“Drug Abuse: A Public Health Challenge”

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ABSTRACT

Patterns of mono- and polysubstance abuse were examined in a consecutive sample of 3,746 individuals presenting for treatment at two state supported drug treatment units located in the city of Durban, South Africa. Data for the study were obtained from the treatment units’ case files for the 6-year period April 2006 to March 2012. An analysis of treatment-seekers demographic profiles indicated that the modal treatment-seeker was an employed, single, adult male from the Durban area, with there being no significant change in this profile over the 6-year period. There was however, a significant increase in admission numbers (19%) and a significant increase in the percentage of treatment-seekers who were polysubstance users (from 39% to 56%) across the 6-year period. These findings are discussed in terms of their implications for practice and further research.

Keywords: drug treatment, incidence, polysubstance use, South Africa, youth,
INTRODUCTION

Alcohol and drug abuse is a phenomenon as old as humankind but it continues to present a significant public health problem. Research has shown that substance abuse is expanding rapidly, destroying individuals, families and entire communities and undermining national economies. The negative impact of substance abuse cannot be underestimated (NDMP, 2013-2017).

Prevalence rates for substance abuse in South Africa are more than double the world average, with the socio-economic consequences of such usage costing the country an estimated R130 billion (US$ 12.5 billion) per annum (Central Drug Authority 2012). Available attempts to explore this problem have examined epidemiological trends (Plüddermann, Dada et al. 2010; Plüddermann, Flisher, McKetin, Parry, and Lombard 2010) as well as risk factors for adolescent exposure to substance use (Brook, Morojele, Pahl, and Brook 2006; Routledge 2005). Although there is some evidence to suggest that polysubstance abuse may be common in South Africa (Plüddermann, Flisher et al. 2010), there has to date been no systematic attempt to explore the nature and scope of polysubstance use in the South African context. This omission is somewhat surprising as polysubstance use has been found to be associated with a variety of adverse outcomes which would appear to have clear relevance for both primary and secondary prevention efforts.

Extant literature on the topic indicates that polysubstance use tends to be associated with an increased risk of: progression to intravenous drug usage (Trenz et al. 2012), behavioural dysregulation (Verdejo-garcía et al. 2010); unsafe sexual practices and HIV infection (Mimiago et al. 2008), subtle cognitive deficits including impaired executive functioning (Verdejo-garcía et al. 2010), suicidal behaviour (Coffin et al. 2003; Hakansson,
Schlyter, and Berglund 2011, Martinotti et al. 2009), and prospective death in substance abusers seeking treatment (Gossop, Stewart, Treacy, and Marsden 2002). In addition, polysubstance use has been found to be associated with a more severe clinical picture and with less positive treatment outcomes (Brådvik, Berglund, Frank, Lindgren, and Löwenheilm 2009; Hakansson et al. 2011).

Risk factors for polysubstance abuse have been less well researched, with available studies having focused largely on demographic (Kedia, Sell, and Relyea 2007), family background (Martinotti et al. 2009) and psychosocial factors (Galaif and Newcomb 1999). These studies indicate that polysubstance use is associated with a younger age at presentation, parental separation, poverty and unemployment, and higher scores on measures of impulsivity. Other studies have examined exposure to childhood trauma as an antecedent to polysubstance use; with Martinotti et al’s. (2009) findings suggesting that polysubstance abuse may be associated with some forms of child abuse (emotional and physical neglect) but not with others (e.g., physical or sexual abuse).

At a broader level, the extent and trajectory of drug usage has been found to be associated with a number of social problems including poverty, discrimination, and normative social influences. In a study conducted in the city of Cape Town, South Africa (Kalichman et al. 2006), the extent and severity of substance abuse was found to be associated with a variety of social problems including exposure to discrimination and unemployment. Similarly, in a study conducted among primary school pupils attending schools in the Eastern Cape Province of South Africa (Wadesango, Chabaya, Rembe, and Muhuro 2011), it was found that child behaviour problems, including substance abuse, were associated with the effects of poverty on families. Moreover, in a recent study of secondary school pupils conducted in the KwaZulu-Natal Province of South Africa (Gopal and Collings
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2012), normative social influences and levels of social support were found to play an important role in shaping, maintaining, and supporting the trajectory of drug usage.

These identified risk factors are likely to be particularly salient in a South African context characterized by not only high levels of substance abuse but also by: (a) largely pre-adolescent initiation of drug usage (Reddy et al. 2010); (b) an estimated 3.4 million children who have experienced the death of one or both parents (UNICEF/UNAIDS 2010) (c) estimates of population poverty of 52.9% (Statistics South Africa 2008); and (d) high prevalence rates for exposure to childhood trauma (Seedat, Nymai, Njenga, Vythilingum, and Stein 2004).

In this context, it seemed appropriate to explore patterns of polysubstance use in a sample of treatment-seeking South African youth. Although no specific hypotheses were entertained it was expected that incidence rates for polysubstance abuse would be relatively high, and that such incidence rates would be on the increase.

The psychosocial causes of drug abuse can be caused by various reasons such as: easy access- one of the social causes of drug addiction is easy access to drugs. Although drugs can be found almost anywhere, certain places have more drugs than others. If a family member or friend uses drugs, this can also allow easy access; peer pressure- Particularly in teens, peer pressure can have an effect on drug use. According to the Drug Addiction Support website, because some people want to be accepted by their friends and considered cool, they sometimes try drugs to fit in with others, poor self-esteem- Those who don't have a healthy sense of self-worth are more likely to become addicted to drugs. The reason for this is that taking drugs temporarily makes you feel good and can fill a void caused by not feeling good about yourself and being distressed emotionally - those who are feeling lonely and depressed or who suffer from anxiety are more prone to drug addiction. If you're going through a rough
time in life, you are more likely to use drugs in an attempt to dull the pain. Examples of this kind of distress are death of a loved one, divorce, financial problems and getting fired or laid off from a job.

There are many biological factors that are involved with the addicted brain. “The addicted brain is distinctly different from the non-addicted brain, as manifested by changes in brain metabolic activity, receptor availability, gene expression, and responsiveness to environmental cues.” In the brain, there are many changes that take place when drugs enter a person’s blood stream. The pathway in the brain that the drugs take is first to the ventral tegmentum to the nucleus accumbens, and the drugs also go to the limbic system and the orbitofrontal cortex, which is called the mesolimbic reward system. The activation of this reward system seems to be the common element in what hooks drug users on drugs.

While biological causes of drug addiction have been suggested, many people still believe psychological factors comprise the bulk of what causes drug addiction. Some of the psychological causes of drug addiction appear to stem from trauma, often when the drug addict is young. Sexual or physical abuse, neglect, or chaos in the home can all lead to psychological stress, which people attempt to "self-medicate" (decrease the stress's pain through drug use). This self-medication becomes a cause of drug addiction.

Other psychological causes of drug addiction include: a mental illness such as depression; Inability to connect with others, lack of friends; poor performance at work or school and poor stress coping skills.
METHODODOLOGY

Data for the study were obtained from a consecutive sample of 3,746 treatment-seeking youth attending state sponsored drug treatment units in the city of Durban, South Africa. The city of Durban was selected as a study site because it is the largest city in the province of KwaZulu-Natal, with KwaZulu-Natal having been found to be the province with one of the highest rates of reported substance abuse in South Africa (Plüddermann, Dada et al. 2010). Data collection involved a case-review of the treatment centres’ files for the 6-year period April 2006 to March 2012, with ethical clearance for the research being obtained from the Humanities and Social Science Ethics Committee at the University of KwaZulu-Natal, and with gatekeeper permissions being obtained from the treatment centres’ management. For each case, data were extracted relating to the treatment-seekers demographics and history of treatment-seeking behaviour, as well the nature of drug usage.

Data analysis

Data were analysed using IBM SPSS 19, which was used to calculate both descriptive statistics and time-series analyses of identified trends. In all analyses, drugs that were used by at least 5% of respondents (alcohol and cannabis) are reported separately with all other substances – heroin cocaine/crack, inhalants, sugars (a heroin and cocaine mix), Mandrax (methaqualone and antihistamine), ecstasy, amphetamines, lysergic acid, and over the counter and prescription drugs – being combined under the heading of other substances. For purposes of the study, polysubstance use was defined as the misuse of two or more of any of the substances mentioned above.

Trends in admission numbers
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There was a graded and almost linear increase in admission numbers across the study period 
\( r = 0.98, p = .001 \), with admissions increasing by 19% across the 6-year period (see Table 1. 
Page 18).

**Treatment-seeker profile**

Across all cohorts, the modal treatment-seeking individual was an employed, single adult 
male from the Durban area. Compared to the 2006-7 cohort, the 2011-12 cohort contained a 
greater proportion of males, \( \chi^2 (1) = 8.21, p < .01 \), but did not differ significantly from the 
initial cohort in terms of any other demographic or family background variables (see Table 1, 
page 18).

<Table 1 about here, page 18>

**Most frequently abused substances**

Across all cohorts, the most frequently abused substance was alcohol (\( M = 71\% \), range: 69% - 75%), followed by ‘other substances’ (\( M = 44\% \), range: 28% - 33%), and cannabis (\( M = 30\% \), range: 28% - 33%); with there being no significant change in this trend across the 6-
year period, \( \chi^2 (10) = 2.16, p = .884 \).

**The incidence of polysubstance use**

There was a significant increase in the proportion of treatment-seekers who were 
polysubstance users over the 6-year period, \( r = -0.96, p = .002 \) (see Figure 1); with either 
alcohol of cannabis being one of the drugs of choice in all cases of polysubstance abuse. 
Data for the 2011-12 cohort indicate that polysubstance abuse involved the use of alcohol and 
some other substance/s in 50% of cases, cannabis and some other substance/s in 27% of 
cases, and alcohol and cannabis in 23% of cases. 

<Figure 1 about here, page 19>
DISCUSSION

The present findings are consistent with, and extend, the results of previous studies (Central Drug Authority 2012; Plüddermann, Dada et al. 2010; Plüddermann, Flisher et al. 2010) which have reported high prevalence rates for substance abuse in South Africa; with the extension to previous findings lying in the present finding that there have been significant increases over the past 6-years in: (a) the incidence of individuals seeking treatment for substance abuse, and (b) the proportion of treatment seeking individuals who present with polysubstance abuse.

Although it is tempting to interpret increases in the incidence of treatment-seeking behaviours as evidence of a growing drug problem, there are other possible explanations for observed trends. Increases in treatment-seeking behaviour could, for example, be the result of a number of other factors, including greater public awareness of treatment programmes and/or the increased use of diversion programmes (involving compulsory treatment attendance rather than formal criminal procedures) in the South African context (cf., Steyn 2010). Further, it is possible that trends observed in the present study may not generalise to other regions of South Africa; with further research being indicated in order to establish the generalisability and external validity of trends observed in the present study.

A unique finding of the present study was the systematic increase in the incidence of polysubstance abuse observed across the study period. This trend is consistent with high rates of polysubstance use observed among treatment-seekers in the United States (Brådvik et al. 2009; Coffin et al. 2003; Hakansson 2011; Martinotti 2009) and is not particularly surprising in a contemporary South African context characterised by many identified risk factors for polysubstance use. For example, identified psychosocial risk factors such as parental separation and poverty (cf., Galaif and Newcomb 1999; Martinotti et al. 2009) are likely to be particularly salient in a contemporary South African context characterised by (a)
an estimated 3.4 million children who have experienced the death of one or both parents (UNICEF/UNAIDS 2010) as well as (b) high levels of unemployment and poverty (Statistics South Africa 2008).

The fact that polysubstance abuse has also been found to be associated with a history of childhood maltreatment (Martinotti et al. 2009) is likely to be particularly relevant in a South African context in which children are exposed to high levels of domestic, community, and school-based violence (Collings 2011). Although numerous attempts have been made to explore the psychological effects of exposure to interpersonal violence in samples of South African children (e.g., Barbarin and Richter 2001; Barbarin, Richter, and deWet 2000; Ensink, Robertson, Zissis, and Leger 1997; Foster, Kuperminc, and Price 2004; Gupta et al. 2008; Seedat et al. 2004; Seedat, van Nood, Vythilingum, Stein, and Kaminer 2000; Ward, Flisher, Zissis, Muller, and Lombard 2001), there has to date been no systematic attempt to explore the impact of childhood trauma on self-injurious behaviours (such as substance abuse) and no attempt to explore the association between developmental trauma and subsequent polysubstance use. Trends observed in the present study would suggest that such research efforts are strongly indicated.

Ideally such research efforts need to be informed by a coherent conceptualisation of the problem, with contemporary work in the field of complex developmental trauma (e.g., van der Kolk 2005; van der Kolk et al. 2009) appearing to have much to offer in this respect. From a developmental trauma perspective, self-injurious behaviour (including mono- and polysubstance use) can be conceptualised as a form of traumatic re-enactment which, together with other forms of traumatic re-enactment (re-victimisation and the victimisation of others), reflects patterns of biological, affective, and behavioural dysregulation which comprise one of the cardinal symptom of complex developmental trauma (Ford and Courtois 2009; van der Kolk et al. 1996). Moreover, many of the factors which have been found to be
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associated with polysubstance use – including a more severe clinical picture, less positive treatment outcomes, unsafe sexual practices, suicidal behaviour, and impulsive behaviour (Brådvi et al. 2009; Coffin et al. 2003; Hakansson et al. 2011; Mimiago et al. 2008; Verdejo-garcía et al. 2010) – have also been found to be associated with a history of chronic developmental trauma (van der Kolk 2005; van der Kolk et al. 2009). As such, further research would appear to be strongly indicated in order to explore the heuristic value of a developmental trauma conceptualisation as a framework for exploring the dynamics of both mono- and polysubstance use in the South African context.

Further research is also indicated in order to more comprehensively explore the role of broader social and structural dynamics in the aetiology of polysubstance abuse in the South African context. In addition to intrapersonal dynamics, the extent and trajectory of drug usage has been found to be associated with a variety of social problems – including social discrimination, poverty, population density, exposure to HIV, and normative social influences (Gopal and Collings 2012; Kalichman et al. 2006; Wadesango et al. 2011) – with these broader dynamics being likely to play a significant aetiological role with respect to the extent and nature of substance abuse in the South African context.

From a treatment perspective, an increased incidence of polysubstance use is likely to be associated with an increase in the number of individuals presenting with complex clinical profiles and with less positive clinical outcomes (Hakansson et al. 2011). As such the presence of polysubstance could usefully be used as a basis for not only triaging treatment seekers in terms of potentially adverse outcomes but also to inform targeted interventions designed to comprehensively address the specific treatment needs of polysubstance users.

Finally, interpretations of the study findings need to be considered in the context of the studies limitations. First, while the institutional records used in the present study provided sufficient information to identify global trends, a lack of specificity (particularly
regarding the nature of substances used) precluded any detailed analysis of patterns and trends regarding substances of choice. Second, the study findings were obtained from two state supported institutions in the Durban area, and may therefore not generalise to non-governmental treatment units in the Durban area or to governmental and/or non-governmental treatment units in other South African provinces. And finally, the present findings are restricted to treatment-seeking substance abusers and may not generalise to non-treatment-seeking substance users.

The present findings do, however, suggest that polysubstance abuse may constitute an emerging problem in the South African context, with further research, designed to both replicate and extend the present findings, appearing to be strongly indicated.
**Intervention:**

It is critical to accentuate that at the most fundamental level intervention should speak to educating society on the factors that predispose individuals to drug use/abuse. Further drug use/abuse interventions should ideally be a bottom up approach.

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**Figure 2: Drug Abuse Intervention.**

As demonstrated in figure 2 this study proposes a ‘triangulated’ approach for a holistic/integrated response to drug use/intervention which includes (as discussed in figure 2) a social, psychological and health component.
References


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**Table 1. Profile of treatment-seekers**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percent of treatment-seekers</th>
<th>Change</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td>8.21**</td>
</tr>
<tr>
<td>Male</td>
<td>80 (n = 578)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>20 (n = 578)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td>5.49</td>
<td></td>
</tr>
<tr>
<td>0-14 years</td>
<td>2 (n = 575)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-19 years</td>
<td>19 (n = 607)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29 years</td>
<td>33 (n = 634)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30+ years</td>
<td>46 (n = 663)</td>
<td></td>
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</tr>
<tr>
<td><strong>Relationship status</strong></td>
<td></td>
<td>0.23</td>
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<tr>
<td>Single</td>
<td>61 (n = 575)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a relationship</td>
<td>39 (n = 607)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td>2.35</td>
<td></td>
</tr>
<tr>
<td>Grade 1-9</td>
<td>12 (n = 578)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 10-12</td>
<td>74 (n = 607)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some tertiary</td>
<td>14 (n = 634)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Monthly income</strong></td>
<td></td>
<td>0.46</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>31 (n = 663)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-R3000.</td>
<td>27 (n = 663)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+R3000.</td>
<td>42 (n = 689)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td>1.31</td>
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</tr>
<tr>
<td>Durban</td>
<td>68 (n = 578)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KZN province</td>
<td>23 (n = 575)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other provinces</td>
<td>9 (n = 607)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( **p < .01. \)
Figure 1. Changing patterns of mono- and polysubstance abuse among treatment-seeking individuals