PERSONALITY TRAITS OF ALCOHOL AND OTHER DRUG USERS IN CAPE TOWN, SOUTH AFRICA

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ABSTRACT

The Substance Use Risk Profile Scale (SURPS) is a relatively new questionnaire that assesses individual personality risk for substance-related problems. Preliminary findings have indicated that the SURPS is a useful measure for identifying characteristics predisposing some individuals to alcohol and other drug (AOD) use. High levels of hopelessness, anxiety sensitivity, sensation seeking, and impulsivity are each associated with specific patterns of substance use caused by underlying motivational susceptibilities. Furthermore, incorporating these traits into tailored prevention and treatment efforts have shown value in other countries.

The present study enrolled a community sample in Cape Town, South Africa and asked respondents about their demographics, history of AOD use, personality as measured by the SURPS, and other mental health indicators. This information was used to identify personality risks in the local population and validate the utility of the SURPS for the first time in Sub-Saharan Africa. Results found that sensation seekers had a significantly higher risk for alcohol, tobacco, cannabis, cocaine, and hallucinogen use compared to other personality groups and controls. As expected, respondents demonstrating anxiety sensitivity also showed high-risk use of alcohol, but less high-risk illicit drug use. Finally, the hopelessness group exhibited a higher risk for opioid use but overall, hopelessness and impulsivity had little impact on concurrent substance use, which contrasts with other literature. Unlike findings from mostly European and North American samples that indicate generalizability, this study did not find structural or concurrent validity for the SURPS. This provides evidence against it being adopted as a culturally appropriate assessment tool in a diverse South African population.

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1.1 INTRODUCTION

Cape Town is dealing with a formidable drug problem. This is evidenced by national health surveys and investments by the local government in treatment programs and public awareness campaigns. One highly visible promotion starting in 2014 featured the mayor and local celebrities indicating 'I have a drug problem; I don't use them, but they still affect me.' According to mayor Patricia De Lille, "Cape Town has a substance abuse problem and it affects every single resident and business, not just those who use drugs. It is arguably the most serious challenge we currently face as a city" (Mayor De Lille launches, 2014). While nearly every population deals with substance use and its side effects, many contributing factors exacerbate the drug climate in the Western Cape of South Africa.

The South African Stress & Health Study (SASH) was the first nationally representative mental health survey and found a lifetime prevalence of 13.3% for alcohol and other drug (AOD) use disorders (Stein et al., 2008). Additionally, the prevalence in the Western Cape province is significantly higher than the national average (Peltzer & Ramlagan, 2009). Many historical, social, and economic forces have contributed to high rates of drug use around Cape Town, which is most noticeable in the Cape Flats region. This was a destination for 'coloured' and mixed race people who were forcibly displaced to the outskirts of the city according the Group Areas Act of 1950. The previous apartheid government enforced strict racial segregation and their racial classification terms are still used because of its enduring effect on health outcomes. Over time, the Cape Flats has developed formidable criminal activity due to social instability, poverty, and general lack of resources and employment opportunities. Drugs have financed gangs that

continue to fill protection, employment, and power vacuums in the under-resourced communities (Goga, 2014). Such environments have made drug use a commonplace and the selling of drugs one of the few lucrative employment opportunities for young people.

While marginalized communities generally experience more substance related problems, community members are not at equal risk for initiating or escalating substance use (Peltzer & Ramlagan, 2009). There are appreciable differences that make AOD problematic for some people while others remain resilient to misuse, even within the same conditions. The assertion that this is caused by genes alone is too simplistic and deterministic. However, substance abuse does run in families and could be influenced by epigenetic mechanisms caused by complex interactions between an individual's genes and surroundings. Genes and their phenotypic expression are heavily influenced by the environment, which effects the development of the nervous system, the brain's reward processes, and consequently a person's patterns of behaviour (Malmberg et al. 2010). Furthermore, chronic stress and childhood trauma are linked to a dramatically increased risk of substance-related problems, underscoring the elevated use within communities where social problems are more prevalent (Szalavitz, 2015). Understanding how such prognostic factors relate to problematic use of alcohol and drugs may direct prevention and personalized treatment efforts to those at the greatest risk.

Despite the recent attention from the government and other organizations, the drug problem in Cape Town and South Africa at large needs more investment. This will require long-term funding commitments to research, public awareness campaigns, prevention schemes, and treatment facilities. If the burden is to be reduced, there must be fewer people indoctrinated into substance use and more high-risk users require screening and earlier professional attention. The Substance Use Risk Profile Scale (SURPS) has shown value in other settings by detecting high-

risk characteristics including hopelessness, anxiety sensitivity, sensation seeking, and impulsivity (Conrod, Castellanos-Ryan, & Strang, 2010; Krank et al., 2011).

Few studies have examined the association between personality risk factors and AOD use in middle-income countries such as South Africa. This analysis aims to identify psychological traits in a young adult South African population with the hope that a validated screening assessment may provide useful prevention and treatment methods. Based on previous research, it is hypothesized that alcohol will be associated with the four maladaptive personality types of the SURPS through differing reinforcement pathways. Furthermore, impulsivity is expected to be associated with stimulant use such as methamphetamine and cocaine, sensation seekers are anticipated to demonstrate the highest levels of alcohol consumption and overall poly-substance use, the anxiety sensitive group are expected to have low levels of illicit drug use, and the hopelessness group with high-risk opioid use (Schlauch, Breiner, Stasiewicz, Christensen, & Lang, 2013; Woicik, Stewart, Pihl, & Conrod, 2009). Validation of these relationships in a diverse South African setting would further demonstrate the measure's generalizability and potential application in efforts to curb the growing rates of substance use and abuse.

1.2 AIM AND OBJECTIVES

Aim: To explore the relationships between personality types and patterns of concurrent AOD use and validate the SURPS as an appropriate screening measure in the local population.

Objective 1: To assess the prevalence of maladaptive personality traits and high-risk AOD use in a convenient sample and estimate their association.

Objective 2: To evaluate the structural and concurrent validity of the SURPS in an untested African setting before considering it's adoption in local public health efforts.

1.3 METHODS

Participants

A convenience sample of street-intercept surveys was collected in two areas of Cape Town's Northern and Southern suburbs. These locations were selected to broadly represent the diverse demographics of the Western Cape. Participants were approached and asked to complete the anonymous paper/pencil survey in public areas such as train stations, street junctions, and shopping malls. Overall, 1000 participants were consented and informed about the confidentiality and anonymity of participation. The three major languages of the Cape (English, Afrikaans, and Xhosa) were represented by field workers who translated the questionnaire for participants unable to speak English. The only exclusion criterion was being younger than 18 years old.

Procedure

Data for this study came from a cross-sectional survey administered in 2012, which was approved by the University of Cape Town's Health Research Ethics Committee. The enrollment procedures were successfully carried out and the dataset has since been used for publication of problem-solving variables and did not include the SURPS (Sorsdahl, Stein, Carrera, & Myers, 2014). In addition to standard socio-demographic information (including gender, age, race, education, employment, and marital status) the following measures were included in the survey:

Substance use

The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) was adapted to question use of tobacco, alcohol, cannabis (locally known as dagga), methaqualone (mandrax), methamphetamine (locally known as tik), inhalants, hallucinogens, and opioids. Scores of 10 or less for alcohol and three or less for illicit drugs are considered low risk for

health and social problems. Scores between 11 and 26 for alcohol or 4 and 26 for illicit drugs represent moderate risk and scores of 27 or greater are considered high risk for AOD related problems. Each individual will be given a score for each drug, which will be made into a binary variable of high or low risk with a cutoff score of 26 (WHO ASSIST Working Group, 2002).

Personality assessment

The Substance Use Risk Profile Scale (SURPS) was administered to assess four personality traits that relate to reinforcement-specific patterns of substance use (Conrod, Castellanos-Ryan, & Strang, 2010). These traits include hopelessness (i.e. negative thinking and depression proneness), anxiety sensitivity (i.e. fear of physical arousal), impulsivity (i.e. difficulty controlling behavioral responses), and sensation seeking (i.e. desire to try new things) (Malmberg et al. 2010). Alternatively, a control group corresponds to not fitting into any of the four categories. Respondents were asked to rate their level of agreement for 23 questions by answering strongly disagree (1), disagree (2), agree (3), or strongly agree (4). Each dimension corresponds with the summation of 4-7 specific questions. The SURPS has been shown to demonstrate good psychometric properties such as test-retest and inter-dimensional reliability in various setting including North America, Europe, Brazile, and a few Asian countries (Canfield, Gilvarry, & Koller, 2015; Krank et al., 2011; Omiya et al., 2015, Woicik et al. 2009).

Depression

Depressive symptoms were measured using the Center for Epidemiologic Studies Depression Scale (CES-D). This 20-item questionnaire assesses the intensity of symptoms by asking how often (never, sometimes, occasionally, or most of the time) the depression related prompts are experienced. A cut-off score of 16 or greater is considered to be significantly depressed (Radloff 1977).

1.4 ANALYSIS PLAN

First, descriptive analysis and correlations between personality measures and substance use scores will be calculated. Individual ASSIST scores will then be summed and made into a binary category of those with low risk for AOD-related problems (0) and those considered as medium and high-risk (1). As there is not a validated cut-off score for the personality variable, individuals with scores above one standard deviation of the mean for each sub-scale will be categorized into the corresponding maladaptive group, as done by prominent authors (Conrod et al., 2010). If categorizing the SURPS scores does not result in sufficient sample sizes for each personality profile, scores will be left as continuous variables for further analysis.

Logistic regression models will be employed to analyze the associations between personality risk and high-risk substance use. A step-wise model building process will be employed and adjudicated by likelihood ratio chi-squared statistics. Depression, age, race, gender, and other demographics will be assessed for confounding, effect modification, and overall impact on regression models. Models will be generated to examine alcohol and other substances individually with personality risk dimensions and relevant demographic variables. As the prevalence of substance use in the sample is greater than 10%, prevalence ratios will be used rather than odds ratios for more appropriate measures of association (Thompson, Myers, & Kriebel 1998). All analysis will be completed using Stata version 12.1 (StataCorp LP) software.

The generalizability of the SURPS questionnaire will then be assessed using Cronbach alpha scores and differential t-tests. Alpha scores greater than 0.70 are the standard for judging such scales but 0.60 is an acceptable indicator of internal consistency with sub-scales with fewer than 10 items (Loewenthal, 1996). Two-sample t-tests will assess substance use scores for persons with and without each personality profile to determine if they are significantly different.

If ASSIST substance use scores are not normally distributed (as anticipated with many scores being 0), nonparametric methods will be used, namely Wilcoxon rank sum tests.

1.5 ETHICS

No harms are foreseen as a result of this study and no problems were encountered in the previous consenting and data collection process. Those who were approached and chose not to participate were not disadvantaged. All participants were provided a consent form and given the purpose and scope of the study beforehand. Completed questionnaires have been kept anonymous and under lock and key since the data was collected and captured. The consent form and complete survey can be found in the appendices attached.

The data was received in a Stata data file from principal investigator Dr. Katherine Sorsdahl without respondents' names or any other identifying information. Group trends will continue to be reported to relevant authorities and if appropriate, peer-reviewed journals. It is hoped that a better understanding of personality risks will be produced from this research, and in doing so, benefit future mental health services in South Africa. The study adheres to the principles set out in the declaration of Helsinki.

1.6 STAKEHOLDERS

Dr. Katherine Sorsdahl, a psychologist from the Department of Psychiatry and Mental Health at UCT, is a co-supervisor for this project. Her initial proposal led to the collection and availability of this data and she will be kept informed of the analysis and advise with future considerations and findings.

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2. LITERATURE REVIEW

Like many communities, Cape Town is plagued by alcohol and drug-related problems. This presents a growing public health concern that significantly impacts the health, social, and economic environment. Three major areas of risk for substance use disorders (SUD) include a person's social environment, psychological developmental into adulthood, and personality (Sloboda, 2006). This review will describe how conditions in South Africa have fostered rising levels of substance abuse and a growing demand for treatment services, outline the ongoing developments in personality theory, and evaluate the emergent literature for applying the Substance Use Risk Profile Scale (SURPS) to address substance-related problems. It is anticipated that promising results from other settings will be applicable to Cape Town and provide a useful assessment tool for individual personality risk. If so, it could help target high-risk individuals for prevention and treatment interventions.

2.1 Literature search

The literature was accumulated by searching Pubmed, Scopus, and Ebscohost (including Pyscinfo and Medline) databases for publications with SURPS or personality in the title or as a keyword, along with alcohol and/or drugs. A systematic search found 24 publications from numerous countries but none from African samples. Reference sections from these studies were also searched for relevant literature. Additionally, two books were consulted; *Personology: From individual to ecosystem* (Meyer, Moore, & Viljoen, 2008) and *Substance Use and Abuse in South Africa* (Ellis, Stein, Thomas, & Meintjes, 2012). These texts provided valuable insights into the development of personality theory and its modern application, and a commentary on the studies done on alcohol and other drugs (AOD) in South Africa.

2.2 Drug Climate in Cape Town, South Africa

Before the apartheid era ended in the early 1990s, there were few treatment services or research relating to drug use in South Africa (Rocha-Silva, 1992). Since that time, numerous studies have examined the extent of AOD use and recent estimates indicate that South Africans have a lifetime prevalence of 13% and average onset of 21 years (Stein et al., 2008). Furthermore, the United Nations Office on Drug Control and Crime Prevention acknowledges that South Africa's turbulent history of colonization, apartheid, and enduring inequality has produced a social environment very conducive to drug use (UNODCCP, 1999). From many impoverished community members who use substances for temporary relief from their harsh conditions, to a large number of recreational users in more affluent areas, drugs and alcohol affect South Africans from all backgrounds (Peltzer, Ramlagan, Johnson, & Phaswana-Mafuya, 2010).

South Africa is by far the largest market for AOD in sub-Saharan Africa. The country's geographical location, porous borders, international trading, and relative affluence make it very attractive for drug trafficking (Nel, 2003). Johannesburg and Cape Town are the largest cities and experience the most crime and drug use. Their rapid and continuing urbanization has led to high rates of unemployment and the development of a formidable black-market economy, especially in informal settlements and townships. Additionally, these areas often receive the least amount of basic services and policing. All these factors have fueled the growth of organized crime and gangsterism, which has increased the supply of illicit drugs, and led to a corresponding surge in consumption. (Peltzer et al., 2010).

The South African National HIV Prevalence, HIV Incidence, Behaviour and Communication Study (SABSSM II) and other national surveys have shown that the Western

Cape Province exhibits some of the highest rates of AOD use in the country. This is most evident for binge drinking amongst men, tobacco and cannabis use amongst teenagers, and abuse of methamphetamine (locally known as tik) (Reddy et al., 2002; Shisana et al., 2005). The National Drug Master Plan recognized the rising prevalence of such drugs as promoters of crime, poverty, injury, premature death, reduced productivity, unemployment, dysfunctional family life, and the spread of infectious diseases such as HIV and TB (Drug Advisory Board, 1999). Despite the rising levels of substance use and its obvious consequences, the resources needed to address the problem adequately is limited by many competing interests such as housing, education, other healthcare priorities, etc. (Peltzer et al., 2010).

2.3 Treatment demand

The growing trend in AOD use has caused a greater demand for treatment services. Primary substances prompting treatment in the Western Cape include methamphetamine (33.4%), cannabis (25.0%), alcohol (21.2%), heroin/opiates (13.0%), mandrax (2.5%), crack/cocaine (1.6%), and prescription drugs (1.0%) (Medical Research Council, 2014, p. 5). Data from the South African Community Epidemiology Network on Drug Use (SACENDU) shows that treatment populations have become younger and more racially diverse since statistics were first tracked in 1997. For example, coloured persons make up the majority of treatment patients in the Western Cape and have the highest admission rates for methamphetamine abuse in the country (Medical Research Council, 2014, p. 8). Despite the growing accessibility of services to previously disadvantaged groups, there are still many treatment barriers.

Most AOD services are located in specialized care centers, such as psychiatric hospitals in urban areas, which are expensive and have limited availability (Sorsdahl, Stein, Carrera, &

Myers, 2013). It can also be difficult for those in need to locate these services and as a result, treatment is often delayed until dependence is more severe (Myers, Louw, & Pasche, 2010). Despite the growing demand and considerable investments by the government to make treatment more readily available, the World Mental Health Survey found that only 27.6% of South Africans meeting the criteria of a substance use disorder received treatment during the previous year (Seedat, Van, Jewkes, Suffla, & Ratele, 2009).

There are many reasons why persons do not receive formal treatment. In South Africa, these include a shortage of available services and structural barriers, a lack of perceived need by substance users, and high levels of stigma (Sorsdahl, Stein, & Myers, 2012). A study by the World Health Organization (WHO) found that drug addiction is the most stigmatized health condition and alcohol addiction ranked fourth. In the same study, drug addiction was considered worse than being a criminal, HIV positive, or homeless (Room, Rehm, Trotter, Paglia, & Üstün, 2001). Such negative attitudes towards people with SUD and low levels of perceived need by users, associated with low levels of mental health literacy, lead individuals to hide their substance use and not seek help (Sorsdahl & Stein, 2010). Furthermore, many persons who obtain professional treatment do not achieve successful rehabilitation.

Substance use disorders are difficult to treat, especially in resource-limited settings. Generalized treatment programs often view SUD as unitary constructs when clinical presentations are actually quite varied. This view fails to account for the important motivational susceptibilities of users and the unique set of services needed (Barbor & Caetano, 2007). The high degree of comorbidity with other psychiatric disorders, general lack of services, and pervasive socioeconomic stressors all make successful outcomes difficult to achieve. This

emphasizes the need for not only more treatment centers, but also more effective treatment and preventative methods.

While quality and accessible treatment is imperative, prevention also needs to be emphasized if rates of substance abuse are to decline. Prevention campaigns should particularly target high-risk adolescent populations as early substance use increases the risk of future SUD (Malmberg et al., 2012). Such interventions are often directed into drug awareness campaigns in school curriculums. However, only mild benefits have been shown for long-term prevention and there is insufficient evidence for the effectiveness of such programs outside the United States (Conrod, Castellanos-Ryan, & Strang, 2010). Additionally providing tailored programs to individuals with psychological predispositions towards substance use could improve prevention efforts, as such methods have been shown to identify individuals earlier and improve treatment programs when personality risks are tailored for (Conrod et al., 2010; Malmberg et al., 2012).

2.4 The addictive personality type

Personality is commonly defined as “individual differences in the tendency to behave, think, and feel in certain consistent ways” (Caspi, 1998 p. 312). These traits are heavily influenced by genetics and are therefore relatively stable throughout adulthood. The concept of personality has long been theorized, with western notions going back to Hippocrates and the ancient Greeks. These early philosophers hypothesized that concentrations of four biles, or bodily fluids circulating in the body, gave rise to an individual’s unique character and behavioural habits. Furthermore, the Greek philosopher Plutarch observed alcohol abuse and its familial link by noting, “one drunkard begets another” (Szalavitz, 2015). In modern times, the

field of psychology has advanced personality theory and attempted to apply it to various aspects of mental health, including substance abuse.

Researchers have been searching for an 'addictive personality type', or specific trait that is particularly vulnerable to drug problems. Several mental health conditions have been strongly associated to substance abuse and over half of persons with a SUD have an additional psychiatric diagnosis such as a mood, anxiety, or personality disorder (Baker & Velleman, 2007). SUD are especially common among people with personality disorders, with 9% of persons with an alcohol disorder and 18% of persons with illegal drug use disorders also meeting the criteria for antisocial personality disorder, compared to only 4% of the general population (Goldstein et al., 2007). This group of mental disorders is characterized by long-term patterns of unhealthy and inflexible thoughts and behaviours that often hamper interpersonal relationships and the ability to cope with stress and challenges (Baker & Velleman, 2007). Although the presence of a psychiatric diagnosis is a significant risk factor for substance-related problems, there are several traits that independently lead to substance abuse.

The underlying causes of personality and substance abuse are heavily influenced by genetics and research has increasingly looked towards these neurobiological sources to help explain symptoms and behaviours. For instance, genetic predispositions have been shown to influence behavioural characteristics such as heightened impulsivity, which is subsequently linked to substance abuse, personality disorder, bipolar disorder, and others. A high level of impulsivity significantly increases the likelihood of drug experimentation and also makes it more difficult to stop. Other maladaptive traits can also lead to substance abuse, but through different pathways. Highly anxious people may use drugs to cope with social fears and might also have difficulty stopping AOD use without an alternative way to self-regulate. Such genetic influences

are important risk factors, but they are not predetermined, nor do they account for all drug users (Szalavitz, 2015).

Attributing the misuse of alcohol or drugs to a person's genes is too simplistic. Progress in the field of epigenetics has shed light on the complex interaction between a person's genes and environmental factors that can turn relevant genes on and off. Rather than a fixed genetic risk from birth, epigenetics accounts for numerous factors such as early life trauma, chronic stress, and changing physiological mechanisms that also play a part (Szalavitz, 2015). A person's environment also has an important role through the availability, legality, and cost of drugs, as well as how drugs are viewed by family members and peers, which cumulatively influence attitudes and expectations that either foster or inhibit substance use (Davis & Loxton, 2013). By understanding how these genetic, developmental, and environmental factors fit together to influence a person's personality and motivations for substance use, more appropriate prevention and treatment strategies can be developed.

The understanding that many psychiatric conditions, such as personality disorders and substance use disorders, share the same genetic risks is very important. Individuals with co-existing conditions are less responsive to traditional treatments and have poorer long-term outcomes. Furthermore, these conditions have a synergistic effect in that mentally ill persons may self-regulate by using substances to cope and substance use can fuel maladaptive behaviours (Baker & Velleman, 2007). However, appreciating environmental factors that guide an individual's development and personality is also necessary. Given the various ways in which substance use disorders manifest, it is reasonable to conclude that the idea of a singular 'addictive personality' is unrealistic. The heterogeneity in which these problems occur also highlights the need for a variety of methods to assist individuals when presenting for treatment.

Exploring the incorporation of personality factors into such efforts is therefore reasonable and worthwhile.

2.5 Substance Use Risk Profile Scale (SURPS)

Despite the significant influence personality has on behaviour, there has been relatively little application to medical and public health practice. However, personality measures have been gaining attention because of established links between personality and substance use and a potential avenue for intervention (Conrod, Pihl, Stewart, & Dongier, 2000a). It has been postulated that for such personality classifications to be useful, they must be 'structurally simple, have clinical utility, be easy to use and derived from data, predict future behaviour, demonstrate reliability and validity, identify categories that remain stable over time, and be comprehensive and applicable to differing populations' (Babor & Caetano, 2007).

Based on previous research of theoretical personality traits, Conrod et al. (2000a) created a system that incorporated four personality dimensions with established links to substance use. These traits included hopelessness/introversion, anxiety sensitivity, sensation seeking, and impulsivity. Hopelessness had been previously linked with a susceptibility to AOD use as a means of coping with negative affectivity. Anxiety sensitivity also has a susceptibility to negative reinforcement but is more characterized by a fear of physical arousal that could result in illness, embarrassment, or loss of control. Conversely, sensation seeking and impulsivity are characterized by a desire for the positive effects of certain psychoactive substances. Sensation seeking is a strong desire to try new things while impulsivity is a deficit in controlling behavioural responses (Schlauch, Breiner, Stasiewicz, Christensen, & Lang, 2013).

Conrod and colleagues first sought to link these potentially maladaptive traits to AOD use in a sample of substance abusing women. By using in-depth clinical interviews and a battery of self-reporting measures, the demonstrated that subtypes could reliably identify distinct pathways and preferences for substance use. Specifically, hopelessness was linked with alcohol and opiate use, anxiety sensitivity with anxiolytic substances such as alcohol and inhalants, sensation seeking with high rates of alcohol abuse, and impulsivity with general poly-substance use. Though people in all four categories used alcohol at higher levels than the control group (low scores for all four traits), their motivations are distinctly different between sub-types (Conrod et al., 2000a; Krank et al., 2011; Schlauch, et al., 2013)

Based on these results, a subsequent study examined the utility of applying personality sub-typing using a 90-minute coping skills intervention (Conrod et al., 2000b). Specific interventions were developed for each personality type based on motivational and cognitive behavioural treatment literature. Participants (cohort of substance abusing women) were assigned to one of three groups: personality-matched motivational and coping skills training, motivation-mismatched intervention, or a motivational film and supportive discussion with a therapist (control). Results showed that women assigned to the motivation-matched intervention demonstrated significantly better AOD outcomes after six months of follow-up than the other two groups. Authors concluded that treatment-matching strategies that focus on the patient's personality-specific motives could improve intervention outcomes (Conrod et al., 2000b).

Despite these promising results, the series of self-reporting measures were too long and complicated to be practically applied. In response to this, Woicik and colleagues (2009) developed the Substance Use Risk Profile Scale to measure these same four personality characteristics more easily. The SURPS is a brief (23-item) self-reporting questionnaire intended

to identify preferences and patterns of substance use by matching personality-based motives to the effects of various drugs (Schlauch et al., 2013). Respondents are asked to indicate their level of agreement on a four-point scale corresponding to the four personality sub-types (5-7 items each), which are then averaged. Example items include; 'I feel that I'm a failure' (hopelessness), 'it's frightening to feel dizzy or faint' (anxiety sensitivity), 'I would like to skydive' (sensation seeking), and 'I often don't think things through before I speak' (impulsivity) (Woicik et al., 2009). There is no established cut-off, but Conrod et al. (2000b) and others have used one standard deviation above the sample mean to classify personality groups while others have kept scores as continuous variables for analysis (e.g. Schlauch et al., 2013).

Through a subsequent series of studies, various author have further examined the SURPS in different settings. Woicik and colleagues (2009) first validated the SURPS using the original dataset of drug abusing women from Conrod et al. Their results demonstrated convergent relationships with theoretically relevant personality measures and discriminate relationships between measures of AOD use between the SURPS subscales. Additionally, two-month test-retest analysis indicated that each subscale was relatively stable over time (Woicik et al., 2009). The SURPS has since been applied in both treatment and non-treatment populations, with males and females, college students, and adolescents (Krank et al., 2011; Malmberg et al., 2012; Schlauch et al., 2013). The measure has also shown good reliability and validity in published literature from several countries (including Brazil, Canada, United States, Netherlands, Singapore, and Japan) (Canfield, Gilvarry, & Koller, 2015; Krank et al., 2011; Omiya et al., 2015). Most recently, Jurk et al. (2015) published a longitudinal study comprised of European adolescents given the measure in their first language (included English, Irish, French, and German). Study authors concluded that the measure showed acceptable levels of internal

consistency within each subscale, low to moderate test-retest reliability, and factor structure stability between the genders and languages. However, only the impulsivity and sensation seeking subscales predicted the substance use outcomes measured. This provides moderate evidence for applying the SURPS in diverse populations.

Despite its potential, the clinical utility of the SURPS depends on its generalizability. This is especially true when first applying a measure in a diverse population such as South Africa where linguistic or cultural barriers may need to be contextualized. For instance, words like "manipulation" might be difficult to translate or comprehend for persons whose first language is not English. There is also evidence that prompts from sensation seeking items, including "hiking in wild and uninhabited territory" or "skydiving," might be less normative among certain groups, which would present a cultural bias (Krank et al., 2011). Some studies have excluded such items from analysis because they were not reliable within their subscale (Krank et al., 2011; Schlauch et al., 2013; Woicik et al., 2009). The lack of research applying the SURPS questionnaire in an African context presents a gap in the literature that needs further consideration.

Research has shown a rise in drug-related health and social problems and many obstacles that hamper intervention. Applying prevention and treatment efforts that are effective, evidence-based, and economical is a critical goal that still needs considerable investment. Many treatment barriers have been discussed, as well as the ineffectiveness of common intervention efforts. Recent evidence for tailor-made interventions on individuals with high-risk personalities measured by the brief SURPS questionnaire has shown promise in other settings. (Conrod et al., 2000b; Conrod et al., 2010). However, its validity requires assessment before being applied in a new setting. If it demonstrates utility within a diverse South African sample, it could provide a valuable tool in the ongoing struggle against substance abuse in Cape Town.

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Deputy Editor– African Journal of Alcohol and Drug Studies
Professor Charles J. Parry
Medical Research Council
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November 27, 2015

Dear Professor Parry,

This project assesses the application of the Substance Use Risk Profile Scale (SURPS) as a personality screening tool, which has not been evaluated in a South African setting. This brief questionnaire has shown positive results for identifying persons at higher risk of substance abuse and for tailoring prevention and treatment programs in other settings.

Ethics approval was obtained through UCT's Health Science Human Research Ethics Committee and participants were treated in accordance with appropriate standards. This manuscript has not been submitted to any other journal and it is my aspiration to have it published in the African Journal of Drug and Alcohol Studies. I believe this work contributes to the journal's aim of adding knowledge of alcohol and drug in the African context, and also makes beneficial commentary on Cape Town's unique socioeconomic circumstances and burden of drug use.

During my time working on this project and other related studies in Cape Town, it has become evident that more attention and resources are needed for the pervasive drug climate to improve. It is my sincere hope that this work will contribute towards this objective.

Sincerely,

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3.1 ABSTRACT

Four maladaptive personality traits have been recognized as risk factors for alcohol and drug-related problems: hopelessness, anxiety sensitivity, sensation seeking, and impulsivity. In this cross-sectional study, the Substance Use Risk Profile Scale (SURPS) was applied to measure these traits and assess the questionnaire's validity in a community sample in Cape Town, South Africa. Results showed that sensation seekers exhibited significantly more high-risk substance use while anxiety sensitivity was protective against illicit drug use compared to a control group. However, unlike results from other settings that suggest utility for the SURPS, this study did not find high levels of concurrent substance use or internal reliability. This provides evidence against it being an appropriate assessment tool in a diverse South African population.

3.2 INTRODUCTION

The high-risk use of alcohol and other drugs (AOD) presents a growing public health concern in South Africa, where lifetime prevalence estimates indicate more than 13% of the population experiences a substance use disorder (SUD) (Stein et al., 2008) and this figure is higher around Cape Town (Peltzer & Ramlagan, 2009). The National Drug Master Plan recognized the escalating use of AOD as promoters of crime, poverty, unemployment, dysfunctional family life, injury, premature death, and the spread of infectious diseases, such as HIV and TB (Drug Advisory Board, 1999). Despite many South Africans experiencing substance-related problems and its impact on health and social conditions, the World Mental Health Survey found that only 27% of South Africans living with a substance use disorder received treatment during the previous year (Seedat, Van, Jewkes, Suffla, & Ratele, 2009).

Substance use disorders (SUD) can be difficult to address and a number of barriers in South Africa make attaining treatment and realizing positive outcomes even more challenging. In the Western Cape, most AOD services are located in specialized care centers, such as psychiatric hospitals, which have limited availability and costly services (Sorsdahl, Stein, Carrera, & Myers, 2013). These services can also be difficult for persons needing treatment to locate and as a result, treatment is often delayed until problems worsen (Myers, Louw, & Pasche, 2010). Additionally, stigmatization and low levels of perceived need, associated with low levels of mental health literacy, lead individuals to hide their substance use and not seek help (Sorsdahl & Stein, 2010). Because of the limited-resources and users not presenting for treatment when appropriate, more primary and secondary prevention methods targeting high-risk individuals are necessary.

Due to its well-documented association with substance use, personality has increasingly been explored as an avenue for intervention (Conrod, Castellanos, & Mackie, 2008; Conrad et

al., 2010; Conrod, Stewart, Comeau, & Maclean 2006). Personality is the tendency for individuals to think, feel, and behave in consistent ways (Caspi, 1998), which strongly influences various health risk behaviours, including AOD use. Four personality traits (hopelessness, anxiety sensitivity, sensation seeking, and impulsivity) have been identified as independent risk factors of substance use and the development of substance use disorders (Woicik, Stewart, Pihl, & Conrod, 2009). Personality appears to be related to substance use through different motivational pathways that manifests in preferences for the effects of specific drugs (Conrod, Pihl, Stewart, & Dongier, 2000). For example, high levels of hopelessness relate to the negative reinforcement properties of alcohol and opioids, while anxiety sensitivity is associated with substances like alcohol that reduce inhibition and the avoidance of drugs that increase anxiety, such as stimulants. These relationships motivated Woicik and colleagues (2009) to condense previous measures of personality risk into a brief, 23-item questionnaire called the Substance Use Risk Profile Scale (SURPS).

Recent studies report validity and generalizability for the SURPS in various settings. The subscales have been discriminate in measuring AOD use, and test-retest analyses indicate that each personality profile is stable over time (Castellanos-Ryan, O'Leary-Barrett, Sully, & Conrod, 2013). It has also shown good psychometric properties in published literature from several countries (including Mexico, Canada, the United States, the Netherlands, Japan, and Sri Lanka) and when translated into various languages (Krank et al., 2011; Omiya et al., 2015; Robles-Garcia et al., 2014). Furthermore, the SURPS has been successfully applied to predict adolescent AOD use and has shown efficacy in improving treatment results when applied for tailoring brief interventions (Conrod et al., 2010; Malmberg et al., 2012).

The current study employs the SURPS to measure personality risks within a Cape Town sample, assess the concurrent relations between personality traits and high-risk AOD use and determine the internal reliability of the SURPS and consequently its validity in a diverse South African population. Based on previous research, it is hypothesized that alcohol will be associated with all four personality profiles. Furthermore, compared to the control group, the hopelessness group should demonstrate a higher risk for opioid use while the anxiety sensitive group is likely to have low levels of illicit drug use. Sensation seekers are anticipated to have the highest levels of alcohol consumption and overall poly-substance use. Finally, impulsivity is expected to be associated with high-risk stimulant use including cocaine and methamphetamine (Schlauch, Breiner, Stasiewicz, Christensen, & Lang, 2013; Woicik, Stewart, Pihl, & Conrod, 2009). Results from this study will suggest the potential utility of the SURPS for AOD interventions in Cape Town and other settings in Sub-Saharan Africa.

3.3 METHOD

A convenient cross-sectional sample was obtained from two areas of Cape Town's Northern and Southern suburbs. These locations were selected to broadly represent the diverse demographics of Cape Town and the Western Cape Province. Participants were approached in public areas such as train stations, street junctions, and shopping malls and asked to complete the survey. Willing participants over the age of 17 were informed of confidentiality and anonymity. The three major languages in the Western Cape (English, Afrikaans, and Xhosa) were represented by field workers and questionnaires were translated for participants unable to speak English. The University of Cape Town's Health Research Ethics Committee approved all methods and procedures

In addition to standard socio-demographic information (including gender, age, race, education, employment, and marital status), the following measures were included in the survey:

Substance use

The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) was adapted to question current and previous use of alcohol, tobacco, cannabis (locally known as dagga), cocaine, methamphetamine (locally known as tik), methaqualone (mandrax), inhalants, opioids, and hallucinogens. Each respondent had scores ranging from 0 to 39 for each drug before being allocated to medium-high risk (greater than 10 for alcohol and greater than 3 for other substances) or low risk group (WHO ASSIST Working Group, 2002).

Personality assessment

The Substance Use Risk Profile Scale (SURPS) was used to evaluate the four major personality traits relating to reinforcement-specific patterns of substance use (Conrod et al., 2010). These traits include hopelessness (i.e. negative thinking and depression proneness), anxiety sensitivity (i.e. fear of physical arousal), sensation seeking (i.e. desire to try new things), and impulsivity (i.e. difficulty controlling behavioural responses) (Malmberg et al. 2010). Respondents were asked to rate their level of agreement for 23 items on a 4 point Likert scale that included strongly disagree, disagree, agree, or strongly agree. Each personality profile corresponded to averaging 4-7 specific items, shown in Table 4. Respondents with low levels for each sub-scale were allocated to the control group.

Depression

Depressive symptoms were measured using the Center for Epidemiologic Studies Depression Scale (CES-D). This 20-item questionnaire assesses the intensity and frequency of depressive symptoms on a 4-point Likert scale including never, sometimes, occasionally, or most

of the time. A cut-off score of 16 or greater is considered significantly depressed (Radloff, 1977). Due to the comorbidity between depression, substance abuse, and other psychiatric conditions (Ormel et al., 2013), along with the expected correlation between depression and and the hopelessness personality subtype, it was hypothesized that this third variable may be appropriate for regression analysis.

3.4 STATISTICAL ANALYSIS

The data was analyzed using Stata version 12.1 (StataCorp LP) software. Descriptive statistics were first calculated before personality and AOD variables were categorized. Grouping personality measures above one standard deviation of each sub-scale's mean into corresponding maladaptive personality profiles and ASSIST scores into binary categories (low vs medium/high) enabled concurrent associations to be determined (Conrod et al., 2010). Logistic regression models were built using a forward step-wise processes guided by likelihood ratio chi-squared statistics to include relevant third variables and the four personality profiles into models for each substance. This provided adjusted estimates for risky substance use relating to the four personality subtypes compared to the controls. Prevalence ratios rather than odds ratios were reported because high-risk substance use outcomes were greater than 10% (Thompson, Myers, & Kriebel, 1998).

SURPS sub-scales were assessed using Cronbach alpha scores and two sample t-tests. Acceptable indicators of internal consistency and reliability were supported by alpha scores greater than 0.60 (Loewenthal, 1996). The normality of continuous ASSIST scores was checked using histograms and Shapiro-Wilk's tests. As the normality assumption was rejected, the nonparametric Wilcoxon-Mann-Whitney test was used to assess whether median AOD scores were significantly different for each personality group compared to the rest of the sample.

3.5 RESULTS

Demographics

Of the total sample (n = 1000), 90% were aged 18–40 with a mean of 27.2 ± 7.1 years. Racial representation was 55% black, 29% coloured (distinct mixed-race ethnic group), and 16% were white or Asian. There was nearly equal representation between genders (51.1% female) and the majority of the sample (80.5%) was not married or cohabitating. Roughly one quarter of respondents were students, 42.9% were employed in at least part-time work, and nearly half had completed high school. About 28% of the sample met the criteria for being significantly depressed and 7% reported a history of substance-related treatment. Women were significantly less likely to use AODs at risky levels (PR = 0.80, 95% CI 0.73-0.96) while persons who were coloured (PR = 1.20, 95% CI 1.00-1.40) or depressed (PR = 1.42, 95% CI 1.12-1.79) were at elevated risk. The percentage of respondents with ASSIST scores indicating "risky" AOD use (moderate-high risk) was as follows: alcohol 32%, tobacco 24%, cannabis 20.5%, methamphetamine 14.5%, opioids 9.0%, mandrax 8.9%, hallucinogens 8.5%, cocaine 6.9%, and inhalants 6.7%.

Associations between personality and risky AOD use

Tabulations of personality and risky substance use categories show that impulsivity was the most common maladaptive personality trait in the sample and over half of persons in this group reported risky alcohol use. Furthermore, the impulsive group showed the highest levels of risky tobacco, cannabis, cocaine, and hallucinogens use. The anxiety sensitivity group had average levels of high-risk use of legal substances, but low levels for illicit drugs. The hopeless group had relatively high proportions of methamphetamine, inhalants, and opioids compared to the total sample while sensation seekers showed a relatively high proportion of risky

methamphetamine use (Table 1). However, high-risk AOD use was not exclusively prevalent amongst the maladaptive personality groups. Over a fourth of the control group showed high-risk use of alcohol and were comparable to the other groups in risky use of other drugs.

Table 1. Proportion of risky AOD use within each personality group (%). Low risk includes individuals who did not report using any substances or whose scores were low for all drugs. Columns do not add up to 100% because some respondents had multiple high-risk scores.

	Control (n=345)	Hopeless-ness (n=173)	Anxiety sensitivity (n=147)	Sensation seeking (n=143)	Impulsivity (n=192)	Total (n=1000)
Low risk	38.7	27.2	36.7	27.9	28.1	34.4
Alcohol	28.0	24.8	31.4	30.4	51.0	31.5
Tobacco	23.8	20.7	30.5	23.7	37.6	24.4
Cannabis	17.3	16.5	16.3	21.2	37.8	20.5
Cocaine	6.5	4.1	6.8	3.4	14.7	6.9
Meth	14.5	19.3	8.1	18.5	9.1	14.5
Mandrax	9.1	14.5	2.7	7.0	8.9	9.1
Inhalants	5.7	17.2	2.3	4.8	4.2	6.7
Opioids	7.6	15.9	6.9	10.2	6.9	9.0
Hallucinogens	8.2	9.6	1.2	5.5	16.1	8.5

A forward selection process modeling high-risk use for each substance found that depression, race, and age significantly influenced the generalized linear models. Including these third variables and the four personality traits in logistic regression models found sensation seeking traits had the strongest associations with risky AOD use compared to the control group (Table 2). After statistical adjustment, sensation seekers demonstrated high-risk use of alcohol, tobacco, cannabis, cocaine, and hallucinogens. Furthermore, the hopelessness group showed an increased prevalence of high-risk opioid, mandrax, and inhalant use and the anxiety sensitive group had a 21% increased prevalence of risky alcohol use. Additionally, the anxiety sensitive group showed a lower prevalence of risky illicit drug use, which was statistically significant for mandrax, inhalants, and hallucinogens. Impulsivity did not have significant associations with any substances, despite having a high proportion of concurrent use in Table 1.

Table 2. Prevalence ratios for SURPS profiles and risky AOD use, adjusted by depression, race, and age. Estimates significantly above 1 indicate elevated high-risk use and those significantly below 1 indicate a decreased prevalence compared to the control group.

	Hopelessness	Anxiety sensitivity	Sensation seeking	Impulsivity
Alcohol	1.00	1.21*	1.79**	1.09
Tobacco	0.92	1.18	1.60**	1.02
Cannabis	1.08	0.93	2.61**	0.99
Cocaine	0.71	0.61	3.22**	0.70
Meth	1.06	0.78	0.96	1.02
Mandrax	1.60*	0.53**	0.71	1.36
Inhalants	1.53*	0.66*	0.75	0.80
Opioids	1.64*	1.02	0.79	0.86
Hallucinogens	1.09	0.56**	2.21**	0.89

Note: * $p < 0.05$; ** $p < 0.01$

Table 3. Two-sample Wilcoxon rank-sum (Mann-Whitney) test statistics (p-values for null hypothesis of equal median ASSIST scores within each personality profile). All ranges for ASSIST scores were 0-39.

	Alcohol score		Total substance score	
	Median	p-value	Median	p-value
Control group	0	0.15	18	0.21
Rest of sample	0		18	
Hopeless	0	0.01	16	0.00
Not hopeless	0		28	
Anxiety sensitive	9	0.00	12	0.08
Not anxiety sensitive	0		18	
Sensation seeking	12	0.00	18	0.34
Not sensation seeking	0		18	
Impulsivity	0	0.86	18	0.21
Not impulsive	0		18	

Non-parametric t-tests were used to assess whether AOD scores were significantly different for each personality group with a cut-off score of one standard deviation above the mean. The control group showed no statistical differences in alcohol or total substance use compared to the rest of the sample, comprised of the four personality groups. The hopeless group

had significantly lower scores compared to the rest of the sample while anxiety sensitivity and sensation seeking had alcohol scores significantly higher than the rest of the sample (Table 3).

SURPS reliability

The internal consistency of the SURPS and its sub-scales were assessed using Cronbach alpha scores and item-rest correlations. The hopelessness scale had a high overall alpha score of 0.73 and no items were unacceptably low. However, the other sub-scales showed a low degree of reliability. The sensation seeking scale was especially problematic and no individual item was specifically responsible (Table 4). Low alpha scores were also found when scales were assessed by race and gender, but were highest amongst white/Asians and lowest for coloured respondents.

Table 4. Factor-analysis of SURPS items including item rest correlations and Cronbach alphas. (R) indicates reversed item scoring.

	Item-rest correlation	**Alpha**
Hopelessness		
1. I am content (R)	0.46	0.69
4. I am happy (R)	0.37	0.72
7. I have faith that my future holds great promise	0.49	0.68
13. I feel proud of my accomplishments (R)	0.38	0.71
17. I feel that I'm a failure	0.43	0.69
20. I feel pleasant (R)	0.49	0.68
23. I am very enthusiastic about my future (R)	0.49	0.68
Cronbach's alpha		*0.73*
Anxiety sensitivity		
8. It's frightening to feel dizzy or faint	0.31	0.48
10. It frightens me when I feel my heart beat change	0.34	0.47
14. I get scared when I'm too nervous	0.31	0.49
18. I get scared when I experience unusual body sensations	0.29	0.49
21. It scares me when I'm unable to focus on a task	0.28	0.50
Cronbach's alpha		*0.54*
Sensation seeking		
3. I would like to skydive	0.26	0.23
6. I enjoy new and exciting experiences even if they are unusual	0.21	0.29
9. I like doing things that frighten me a little	0.11	0.39
12. I would like to learn how to drive a motorcycle	0.21	0.29
Cronbach's alpha		*0.37*
Impulsivity		
2. I often don't think things through before I speak	0.32	0.38
5. I often involve myself in situations that I later regret being involved in	0.26	0.43
11. I usually act without stopping to think	0.26	0.43
15. Generally, I am an impulsive person	0.29	0.41
Cronbach's alpha		*0.49*

3.6 DISCUSSION

Theories of drug using behaviour acknowledge two major sources of motivation and reinforcement: the pleasure inducing properties of some drugs and the negative reinforcing effects of other substances for relieving negative affective states (Woicik, et al., 2009). More specifically, hopelessness, anxiety sensitivity, sensation seeking, and impulsivity have

demonstrated motivational susceptibilities to specific patterns of drug use. Despite the evidence that the SURPS accurately accounts for these four major personality risks for substance abuse, the application of the SURPS is still being explored. Results of this study indicate that sensation seeking is most related to high-risk substance use. As expected, hopelessness was associated with high-risk opioid use while anxiety sensitivity showed elevated alcohol risk and reduced illicit drug risk. Impulsivity was the most prevalent personality trait in this sample, but was not associated with any high-risk substance use compared to the control group (Table 2). However, the low levels of reliability within three of the SURPS sub-scales limit these findings. Cut-off scores of one standard deviation above the sub-scale mean, as used in other relevant studies (Conrod et al., 2010), also failed to differentiate substance use scores between the control and the maladaptive groups. Due to the lack of discriminate substance use scores between personality groups and low levels of reliability within the variable, results suggest that the SURPS is not an appropriate screening measure in this sample and its broader population.

As recognized in previous literature, this convenient sample found high levels of AOD use in Cape Town. High-risk use of alcohol was particularly prevalent (32%) while other drugs such as tobacco, cannabis, and methamphetamine were also used at risky levels. These figures reflect the primary substances prompting treatment in the Western Cape, where alcohol and methamphetamine abuse is especially problematic (Medical Research Council, 2014). Despite identifying high-risk personality subtypes and high levels of substance use in this sample, some of the associative hypotheses found in other settings were not evident. This may be attributed to the history of inequality, unique socioeconomic circumstances, and the accompanying environmental influences that negatively impact quality of living conditions in many areas of the city. Historically disadvantaged groups, such as those living in the Cape Flats and urban

townships, are particularly vulnerable to substance-related problems due to poverty, the lack of productive stimulation (which is especially true amongst sensation seeking individuals), high levels of gangsterism and drug dealing, and additional barriers in attaining treatment. However, results showing that being male, depressed, and coloured are significantly associated with risky substance use provides evidence for where intervention efforts are most needed.

If a significant reduction in the AOD burden is to be made, more evidence-based and cost-effective methods are needed. The local government and global health organizations have demonstrated support for such efforts, as evidenced by local public awareness campaigns and the inclusion of AOD prevention and treatment in the United Nation's Sustainable Development Goals for 2030. Despite evidence for applying the SURPS in other settings, this is the first study to assess the measure in an African context and the first to find a lack of validity for the test. However, there have been previous studies showing low levels of reliability within the measure (Robles-Garcia et al., 2014), and some have omitted poor performing items for adequate fit (Schlauch, Breiner, Stasiewicz, Christensen, & Lang, 2013). Other literature has also examined the cultural appropriateness of the sensation seeking items, which might be less normative among certain ethnic groups (Krank et al., 2011). These results underscore the importance of evaluating health-related measures, particularly self-reporting scales that are reliant on language and cultural constructs, before assuming validity in new settings.

The large and diverse sample recruited was a major strength of this study, though a few limitations also warrant consideration. Firstly, the dependence on self-reporting of sensitive information is prone to information biases. Stigmatization not only impedes users from seeking treatment, but also leads to under-reporting of AOD use and severity of mental health symptoms, resulting in a social desirability bias (Mortel, 2008). Therefore, it is possible that the prevalence

of substance use may be underreported in this study and other literature. Secondly, the cross-sectional design inhibits the assurance of temporality between personality and substance use and the influence of drugs on personality over time is unclear. Lastly, the convenient sampling method does not guarantee the generalizability of these results to the wider Cape Town or South African populations, nor does it accurately reflect the population prevalence of personality traits or substance use. Therefore, further studies using probabilistic sampling methods and a follow-up design may further explain this assessment of the SURPS in an African setting.

Conclusion

Despite some limitations, this study found associations between three of the personality traits and the high-risk use of specific substances. Some of these associations corroborate findings from other countries, but the internal reliability of the SURPS was too low to assert that it accurately measured the intended maladaptive personality traits. Therefore, despite the need for more intervention methods, there is evidence that the SURPS is not an appropriate screening tool for the diverse population in Cape Town, South Africa.

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4. APPENDICES

4.1. Additional tables

Table 5. Baseline characteristics of the sample (*n=1000*).

	N	%
Age (mean, sd)	27.2	±7.1
Gender		
Female	511	51.1
Male	469	46.9
Race		
Black	522	55.0
Coloured	272	28.7
White/Asian	155	16.3
Language		
English	735	73.5
Afrikaans	178	17.8
Xhosa	87	8.7
Marital status		
Single	805	80.5
Married/Cohabitating	195	19.5
Education		
Did not finish high school	495	51.1
Finished high school	493	49.9
Working status		
Employed	429	42.9
Unemployed/disabled/retired	267	26.7
Student	253	25.3
Depression (yes)	279	27.9
History of substance abuse treatment (yes)	70	7.0
Know someone with substance abuse problem (yes)	574	57.4

Table 6. Level of AOD risk reported by participants (N, %). Alcohol and tobacco risk: low (0-10), Medium (11-26), and high (27+). Illicit drug risk: low (0-3), moderate (4-26), and high (27+).

	Low risk	Medium risk	High risk
Alcohol	676 (68.0)	200 (20.1)	118 (11.9)
Tobacco	735 (77.7)	127 (13.4)	84 (8.9)
Cannabis	789 (79.4)	136 (13.7)	69 (6.9)
Cocaine	925 (93.1)	43 (4.3)	26 (2.6)
Methamphetamine	849 (85.4)	71 (7.1)	74 (7.4)
Mandrax	903 (90.8)	39 (3.9)	52 (5.0)
Inhalants	927 (93.3)	33 (3.3)	34 (3.4)
Opioids	904 (91.0)	33 (3.3)	57 (5.7)
Hallucinogens	909 (91.4)	47 (4.7)	38 (3.8)

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4.2. Participant Consent Form

Project Title: Substance use in a South African community sample

Overview of Study:

As you are probably aware, Substance use represents a major public health problem in the Western Cape. We are conducting a research project that will survey the communities' use of substances (i.e. both legal and illegal drugs). We hope that the information we receive will help us develop and evaluate programs to help South Africans with substance use problems.

If you decide to participate in this research:

1. We would like you to answer the questions as honestly as possible.
2. Your answers are completely private. Only the main researcher will see the answers you provide, and you will not be identified at any stage of the research. Your name and personal details will not be used. Your completed questionnaire will be stored in a locked room
3. You can choose not to answer any questions that you do not like
4. If you choose not to participate, there will be no bad feelings towards you. You will continue to receive all the support we can give you.

If you wish to talk to someone about this project please feel free to contact:

Dr. Katherine Sorsdahl
Department of Psychiatry and Mental Health
University of Cape Town
Tel: 082 055 4676
Email: kattsorsdahl@gmail.com

Consent Statement:

I have read or been read the consent form for this study. I have been given enough time to consider the above information and to ask advice if necessary. If have had the opportunity to ask questions that have been answered to my satisfaction. I am voluntarily agreeing to participate in the study by signing this form.

_____	_____	_____
Name of Participant	**Signature**	**Date**

Cell Phone Number for test-retest: _____ Best time to call: _____

Are you interested in taking part in a brain scan study on tik abuse? We are looking for healthy people as controls (Please ask for a flyer. We will call you. YES NO

A. Demographic Information

1. Are you a male or female? χ Male χ Female

2. How old are you?_____ 3. How many children do you have? _____

4. Marital Status:
   - χ Single (never been married)
   - χ Married
   - χ Divorced
   - χ Widowed

5. What is your race
   - χ Black
   - χ Coloured
   - χ White
   - χ Indian/Asian
   - χ Other (please state: _____)

6. How much school did you finish? _____ (e.g. Standard 3/matric)

7. Which of the following best describes your work situation now?
   - χ Employed full-time
   - χ Employed part-time
   - χ Self-employed
   - χ Student
   - χ Retired/pensioner
   - χ Disabled
   - χ Unemployed

8. Have you received treatment for substance use? χ Yes χ NO

9. Do you know someone with a substance use problem? χ Yes χ NO

10. Are you currently pregnant? χ Yes χ NO

11. Do you have a child less than 1 years old? χ Yes χ NO

4.3. Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)

The next few questions will ask you about alcohol, tobacco products and other drugs. They will ask you about your experience of using a number of these substances across your lifetime and in the past three months. These substances can be smoked, swallowed, snorted, inhaled, injected or taken in the form of pills. Some of the substances listed may be prescribed by a doctor (like amphetamines, sedatives, pain medications). For this interview, we will not record medications that are used as prescribed by your doctor. While we are also interested in knowing about your use of various illicit drugs, please be assured that information on such use will be treated as strictly confidential.

Question 1: In your life, which of the following substances have you used:

	YES	**NO**
Tobacco		
Alcoholic Beverages (beer, wine etc)		
Dagga (alone)		
Mandrax & Dagga		
Mandrax (alone)		
Cocaine (rocks, coke, crack)		
Tik		
Inhalants (nitrous glue, petrol)		
Hallucinogens (LSC, acid, mushrooms, PCP, special K etc)		
Opiods (heroin, morphine, methadone, unga)		

Probe if all answers are negative: **"Not even when you were in school?"**	***If "No" to all items, skip substance use questions.*** ***If "Yes" to any of these items, ask Question 2 for each substance ever used.***

Question 2: In the past three months, how often have you used the substances you mentioned (FIRST DRUG, SECOND DRUG, ETC)?

	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
Tobacco	0	1	2	3	4
Alcoholic Beverages (beer, wine etc)	0	1	2	3	4
Dagga (alone)	0	1	2	3	4
Mandrax & Dagga	0	1	2	3	4
Mandrax (alone)	0	1	2	3	4
Cocaine (rocks, coke, crack)	0	1	2	3	4
Tik	0	1	2	3	4
Inhalants (nitrous glue, petrol)	0	1	2	3	4
Hallucinogens (LSC, acid, mushrooms, PCP, special K etc)	0	1	2	3	4
Opiods (heroin, morphine, methadone, unga)	0	1	2	3	4

If "Never" to all items in Question 2, skip to Question 6. If any substances in Question 2 were used in the previous three months, continue with Questions 3, 4 & 5 for <u>each substance</u> used.

Question 3: During the past three months, how often have you had a strong desire or urge to use?

	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
Tobacco	0	1	2	3	4
Alcoholic Beverages (beer, wine etc)	0	1	2	3	4
Dagga (alone)	0	1	2	3	4
Mandrax & Dagga	0	1	2	3	4
Mandrax (alone)	0	1	2	3	4
Cocaine (rocks, coke, crack)	0	1	2	3	4
Tik	0	1	2	3	4
Inhalants (nitrous glue, petrol)	0	1	2	3	4
Hallucinogens (LSC, acid, mushrooms, PCP, special K)	0	1	2	3	4
Opiods (heroin, morphine, methadone, unga)	0	1	2	3	4

Question 4: During the past three months, how often has your use of substances led to health, social, legal or financial problems? (please circle)

	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
Tobacco	0	1	2	3	4
Alcoholic Beverages (beer, wine etc)	0	1	2	3	4
Dagga (alone)	0	1	2	3	4
Mandrax & Dagga	0	1	2	3	4
Mandrax (alone)	0	1	2	3	4
Cocaine (rocks, coke, crack)	0	1	2	3	4
Tik	0	1	2	3	4
Inhalants (nitrous glue, petrol)	0	1	2	3	4
Hallucinogens (LSC, acid, mushrooms, PCP, special K etc)	0	1	2	3	4
Opiods (heroin, morphine, methadone, unga)	0	1	2	3	4

Question 5: During the past three months, how often have you failed to do what was normally expected of you because of your use of substance use? (please circle)

	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
Alcoholic Beverages (beer, wine etc)	0	1	2	3	4
Dagga (alone)	0	1	2	3	4
Mandrax & Dagga	0	1	2	3	4
Mandrax (alone)	0	1	2	3	4
Cocaine (rocks, coke, crack)	0	1	2	3	4
Tik	0	1	2	3	4
Inhalants (nitrous glue, petrol)	0	1	2	3	4
Hallucinogens (LSC, acid, mushrooms, PCP, special K etc)	0	1	2	3	4
Opiods (heroin, morphine, methadone, unga)	0	1	2	3	4

Ask Questions 6 & 7 for all substances ever used (i.e. those endorsed in Question 1)

Question 6: Has a friend or relative or anyone else ever expressed concern about your use of specific substances?

	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
Tobacco	0	2	1
Alcoholic Beverages (beer, wine etc)	0	2	1
Dagga (alone)	0	2	1
Mandrax & Dagga	0	2	1
Cocaine (rocks, coke, crack)	0	2	1
Tik	0	2	1
Inhalants (nitrous glue, petrol)	0	2	1
Hallucinogens (LSC, acid, mushrooms, PCP, special K etc)	0	2	1
Opiods (heroin, morphine, methadone)	0	2	1

Question 7: Have you ever tried and failed to control, cut down or stop using specific drugs?

	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
Tobacco	0	2	1
Alcoholic Beverages (beer, wine etc)	0	2	1
Dagga (alone)	0	2	1
Mandrax & Dagga	0	2	1
Mandrax (alone)	0	2	1
Cocaine (rocks, coke, crack)	0	2	1
Tik	0	2	1
Inhalants (nitrous glue, petrol)	0	2	1
Hallucinogens (LSC, acid, mushrooms, PCP, special K etc)	0	2	1
Opiods (heroin, morphine, methadone)	0	2	1

Question 8: Have you ever used any drug by injection?

	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
	0	2	1

Scoring: Count up questions 2-7

Total: Drug 1: _____ _____
Total Drug 2: _____ _____
Total Drug 3: _____ _____

4.4. Center for Epidemiologic Studies Depression Scale (CES-D)

	NEVER	Some or little of the time (1 or 2 Days a week	Occasionally (3 or 4 Days a week)	Most of the time (5,6, 7 Days a week)
1. I am worried by things that usually don't bother me.				
2. I do not feel like eating, my appetite is poor.				
3. I feel that I cannot stop being sad even with help from my family.				
4. I feel that I am just as good as other people.				
5. I have trouble keeping my mind on what I was doing.				
6. I feel depressed.				
7. I feel that everything I do is a bit of an effort.				
8. I feel hopeful about the future.				
9. I feel my life has been a failure.				
10. I feel fearful.				
11. My sleep is restless.				
12. I am happy.				
13. I talk less than usual.				
14. I feel lonely.				
15. People are unfriendly.				
16. I enjoy life.				
17. I cry.				
18. I feel sad.				
19. I feel that people don't like me.				
20. I cannot get going in the morning.				

4.5. Substance Use Risk Profile Scale (SURPS)

	Strongly disagree	Disagree	Agree	Strongly agree
1. I am content				
2. I often don't think things through before I speak				
3. I would like to skydive				
4. I am happy				
5. I often involve myself in situations that I later regret being involved in				
6. I enjoy new and exciting experiences even if they are unusual				
7. I have faith that my future holds great promise				
8. It's frightening to feel dizzy or faint				
9. I like doing things that frighten me a little				
10. It frightens me when I feel my heart beat change				
11. I usually act without stopping to think				
12. I would like to learn how to drive a motorcycle				
13. I feel proud of my accomplishments				
14. I get scared when I'm too nervous				
15. Generally, I am an impulsive person				
16. I am interested in experience for its own sake even if illegal				
17. I feel that I'm a failure				
18. I get scared when I experience unusual body sensations				
19. I would enjoy hiking long distances in wild and uninhabited territory				
20. I feel pleasant				
21. It scares me when I'm unable to focus on a task				
22. I feel I have to be manipulative to get what I want				
23. I am very enthusiastic about my future				

4.6. Ethics approval from UCT Human Research Ethics Committee

HREC REF: 146/2015

Dr K Sorsdahl
Psychiatry & Mental Health
J Block
OMB

Dr Sorsdahl

PROJECT TITLE: PERSONALITY TRAITS OF ALCOHOL AND OTHER DRUG USERS IN CAPE TOWN, SOUTH AFRICA (MPH candidate Blake Hendrickson)

Thank you for submitting your study to the Faculty of Health Sciences Human Committee for review.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until 30 March 2016.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on ou

We acknowledge that the following* MPH candidate Blake Hendrickson *will also be involved in this study.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the HREC reference no in all your correspondence.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN ETHICS

4.7. Instructions to authors– African Journal of Drug and Alcohol Studies

Preparing manuscripts. Authors are required to prepare manuscripts in accordance with the Publication Manual of the American Psychological Association (5th edition). All components of the manuscript should be double-spaced, including title page, abstract, references, author note, acknowledgement, and appendixes. The text should employ italics, rather than underlining (except with URL addresses); and illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end. Unless it is absolutely necessary, tables and figure should not be more than four. Authors are encouraged to keep manuscripts as concise as possible, with a length of 15 pages or less, including tables, figures, and references. Every manuscript must include an abstract containing a maximum of 120 words, typed on a separate page. The full name, address, telephone number and e-mail address of the corresponding author should be shown on the cover page. Please refer to the Manual for specific instructions on preparing abstracts, figures, matrices, tables, and references. References should be cited in the text by author(s) and dates with multiple references in alphabetical order. Each in-text citation should be listed in the reference section. Here are examples of how articles and books should be referenced:

Journal article:
Abdool, R., Sulliman, F.T., & Dhannoo, M. I. (2006). The injecting drug use and HIV/AIDS nexus in the Republic of Mauritius. *African Journal of Drug and Alcohol Studies*, *5*(2), 107-116.

Book chapter:
Tumwesigye, N. M., & Kasirye, R. (2005). Gender and the major consequences of alcohol consumption in Uganda. In I. S. Obot & R. Room (eds.), Alcohol, gender and drinking problems (pp. 189-208). Geneva: World Health Organization.

Book:
MacAllister, W.B. (2000). Drug diplomacy in the twentieth century. London: Routledge.

Website:
Include the date of access.

Submission of manuscripts. All manuscripts should be submitted by e-mail to the Editor-in-Chief or to the deputy editor responsible for the region to which you belong.

Cover Letter. Every manuscript must be accompanied by a cover letter stating unequivocally that the manuscript and data have not been published previously or concurrently submitted elsewhere for consideration. In addition, authors must state that the participants in their study have been treated in accordance with ethical standards. In the case of manuscripts with multiple authors, the corresponding/lead author must state categorically that all listed authors contributed in significant ways to the work.