other races, more recent data starts to paint a complex picture of MA use (Table 4). More recent community-based studies have reported higher than expected levels of daily MA use among Black/African substance users (13%). While these daily use rates are lower than for their Coloured counterparts (38%), they still show that MA use cannot only be seen as a "Coloured problem" and that MA use among Black/Africans should not be ignored

(Myers, 2007) (Table 1). This study also found very similar levels of MA use among men and women: 28% of female substance users reported daily use of MA compared to 22% of their male counterparts (Myers, 2007). Wechsberg et al. (2007) also reported very high levels of MA use among female substance users participating in an HIV-risk reduction intervention study (Table 3). *This highlights the need for interventions that address MA use among all race and gender groups in the province.*

#### Geographical areas

In general, research on MA use has not been able to successfully map MA-related problems to specific geographic areas. Most studies have looked at MA use and related problems at a provincial level or within specific communities (e.g. Parry et al., 2008; Plüddemann et al., 2006; Wechsberg et al., 2006; Wechsberg et al., 2007) and have not compared prevalence rates across municipal boundaries (Tables 3 & 6). A non-representative study of access to treatment in the Cape Town metropole reported higher rates of lifetime, weekly and daily MA use among substance users in the Oostenberg and Helderberg subdistricts relative to the other districts of the Cape Town metropole (see Table 1).

#### Methamphetamine's burden of harm

MA use potentially places a large burden of harm on the Western Cape's health, social development and economic sectors. MA is strongly associated with sexual risk behaviour in the province. For example, Simbayi et al. (2006) found that MA users were more likely to have exchanged sex for money or drugs, (ii) were more likely to have multiple sex partners, and (iii) were more likely to have had unsafe sex while having multiple partners than non-methamphetamine users (Table 4). Similarly, Wechsberg et al. (2006) reported that MA users were (i) significantly less likely to have used a condom during the last time they had sex, (ii) significantly less likely to have spoken to their partners about using a condom when having sex, and (iii) more likely to trade sex for MA if they could not afford to buy it compared to individuals using drugs other than MA. Parry et al. (2005) also noted inconsistent condom use among MA users.

Apart from MA's association with sexual risk behaviour (and the threat this poses to the spread of HIV in the province), MA is also associated with increased risk for mental health problems and violent behaviour. This holds implications for both the health and criminal justice sectors of the province. Plüddemann's (2006) study of MA use among school-going youth found greater

risk for depression, anxiety and violent behaviour among MA-using learners than among learners who were using substances other than MA. Parker (2007) also found an association between mental health problems and MA use among a sample of patients in a psychiatric hospital in the Western Cape (Table 3).

### **3.3. Cannabis and Cannabis/ Mandrax**

#### **Prevalence**

In the Western Cape, cannabis remains one of the most frequently used illicit drugs. Shisana et al. (2005) reported prevalence rates (past 3 months) for the use of cannabis of 6.8% for males and 2% for females. An earlier household study found that less than 1% of males and females reported the use of cannabis (Shishana et al., 2002). Such "omnibus" household surveys are however likely to underestimate the usage of all illegal substances, especially those deemed most problematic and stigmatized within communities.

Data from the MRC's South African Community Epidemiology Network on Drug Use Project (SACENDU) reveals that the proportion of persons reporting for treatment with cannabis as a primary substance of abuse dropped from 12% in 2000 to 10% in 2007 and the proportion reporting for treatment with cannabis/Mandrax as a primary substance of abuse decreased from 23% to 2.7%, indirectly suggesting a drop in the prevalence of cannabis and cannabis/Mandrax-related problems in the province. These findings however, do not suggest that cannabis and cannabis/Mandrax should be ignored in treatment settings. Data from the SACENDU project reveal that when cannabis and cannabis/Mandrax are considered as both primary and secondary substances of use, the proportion of patients reporting the use of these substances increased to 31.7% for cannabis and 12.6% for the cannabis/Mandrax combination for the first half of 2007. As mentioned previously, cannabis and cannabis/Mandrax are often used to come down from the effects of stimulants, such as methamphetamine.

In addition, it should be noted that SACENDU data only reflects substance use among persons who have managed to access available treatment services and is not necessarily representative of the actual prevalence of cannabis and cannabis/Mandrax use in the province. With increasing pressure to treat young methamphetamine using clients, it is highly likely that access to treatment for cannabis and Mandrax-dependent persons has become less of a priority (Table 5, 7). In addition, the normalisation of cannabis and cannabis/Mandrax within many Western Cape communities may also limit treatment-seeking behaviour (Myers, 2007).

### Gender and race

Across household and community-based studies, cannabis use seems to be more prevalent among Black/African communities in the Western Cape than among Coloured communities. For example, Myers (2007) (Table 1) reported significantly higher levels of lifetime, monthly, weekly and daily cannabis use among Black/African substance users than among Coloured substance users. Similarly, Wechsberg et al. (2006) reported significantly higher rates of lifetime, monthly and weekly cannabis use among Black/African female substance users than among Coloured women (Table 6). In a later study, more Black/African women tested positive for cannabis than Coloured women (Wechsberg et al., 2007) (Table 3). Kalichman et al. (2006) also reported higher levels of cannabis use among Black/African persons relative to other race groups (Table 4).

A more complex pattern emerges for the use of Mandrax. Shisana and Simbayi's (2002) household survey only found Mandrax use among Coloured persons in the Western Cape. Yet Kalichman et al. (2006) reported equal proportions of Black/African and Coloured persons use Mandrax. However, more recent community-based studies have reported higher levels of Mandrax use among Black/African as opposed to Coloured communities. For example, Myers (2007) reported high levels of lifetime, monthly, weekly and daily Mandrax use among Black/African substance users relative to their Coloured counterparts. Similarly, a higher proportion of Black/African women tested positive for Mandrax than Coloured women in an HIV and substance abuse intervention study (Wechsberg et al., 2007) (Table 3). Based on these findings, it seems that Mandrax is fast becoming entrenched in Black/African communities as a substance of abuse. *The ongoing use of Mandrax within Coloured communities and the emerging use of Mandrax within Black/African communities is an issue that requires careful monitoring and intervention.*

Throughout these periods, most persons accessing treatment for cannabis and cannabis/Mandrax-related problems were male (Plüddemann et al., 2007). Community-based studies (e.g. Myers, 2007) confirm that the rates of lifetime, monthly and weekly cannabis and Mandrax use appear higher among male substance users relative to their female counterparts. However, several studies of drug use highlight the endemic use of cannabis among women in the province (Sawyer et al., 2006; Wechsberg et al., 2006; Wechsberg et al., 2007) (Tables 3, 6). *These findings reflect the need for interventions that address cannabis and Mandrax use among all race and all gender groups in the province.*

### Geographical areas

Most studies have examined cannabis and Mandrax use at a provincial level or within specific communities (e.g. Parry et al., 2008; Plüddemann et al., 2007; Wechsberg et al., 2006; Wechsberg et al., 2007) and have not compared prevalence rates across municipal boundaries. An exception to this was a non-representative study by Myers (2007) of access to treatment in the Cape Town metropole which found very high rates of cannabis use among substance users in the Blaauwberg, Central, Helderberg, Oostenberg, Southern and Tygerberg subdistricts (Table 1). A possible reason for the high rate of cannabis use could be related to availability and perceptions that cannabis does not give rise to problems and that cannabis is not a drug in the same way that methamphetamine or heroin is (Peltzer, 2002).

There is limited research on the use of cannabis and cannabis/Mandrax in rural areas of the province, with most studies of cannabis and cannabis/Mandrax having been conducted in urban areas. One exception was Shisana et al. (2005)'s household survey. In this study, rural areas had marginally higher levels of lifetime cannabis use (3.9%) than urban formal (3.7%) and urban informal areas (1.3%) (Tables 4-5). *More research on the prevalence and patterns of substance use in rural areas of the Western Cape is urgently needed.*

### Cannabis, cannabis/Mandrax and the burden of harm

Cannabis and cannabis/Mandrax use potentially places a large burden on the Western Cape's health, social development, criminal justice and economic sectors. The burden these drugs place on the criminal justice system is reflected in findings from the 3-Metro's study on drugs and crime (Table 4). In 2000, 50.2% of arrestees in Cape Town had lifetime cannabis use and 31.7% lifetime Mandrax use (Parry et al., 2004). The study found that persons arrested for housebreaking and drug and alcohol offenses in particular were more likely to test positive for cannabis and Mandrax (Parry et al., 2004).

These drugs also place a burden on the health sector. For example, a study on drugs and trauma in 2000 reported that a higher proportion of trauma patients tested positive for cannabis (35%) in Cape Town compared to Durban (34%) and PE (26%) (Peden, Harris, Sukhai, & Donson, 2001). *These findings highlight the need to monitor the consequences of cannabis and cannabis/Mandrax use and the need to address the use of cannabis in crime, violence and injury prevention initiatives.*



### 3.4. Cocaine

#### Prevalence:

In the Western Cape, cocaine (including crack/cocaine) is one of the less frequently used illicit drugs. Shisana and Simbayi (2002) and Shisana et al. (2005) reported population prevalence rates for the use of cocaine of less than 1%. The SACENDU network has also collected routine treatment data on cocaine (including crack) abuse in South Africa over the last ten years. Treatment admissions for crack/cocaine abuse in Cape Town have decreased from 8% in 2000 to 3.9% for the first half of 2007. This decrease in cocaine-related treatment admissions is difficult to interpret without regular population-based surveys on substance use in the province. Trends in the SACENDU data may reflect actual trends in the use of cocaine in the general population, but they may also reflect treatment admission policies (table 5). *This highlights the need for regular population-based surveys dedicated to the examination of substance use in the province.*

#### Gender and race

Several studies have reported higher prevalence rates for cocaine use among men relative to women (for example, Myers, 2007; Shisana et al., 2005). Although not reflected in the SACENDU data (possibly due to barriers in accessing treatment services), these studies also report higher prevalence rates for cocaine use among Black/Africans relative to Coloured persons (Myers, 2007; Wechsberg et al., 2006; Wechsberg et al., 2007) (see Tables 1,3, 5). This probably reflects the use of relatively cheap crack/cocaine rather than the more pricey cocaine HCl powder.

#### Geographical area

Most studies have examined cocaine use at a provincial level or within specific community contexts (e.g. Plüddemann et al., 2007; Wechsberg et al., 2006; Wechsberg et al., 2007) and have not compared prevalence rates across municipal boundaries. An exception to this was a non-representative study of access to treatment in the Cape Town metropole which found very high rates of cocaine use among substance users in the following subdistricts: Southern, Tygerberg, and Central subdistricts (Myers, 2007; Table 1). There is limited evidence of cocaine use in rural areas. Shisana et al. (2005) found higher lifetime prevalence rates for cocaine use in urban formal settings as opposed to rural formal settings. This might be due in part to the fact that research has largely been concentrated on urban centres. *This emphasises the need for*

*additional research on the prevalence and patterns of substance use in rural areas of the Western Cape.*

#### Cocaine's burden of harm

Studies conducted in the Western Cape have found associations between cocaine use and risky sexual behaviour (Parry et al., 2008; Wechsberg et al., 2007); sexual assault (Kalichman et al., 2004); and crime, especially property crimes (Parry et al., 2004) (Table 4).

### **3.5. Heroin**

#### Prevalence

In the Western Cape, heroin is one of the less frequently used illicit drugs in the general population. Shisana et al. (2005) reported population prevalence rates for the use of heroin of less than 0.2%. Despite this low prevalence rate, a study conducted in 2004 estimated the size of the heroin using population to range between 15 000 and 18 000 persons in Cape Town alone (Plüddemann et al., 2008). Data collected by the SACENDU monitoring system also shows an increase in heroin related treatment admissions over time. More specifically, the proportion of heroin related treatment admissions increased from 4% in 2000 to 11% in the first half of 2007. *Despite low population based prevalence rates, heroin use remains a concern for the Western Cape, particularly in light of the increased burden heroin places on limited treatment services.*

#### Gender and race

While SACENDU data suggests that heroin use is more prevalent among Coloured persons than Black/Africans (Plüddemann et al., 2007), recent community based studies have challenged this assumption. These community studies have found slightly higher prevalence rates for lifetime, weekly and daily use of heroin among Black/African substance users relative to their Coloured counterparts (Myers, 2007; Wechsberg et al., 2007) (Tables 1,3). While these findings may be a result of specific sampling strategies used in the community studies, *they do reflect the increasing use of heroin in Black/African communities.* It is not surprising that this is not reflected in treatment statistics, given the many barriers that Black/African persons experience when attempting to access treatment services (Myers, 2007).

#### Geographical area:

Most studies have examined heroin use within the boundaries of the Cape Town metropole and have not investigated the use of heroin in more rural areas or in the other districts of the Western Cape (e.g. Myers, 2007; Parry et al., 2008; Plüddemann et al., 2008) (Tables 1, 8). *This emphasises the need for additional research on the prevalence and patterns of substance use in the Boland, Eden, West Coast, Central Karoo and Overberg districts of the Western Cape.*

#### The burden of harm associated with heroin use

A study investigating HIV-related risk behaviour, injecting drug use practices and other health consequences among heroin users in the City of Cape Town (Plüddemann et al., 2008) expressed concern about the sexual and other HIV-risk behaviours of heroin users. In this study, 67% of participants reported the inconsistent use of condoms and 24% reported re-using and/or sharing needles. *Given the strong association between heroin use, HIV risk behaviours and hepatitis C and the implications this has for public health, HIV risk reduction interventions among heroin users urgently need to be considered. Such interventions should include harm reduction approaches such as needle and syringe exchange programmes as well as access to methadone (and other substitution medication) maintenance treatments.*

### **3.6. Over-the-counter (OTC) and prescription medication**

Local and international data on the prevalence of licit medicine abuse is minimal (Myers et al., 2003). The SACENDU project collects limited information on treatment demand related to OTC and prescription medication abuse. Over the last seven years there has been very little change in the proportion of persons admitted to treatment centres with OTC/prescription medication abuse accounting for 1-3% of all admissions. According to the latest SACENDU findings, 72% of patients admitted to treatment centres in the Western Cape with OTC/prescription medicines as their primary substance of abuse were female. The data also shows that patients whose primary substance of abuse is OTC/prescription medication are older, with the average age of these patients ranging from 39-44 years. *Further research is needed on the prevalence of over-the-counter and prescription medication use among women and poorer communities.*

### **3.7. Recommendations**

Based on these key findings, several recommendations can be made to inform decisions regarding prevention and treatment service planning. As information on the prevalence,

associated consequences, and level of unmet service needs is far from complete, recommendations to address current gaps in our knowledge are also made.

### **3.7.1. Research driven recommendations for interventions**

#### **Alcohol**

Alcohol remains one of the most frequently misused substances in the Western Cape. Interventions to address substance use must take the role of alcohol into account.

- The use of alcohol needs to be addressed in comprehensive prevention programmes.
- Specific prevention programmes should be targeted towards women and should include a component focusing on drinking during pregnancy. These programmes should not only be focused in rural farming areas but should be expanded to include urban informal areas.
- Treatment for alcohol use disorders should be made more accessible, especially to rural communities and the West Coast, Boland and Eden districts of the Western Cape.
- There is an urgent need for strategies to address the linkages between alcohol use and sexual risk behaviours, trauma, and mortality (due to transport accidents and violence).

#### **Methamphetamine**

Methamphetamine use within the Western Cape remains cause for concern. Although speedy action is required to limit the harms associated with the use of MA, such action should be informed by evidence-based practices and reliable information on what does and does not work in the prevention and treatment arenas. Specific interventions that could effectively limit the harms associated with MA use include:

- Implementing, monitoring and evaluating comprehensive substance abuse prevention programmes throughout the province. These programmes should focus on polysubstance use, especially as MA use is often followed by the use of other substances such as cannabis, Mandrax, heroin, and alcohol.
- Prevention programmes should not only be targeted towards Coloured communities but also towards Black/African communities. While Coloured communities have been disproportionately affected by MA, we should not ignore the rising use of MA in Black/African communities. The time to act to prevent further MA-related harms and to limit the growth of the MA drug market in Black/African communities is now.
- There is an urgent need for targeted interventions that address the linkages between MA use and sexual risk behaviours, especially among vulnerable groups such as women.

- Treatment services for MA use need to be capacitated to address the cognitive deficits and mental health problems associated with MA abuse and dependence.

#### Cannabis and cannabis/Mandrax

The use of cannabis (in particular) and Mandrax remains widespread in the province. Cannabis use is especially prevalent in Black/African communities. Specific interventions that could effectively limit the harms associated with cannabis and Mandrax use include:

- Targeting interventions to reduce the use of cannabis towards Black/African communities.
- Within comprehensive prevention programmes, addressing perceptions that cannabis is not really a drug of abuse and does not have addictive potential.
- There is a need for targeted interventions that address the linkages between cannabis use and trauma (particularly transport related injuries).
- Cannabis is a trigger for mental health problems in susceptible persons and should be addressed in prevention programmes.

#### Cocaine

While cocaine (including crack/cocaine) is one of the least frequently used drugs, it does seem to pose problems in some communities. Crack/cocaine use is particularly prevalent among Black/African communities in urban informal settings. Given crack/cocaine's association with sexual and physical violence and crime, the use of this substance requires careful monitoring. Specific interventions that could effectively limit the harms associated with cocaine include:

- Targeting early interventions to reduce the use of crack/cocaine in Black/African urban communities.
- Ensuring that barriers to treatment for Black/African persons are reduced as a matter of urgency. The availability of *geographically accessible and effective* services for Black/Africans also needs to be addressed.
- Effective treatment models for stimulant use (cocaine and MA) need to be introduced in the Western Cape. These include cognitive behavioural treatments (CBT), contingency management approaches, and the Matrix model of outpatient treatment.

### Heroin

Even though a low proportion of the population uses heroin, it is associated with multiple harms to the individual and broader society. Specific interventions that could effectively limit these harms include:

- Harm reduction approaches such as needle and syringe exchange programmes to reduce the HIV and hepatitis C risks of needle sharing and the health risks associated with the re-use of old needles.
- Increasing access to effective treatments for heroin dependence including detoxification services and methadone maintenance treatment.
- Ensuring that barriers to treatment for Black/African persons are reduced as a matter of urgency. The availability of *geographically accessible and effective* services for Black/Africans also needs to be addressed.
- Effective interventions to address the increased use of heroin in Black/African communities. These interventions should include prevention and treatment services.

#### **3.7.2. Recommendations for research: addressing current gaps in knowledge**

This review of substance abuse trends in the Western Cape has identified several gaps in our current knowledge on substance use disorders. These gaps relate to (i) limited information on the prevalence of alcohol and drug use, and particularly the prevalence of untreated substance use disorders, in the province; (ii) limited information on the geographical areas in the province where unmet needs for prevention and treatment are greatest; and (iii) more specifically, limited information on alcohol and drug use in rural areas of the Western Cape. To address these gaps, additional resources need to be allocated to substance abuse research in the province. Some research-driven recommendations for further research that would assist in addressing these gaps include:

- A regular, province-wide household survey dedicated to examining substance use (including a focus on substance abuse and dependence), associated problems, and unmet treatment needs. This would provide up-to-date data on prevalence rates of substance use disorders, correlates of substance use, and levels of service need. This would also allow researchers to identify geographical areas in the province with high levels of problems and to compare changes in patterns of substance use over time. Regular surveys of this nature would also help policy makers and service planners evaluate whether the allocation of additional resources to prevention and treatment had impacted on access to services and levels of unmet service needs.

- Mapping technologies to map current treatment and prevention service coverage and substance abuse service needs. This would assist the DOSD in its resource allocation to existing and new services.
- Routine data on licit medication abuse in the province is lacking. Further research on the nature and extent of OTC and prescription misuse among the general population is needed and particularly the incidence of misuse of licit medications among the female population.
- Provide ongoing support for research that monitors substance use and the burden of harm associated with substance use (e.g. treatment demand, crime, trauma, mortality) in the province.
  - The substance abuse surveillance system which monitors substance use in several districts in the province should receive ongoing support as this system provides data that is not currently captured by the SACENDU system.
  - The SACENDU system provides valuable data and requires resource support from the province to ensure its continuity.
  - Periodic surveys of substance-related crime, violence, injury and trauma using biological markers also helps provide important epidemiological information on substance use and associated consequences. These surveys also help us monitor whether policy changes have an impact on the levels of substance use in the province.
  - Community based studies of substance abuse among vulnerable and underserved population groups (such as women, Black/African persons, refugees, and other vulnerable groups)
- Qualitative research that complements findings from household surveys and the SACENDU system. Examples of such research could include focus groups conducted among substance users on new drug markets; changes in patterns of drug use; and changes in drug availability and quality.
- Intervention research to develop effective means of preventing the harms associated with substance use (such as substance-related injuries, substance-related sexual risk behaviours) and to develop effective and accessible treatments for substance use disorders.

#### **4. RESULTS AND DISCUSSION OF KEY FINDINGS FOR SUBSTANCE USE BY ADOLESCENTS IN THE WESTERN CAPE**

In this section, some key findings in Table 9 are explicated; some commentary is offered, and recommendations are made to inform decisions about an appropriate response to the situation. The suggestions are provided in italics.

##### **4.1. What are the rates of involvement in substance use?**

As is evident from the data presented in Table 9, large numbers of adolescents in the Western Cape are using alcohol, tobacco and cannabis. . For example, the 2002 Youth Risk Behaviour Survey reported that 34% of school-going adolescents binge-drink in the Western Cape, which is significantly greater than the national average of 23% (Reddy et al., 2003). In contrast, a lower proportion (16%) of persons aged 15 to 19 years of age reported binge-drinking in a 2005 household survey (Shisana et al., 2005). However, in this study, the sample size was small and may have underestimated the prevalence of binge-drinking behaviour among young people in the Western Cape.

School-based studies have also reported high levels of substance use among adolescents. Among Grade 8 students, Flisher et al. (2006) reported that, in the past 30 days, the proportions of males and females respectively who had used alcohol were 25.9% and 14.8%; who had used tobacco were 31.5% and 18.2%; and who had used cannabis were 17.2 and 5.2%. There is some evidence that the rates of use of alcohol, tobacco, and cannabis substances may be increasing (Flisher et al., 2006), and the "tik" epidemic is certainly a new challenge in our province (Plüddemann et al., in press). Data from the MRC's South African Community Epidemiology Network on Drug Use Project (SACENDU) confirms the challenge that MA poses to young people, with the proportion of persons under the age of 20 in treatment for MA-related problems increasing from 4% in 2003 to 57% in the first half of 2007 (SACENDU 2007) (Table 10). Other recent, school-based studies have also identified high levels of MA use among adolescents. For example, Plüddemann et al. (in press) reported that the lifetime prevalence of crystal methamphetamine ("tik") use were 13.3 % and 11.9% for males and females respectively. Males were generally at higher risk than females, although rates are sufficiently high for each gender to justify interventions that universally address all students.

*Recommendations are for intervention programmes that aim to reduce the extent of substance use are urgently required in our schools.*



#### **4.2. Burden of harm associated with adolescent substance use**

Sentinel surveillance of trauma and substance abuse in Cape Town and Durban from 1999 to 2001 revealed that 139 patients younger than 20 years old, were seen at trauma units in state hospitals in Cape Town and Durban during the 1 month study period in each site. Between 1999 and 2001, 31.8% (Cape Town) of adolescents presenting at trauma units had positive breath alcohol levels. Of the trauma patients younger than 20 years of age, 26.9% (Cape Town) tested positive for cannabis. For the 3-year period, 15.4% (Cape Town) of adolescent trauma patients tested positive for Mandrax, 11.5% (Cape Town) tested positive for opiates (such as heroin), and 1.9% (Cape Town) tested positive for cocaine (Parry et al., 2004).

The MRC/Institute for Security Studies (ISS) conducted a 3-metro arrestee study of drugs and crime over a three year period. The outcomes of the study indicated, for each phase of the study, arrestees between the ages of 18 and 20 were more likely to test positive for any illicit substance, for cannabis, and for Mandrax than were older arrestees. For phase 1–3, the proportion of arrestees, aged 20 years or younger, testing positive for cocaine increased from 2.3% to 8.7% (Parry et al., 2004).

Several studies have also reported strong associations between risky sexual behaviour and adolescent substance use. For example, Wechsberg et al. (2006) reported that very high proportions of young, out of school female substance users (aged 13-20) had not used condoms during their last sexual experience and traded sex for drugs (Table 6).

#### **4.3. What about the dropouts?**

School dropout is a major challenge in WCED schools. The study by Townsend et al. (2004) reported that 55% of students who were assessed in the second quarter of Grade 8 had dropped out by the second quarter of (what should have been) Grade 10. Of course, additional students would have dropped out later that year. Furthermore, it was found that cigarette use predicted dropout. This is consistent with research internationally, which also concludes that use of other substances also predicts dropout (Townsend et al., in press). Furthermore, research involving other risk behaviours such as sexual behaviour and involvement in bullying, concludes that these other behaviours also predict dropout. What is not understood is the reasons for the associations: Does the risk behaviour cause the dropout? Do the precursors of dropout, such as absenteeism and other indicators of reduced connection to school, cause the risk behaviours?

Or are both caused by other factors such as community or family circumstances? Whatever the reasons for the associations, the fact that there is an association between tobacco use (and other risk behaviours) and substance use and dropout has implications for practice. *It is recommended that (i) interventions to reduce the extent of school dropout should include substance use, and interventions to reduce the extent of substance use should include dropout and (ii) interventions should not just address the use of alcohol and illicit drugs but also the use of tobacco among adolescents.*

#### **4.4. Can use of a single substance be considered in isolation?**

The local research summarised in Table 9, together with other research in this province and elsewhere, is unanimous in providing a negative answer to this question (Mpofu et al., 2006). Indeed, use of a single substance is associated with use of other substances (Patrick et al., 2007). Furthermore, substance use is associated with other risk behaviours; Palen et al. (2006) showed that alcohol and/or cannabis use was associated with sexual risk behaviours, while Plüddemann et al. (2007) concluded that "tik" use was associated with sexual risk behaviours. Finally, there are associations between substance use and psychopathology. Plüddemann et al. (in press) concluded that "tik" use was associated with poor mental health functioning, aggression and depression. Again, as with the associations between substance use and dropout, the reasons for the associations are not clear, but there is nonetheless an implication for interventions. *Interventions to reduce the extent of substance use should not focus on one substance, but rather on several substances and other challenges with which substance use is associated, such as sexual risk behaviour and psychopathology.*

#### **4.5. Can school-based interventions to reduce the extent of substance use be effective in the Western Cape?**

The research is not yet clear on this point. However, the results of the Healthwise intervention provide grounds for optimism, in that those exposed to the intervention had lower rates of involvement in use of certain substances compared to those who had not been exposed (Palen et al., 2008; Smith et al., 2007). *There is an urgent need to develop, implement and evaluate school-based interventions that aim to reduce the prevalence of substance use among learners in the Western Cape.*

**4.6. Are there other research needs that are directly relevant to addressing the public health challenges posed by the high rates of substance use in Western Cape learners?**

A perusal of the research summarised in Table 1 reveals that there are a very small number of studies in relation to the extent of the problem. Furthermore, many of these studies were funded by international agencies. *There is an urgent need for resources to enable research gaps to be filled as a matter of priority.*

Some research projects that would assist in informing appropriate interventions are as follows:

- **conducting a province-wide survey of substance use in high schools to provide contemporary data about prevalence rates, correlates and risk/protective factors;**
- establishing the rates of substance use in school dropouts, and exploring suitable interventions for this group;
- exploring with more sophisticated methodologies the nature of the associations between substance use, other risk behaviours and psychopathology; and
- carrying out intervention research, to develop cost effective prevention interventions.
- focus group interviews with in- and out-of school youth to explore issues related to substances of use, changing patterns of use (mode of use, demographic changes, changes in frequency and quantity of use), and associated health and social problems should be conducted as an adjunct to ongoing school and community surveys.

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<u>Geog.area</u>	Ct metropole	Mandrax	33.50	33.1	31.3	30.1	16.8	
		Cocaine	26.20	26	24.9	23.3	8	
			Methamphet	76.30	76.3	76.3	76.1	37.8
			Heroin	8.60	8.2	7.4	6.7	2.9
<u>Race</u>	Overall	Alcohol	51.80	50.6	49.7	46.2	42.1	
<u>Sex</u>	Male	Cannabis	83.50	83.7	83.1	82.5	63.1	
<u>Geog.area</u>	Ct metropole	N=515						
		Mandrax	46.40	46.2	44.9	43.5	25.8	
		Cocaine	34.60	34.4	32.6	30.7	7.6	
		Methamphet	43.90	43.9	43.3	42.9	22.3	
		Heroin	13.20	12.8	12.2	11.7	7.8	
<u>Sex</u>	Female	Alcohol	64.60	63.3	62.4	58.4	52.3	
		Cannabis	73.80	73.8	73.6	73	58	
		Mandrax	27.80	27.4	26.6	26.2	16.2	
		Cocaine	21.70	21.1	20.5	19.8	9.9	
		Methamphet	50.60	49.8	49.6	48.9	28.3	
		Heroin	13.10	12.4	11.8	11	8.2	
<u>Sex</u>	Both	Alcohol	56.10	55.3	54.5	52.8	29.3	
		Cannabis	85.40	85.4	85.4	85.4	62.6	
		Mandrax	37.40	36.6	36.6	36.6	16.3	
		Cocaine	30.10	30.1	30.1	30.1	6.5	
		Methamphet	42.30	40.7	40.7	40.7	20.3	
		Heroin	9.80	8.1	8.1	8.1	5.7	
<u>Geog.area</u>	Central	N=372						
		Alcohol	52.70	52.3	51.1	45.4	22	
		Cannabis	71.80	72	72	70.7	52.4	
		Mandrax	38.40	36.8	36.8	36	22.8	

[illegible]

Table 2. Findings from the South African Demographic and Health Survey (2003/4)

Study description		N		Substance		Alcohol use (%)		Tobacco use (%)		9.6 (Cage)-problem severity measure	
SADHS (2003)	<u>Age range</u>	15-all			tobacco		39.6		21.5		
	<u>Race</u>	Overall			alcohol		39.2	28.8	18.8	27.0 (w/e)	
	<u>Sex</u>	Female									
	<u>Geographical area</u>	Western Cape									
	<u>Race</u>	Overall	N=337		tobacco		62.2		44.1		
	<u>Sex</u>	Male			alcohol		70.3	55.1	37.3	22.7 (w/e)	
	<u>Geog.area</u>	Western Cape									
	<u>Age Range</u>	15-24	N=60		tobacco		37.1		32.5		
	<u>Race</u>	overall			alcohol		52.6	45.8	23.6	14.9 (w/e)	
	<u>Sex</u>	Male									
	<u>Geog.area</u>	Western Cape									
	<u>Geog.area</u>	Western Cape	N=80		tobacco		30.6		17.2		
	<u>Sex</u>	Female			alcohol		39.6	37.4	25.4	48.3 (w/e)	

Table 3. Other studies of substance use among adults

Study description	Age range	18-24	N	Substance use	Prevalence (%)	Reference
Public Health Care clinics Ward et al. (2006)	cross sectional random survey	18-24	2523			
		All		tobacco	32.1	
		All		alcohol	16.7	
		Cape Town metropole		other drugs	8.4	
		over 24		tobacco	27.7	
		All		alcohol	12.2	
		All		other drugs	2.9	
		Cape Town Metropole				
		Male		tobacco	43.1	
				alcohol	26.5	
				other drugs	7.4	
		Female		tobacco	19.5	
				alcohol	4.6	
				other drugs	1.1	
		Black african		tobacco	19.7	
				alcohol	12.3	
				other drugs	2.5	







Table 4. Burden of harm associated with substance use among adults

Study Design Procedures Sampling Method Sample Size		Study description		Substance Use			
Associations of poverty, substance use, and HIV transmission risk behaviors in three South African communities Kalichman et al. (2006)	cross sectional survey Random venue-based sampling	Age range	18+	499	Alcohol	45%	
		Race			Dagga	19%	
		Sex	both		Cocaine	2%	
		Geographical area	African township		Injection drugs	1%	
					other drugs	4%	
					no condom use-20% multiple partners-42% Exchanged sex-20%		
		Age range	18	995	Alcohol	53%	
		Race			Dagga	13%	
		Sex	both		Cocaine	3%	
		Geographical area	Racially integrating township		Injection drugs	1%	
					other drugs	3%	
							no condom use-20% multiple partners-32% exchanged sex- 6%
		Age range	18	678	Alcohol	22%	
		Race			Dagga	11%	
		Sex	both		Cocaine	2%	
		Geographical area	Urban residential neighborhoods		Injection drugs	0%	
							no condom use-20% multiple partners-2% exchanged sex-

<b>The 3-Metros study of Drugs and Crime in South Africa: Findings and Policy Implications</b> Pany et al (2004)	cross-sectional survey. Data collected via face to face interviews with arrestees and biological specimens (N = 339)	Age range	18+	339	other drugs	4%	2%
		Race	All		Cannabis	50.2%	
		Sex	both		Mandrax	31.7%	
		Geographical area	police holding cells- Khayelitsha Mitchells Plain Sea Point		Cocaine	3.4%	
					Amphetamines	0%	
					Benzodiazepines	12.7%	
<b>Alcohol use and trauma in Cape Town, Durban and Port Elizabeth, South Africa: 1999-2001</b> Pluddemann et al. (2004)	cross-sectional survey Purposive sampling. Data collected via self-report & breath-alcohol analysis	Age range	mean 30-34	100	Opiates	2.9%	Violence-42.2% Trauma-38.6%
		Race	All		Any drug	55.9%	
		Sex	both		Alcohol	(2001)- 54.9%	
		Geographical area	Cape Town			(2000)- 52.8%	
<b>Sexual assault history and risks for sexually transmitted infections among women in an African township in Cape Town, South Africa</b> Kalichman et al. (2004)	cross-sectional surveys	Age range	mean 25-35	119	Alcohol	71%	100% reported sexual assault 8% reported no condom use 9% reported no condom use
		Race	Black, Colored		Marijuana	13%	
		Sex	Female		Cocaine	5%	
		Geographical area	Western Cape		Mandrax	3%	
					Other drugs	4%	
				153	Alcohol	54%	
					Marijuana	15%	
					Cocaine	3%	
					Mandrax	3%	

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Table 5. Summary of HSRC surveys on HIV/AIDS and behavioural risks

Study design	Study description	Weighted prevalence	Weighted prevalence	Weighted prevalence	Weighted prevalence
SABSSMI 1 (Shisana & Simbayi, 2002)	cross sectional, representative national household survey	Age range: all ages			
	Race: All				
	Geographical area: Western Cape				
	Sex				
	Male	60.7	31.6	29.9	5.0
	Female	41.3	37.0	47.6	3.8
	Male	5.3			
	Female	0.9			
	Substance use by Sex				
	Race				
	African	31.4			
	White	72.7			
	Coloured	48.4			
	Indian	16.4			
	African	0.6			
	White	4.9			
	Coloured	2.8			
	Indian	0.0			

SABSSMI-11 Shishana et al (2005)	cross sectional, representative national household survey	Geotype				
			WC/ Urban Formal	Alcohol	47.8	
			WC/Urban Informal	Alcohol	30.3	
			WC/Rural Formal	Alcohol	78.0	
			WC/ Urban Formal	Mind altering drugs	2.8	
			WC/Urban Informal	Mind altering drugs	1.3	
			WC/Rural Formal	Mind altering drugs	2.7	
			Male	Alcohol	60.5	
			Female	Alcohol	39.1	
			Male	cannabis	6.8	
			Female	cannabis	1.5	
			Male	cocaine	0.7	
			Female	cocaine	0.3	
			Male	Amphetamine	0.5	
			Female	Amphetamine	0.7	
			Male	Opiates	0.2	
			Female	Opiates	0.1	
			African	Alcohol	23.1	
			White	Alcohol	78.5	
			Coloured	Alcohol	45.0	
			Indian	Alcohol	12.3	
			WC/ Urban Formal	Alcohol	48.9	
			WC/Urban Informal	Alcohol	28.0	
			WC/Rural Formal	Alcohol	46.6	
		Geotype	WC/ Urban Formal	cannabis	3.7	
			WC/Urban	cannabis	1.3	



[illegible]

Table 7. Primary substance of abuse of patients reporting for treatment in the Western Cape over a 7 year period

Site	Period	Alcohol	Cannabis	Mandrax	Cocaine	Heroin	Ecstasy	OTC/PR E	Methamph etamine	N
Cape Town (SACENDU)	1996b	81	4	9	2	1	0	2		1954
	1997a	82	5	7	4	1	<1	2		2103
	1997b	78	6	9	4	1	1	1	0.1	2160
	1998a	74	5	10	6	2	<1	2	0	2301
	1998b	64	9	14	8	2	<1	2	0.1	1361
	1999a	56	9	20	8	4	1	2	0.1	1527
	1999b	50	15	20	9	3	<1	2	0.1	1550
	2000a	48	12	23	8	4	2	4	0.2	1695
	2000b	51	13	19	7	5	1	3	0.1	1696
	2001a	46	12	21	9	7	2	4	0.1	1571
	2001b	46	12	25	6	6	1	2	0.3	1561
	2002a	48	14	21	7	7	2	2	0.3	1608
	2002b	47	18	17	7	6	1	2	0.8	1549
	2003a	43.6	15.2	20.4	7.9	6.5	0.8	2.7	2.3	1724
	2003b	39.4	15.4	23.6	8.4	7.1	1.4	2.2	2.3	1659
	2004a	38.3	12	16.9	9.7	8.8	0.5	2.4	10.7	2255
	2004b	33.7	11	15.5	9.1	8.2	0.5	2	19.3	2308
	2005a	34.4	9.7	9.1	8.3	10	0.4	1.6	26.1	2469
	2005b	25.1	11.2	5.5	7.6	13.8	0.2	1.1	34.7	2131
	2006a	30.2	7.7	3.3	6	13.5	0.1	1.4	37.2	2660
	2006b	26.4	10.5	2.9	4.8	10.2	0.1	1.6	42.3	2798
	2007a	29.5	10.4	2.7	3.9	10.6	0.2	1.1	40.7	2862



**Table 8.** Heroin users in Cape Town, South Africa: Injecting practices, HIV- related risk behaviour, and other health consequences.

Study description	Study design	Substance	Substance use (%)						Other health consequences
			Tobacco	Alcohol	OCM pain relievers	OCM cough/allergy meds	Cannabis-dagga	Inhalants	
Heroin users in Cape Town, South Africa: Injecting practices, HIV related risk behaviour, and other health consequences Pluddemann et al. (2008)	Cross-sectional survey using snowball sampling (N=239)	Age range : 18-49 Race: Black, Colored, White Sex: both Geographical area: Cape Town	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	30% had 2 sexual partners, 67% sometimes used a condom, 24% reported injection drug use
			97.1%	97.1%	97.1%	97.1%	97.1%	97.1%	sexual partners, 67%
			15.1%	14.2%	10.5%	6.3%	4.2%	38.5%	used a condom, 24%
			10.0%	9.6%	7.5%	4.2%	38.5%	0.8%	reported injection drug use
			55.2%	55.2%	55.2%	38.5%	0.8%	1.3%	
			2.1%	1.7%	1.3%	0.8%	1.3%	2.1%	
			7.5%	6.7%	2.1%	1.3%	0.4%	23.0%	
			9.6%	5.0%	2.1%	0.4%	23.0%	1.3%	
			36.8%	36.8%	34.3%	23.0%	1.3%	95.4%	
			2.9%	2.9%	1.3%	1.3%	95.4%	78.2%	
			100%	100.0%	100.0%	95.4%	78.2%		

Table 9. Studies conducted since 2000 addressing substance use among adolescents in the Western Cape

Study Setting Study name (Year(s) of data collection)	Design Sampling method Details of sample N	Prevalences			Other key findings	
		Sub-sample	Substance	Time		Rate (%)
Flisher et al. (2006) Cape Town high schools SACENDU and SATZ 1997, 2004	Cross-sectional Surveys Grade 8 students N=1437 (1997) N=6288 (2004) Total number of schools = 65	Males 1997	Alcohol	30 days	22.0	To compare prevalence rates between 1997 and 2004, logistic regression models were developed adjusting for age group and race. There were significant increases for past month use of cigarettes for males and cannabis for both males and females. There were no significant differences for past month use of alcohol.
		2004		30 days	25.9	
		1997	Tobacco	30 days	23.0	
		2004		30 days	31.5	
		1997	Cannabis	30 days	3.1	
2004		30 days	17.2			
Morojele et al (2000) Binge-drinking intentions among adolescents in Cape Town	Cross-sectional survey of adolescents in Cape Town  Convenience sample	Females '97	Alcohol	30 days	18.0	Rasch modeling provided support for the notion that there is a syndrome involving use of a range of substances.
		2004		30 days	14.8	
		1997	Tobacco	30 days	21.3	
		2004		30 days	18.2	
		1997	Cannabis	30 days	1.9	
		2004		30 days	5.2	
		Females Whites (n= 82)	Alcohol	Lifetime Past week Daily	87 46 33	
		Coloured (n =58)		Lifetime Past week Daily	67 30 35	
		Black/African (n = 81)		Lifetime Past week Daily	32 7 6	
		See Smith et al. (2007) below for prevalence details.				
Mpofu et al. (2005) Mitchell's Plain high schools Healthwise 2004	Baseline survey from intervention study See row for Palen	See Smith et al. (2007) below for prevalence details.				

	et al. (2008) above for r details	All controls (Results not give for each gender as analysis showed no differences)	Tobacco use	30 days Quitter Initiator	17 4 24	Repeated-measures latent class analysis was conducted of regular smoking at each of seven time points. A model was selected with an optimal number of classes based on fit and parsimony. Multiple groups analysis determined whether measurement and group membership varied across gender and treatment group. It was found that Group membership probabilities were significantly different for HealthWise boys, HealthWise girls, and control group students. Specifically, HealthWise boys were especially likely to be quitters; and HealthWise girls were especially likely to be non-smokers.
Palen et al. (2008) Mitchell's Plain high school Healthwise 2004-2007	Cohort Surveys 4 intervention and 5 control schools 7 semi-annual assessments, beginning in Gr. 8 N=2425 Mean age = 14.0 (at 1 <sup>st</sup> assessment) 51% female 85% Coloured	Intervention boys	Tobacco use	30 days Quitter Initiator	14 13 18	
		Intervention girls	Tobacco use	30 days Quitter Initiator	17 3 15	
Palen et al. (2006) Mitchell's Plain high school Healthwise 2004	Baseline survey from intervention study See row for Palen et al. (2008) above for further details	Ever had sex Condom use: - consistent - sporadic - none Multiple partners Last sex: - used condom - just met partner	Alcohol or cannabis use	Lifetime	Yes 19 48 39 13 40 67 36 No 5 56 22 22 20 69 20	There was a significant association between lifetime substance use and lifetime intercourse, sporadic condom use and multiple partnering. In addition, there was a significant association between lifetime substance use and not knowing one's partner on the last coital episode, but not for condom use on that situation.
Patrick et al. (2007) Mitchell's Plain high schools Healthwise 2004, 2005	See Palen et al. (2008) for further details. Data from Coloured students in the control schools was used. N = 1118	Males   Females	Alcohol Tobacco Cannabis Inhalants Alcohol Tobacco	Lifetime Lifetime Lifetime Lifetime Lifetime Lifetime	Grad e 8 47 44 21 10 42 39 Grad e 9 62 59 39 14 62 61	The pattern of onset was similar across genders; adolescents first tried either alcohol or cigarettes, followed by both, then dagga (cannabis), and then inhalants.

	50.0% female Mean age at baseline = 14.0 yrs.	Cannabis Inhalants	Lifetime Lifetime	11 28 3 5		
Plüddemann et al., 2007 One CT educational district 2006	Cross-sectional Survey 15 high schools N=1561 Grades 8, 9, 10	All	Alcohol Cannabis Mandrax Cocaine Methamphetamine	Lifetime	54.0 24.8 2.6 2.5 10.7	Compared to those who had used other substances but never tried tik, learners who had used methamphetamine at least once were more likely to be in the high risk category on the General Mental Health Functioning and Aggressive Behaviour subscales of the Problem- Orientated Symptom Inventory for Teenagers (POSIT), and to have higher scores on the Beck Depression Inventory.
Plüddemann et al. (in press) Cape Town high schools SATZ 2005	Stratified cluster Survey Then each school matched to a control school Grade 8 students Mean age = 15.3 yrs	Males	Alcohol Tobacco Cannabis Met'tamine	30 days 30 days 30 days 30 days 1 year Lifetime	32.1 33.1 21.1 61.0* 62.8* 13.3	Students who had used methamphetamine in the last 30 days were significantly more likely than those who had never tried methamphetamine to have had vaginal (57%), oral (43%), and anal sex (41%). They were also significantly more likely than students who had never tried methamphetamine to have been/made a girl pregnant (18%) or had an STI (31%). Students who engaged in methamphetamine use in the last 30 days were also significantly more likely to have had vaginal sex; oral sex and anal sex than those who had used in the past 12 months.
		Females	Alcohol Tobacco Cannabis Met'tamine	30 days 30 days 30 days 30 days 1 year Lifetime	24.5 25.8 8.7 59.7* 44.8* 11.9	

Reddy et al. (2003) High schools in W. Cape Youth Risk Behavior Survey 2002	Cluster Cross-sectional Survey N = 1432 56% female Race: Black 31% Coloured 56% White 12% Other 1% Grade: Gr. 8 25% Gr. 9 35% Gr. 10 21% Gr. 11 19% Age: ≤ 13 9% 14 21% 15 18% 16 19% 17 15% 18 9% ≥ 19 9%	Males	Alcohol	Ever 30 days Binge	69.1 51.1 38.0	
		Females	Alcohol	Ever 30 days Binge	59.5 39.7 31.0	Logistic regression showed that the Healthwise intervention was effective in reducing both recent and heavy use of alcohol and tobacco. There were no effects for cannabis. <u>More details will be provided later.</u>
			Tobacco	Ever	43.1	
			Cannabis	Ever	13.1	
			Inhalants	Ever	4.7	
			Mandrax	Ever	4.0	
			Cocaine	Ever	2.5	
			Heroin	Ever	5.7	
Smith et al. (2007) Mitchell's Plain high schools Healthwise 2004, 200, 2006	See Palen et al. (2008) for further details Substance use in the 5 <sup>th</sup> wave of data collection compared to that at baseline	Information to be inserted for these 4 empty columns				
Townsend et al. (2004) Cape Town high schools SACENDU cohort 1997 (Time (T1) 1999 (T2) 2001 (T3)	Cohort Stratified cluster Survey Grade 8 students Mean age = 14.1 yrs (T1)	Overall (Prevalence rates are for T1, stratified by dropout status at T3)	Alcohol (dropouts) Alcohol (in school) Tobacco (dropouts) Tobacco (in school) Illegal drugs (d'outs) Illegal drugs (in sch)	30 days 30 days 30 days 30 days Lifetime Lifetime	27.6 16.5 27.6 16.5 7.9 3.2	After adjusting for past month alcohol use, lifetime illegal drug use, and a range of confounders, past month cigarette use significantly predicted drop out, while past month alcohol use and lifetime illicit drug use did not. Contrary to findings from developed countries, alcohol and illicit drug use did not predict dropout.

**Table 10. Primary substances of abuse for patients younger than 20 years (%) – Cape Town Treatment data**

Site	Period	Alcohol	Cannabis	Cannabis/ Mandrax	Cocaine/ Crack	Heroin	Ecstasy	Metham- phetamine	Other	Total (N)
Cape Town WC	03a	7.2	45.9	30.7	2.9	4.8	1.9	4.0	2.9	375
	03b	4.1	41.9	32.5	4.7	7.4	3.6	4.7	1.1	363
	04a	5.1	33.1	23.3	3.7	8.2	0.9	24.9	1.1	571
	04b	2.3	24.4	17.6	2.9	8.6	0.6	42.0	1.6	619
	05a	2.5	24.5	9.3	1.9	11.5	0.8	48.7	0.9	637
	05b	3.1	22.1	6.7	1.3	12.9	0.4	53.0	0.0	674
	06a	1.7	17.4	3.9	0.6	15.3	0.0	60.2	1.0	724
	06b	2.9	26.0	2.6	0.4	7.1	0.0	58.6	0.1	761
	07a	3.6	24.4	2.4	0.6	9.6	0.1	56.5	0.0	803