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# ASSESSING PERSONALITY RISKS USING THE SURPS FOR ALCOHOL AND OTHER DRUG PROBLEMS IN CAPE TOWN, SOUTH AFRICA

**Blake Hendrickson**

School of Public Health and Family Medicine, University of Cape Town (UCT), Cape Town, South Africa

## ABSTRACT

Four personality traits are recognized 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 reliability from a community sample in Cape Town, South Africa (*n*=1000). Results indicate that hopelessness is significantly associated with high-risk use of mandrax, inhalants, and opioids. However, unlike results from other settings that suggested utility for the SURPS, this study did not demonstrate strong internal reliability or associations between all personality traits and risky substance use. This provides evidence against it being an appropriate assessment tool in a diverse South African population.

**Key words:** SURPS; personality; substance use disorders (SUD); South Africa

## INTRODUCTION

The high-risk use of alcohol and other drugs (AOD) presents a growing public health concern in South Africa, where around 13% of the population will experience a substance use disorder (SUD) (Stein et al., 2008). Additionally, the lifetime prevalence of substance abuse is significantly higher in Cape Town compared to the national average (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 widespread substance-related problems and their significant impact on health and social conditions, the World Mental Health Survey found that only 27% of

**Corresponding Author**: Blake Hendrickson, School of Public Health and Family Medicine, UCT, Cape Town, South Africa. Blake Hendrickson graduated from UCT and is no longer affiliated with the university. Correspondence concerning this article should be addressed to the author at 115 Huron Dr. Kearney, NE 68847 USA. Email: blakehendrickson13@gmail.com

South Africans living with a SUD received treatment during the previous year (Seedat, Van, Jewkes, Suffla, & Ratele, 2009).

Many historical, social, and economic forces have contributed to high rates of AOD use around Cape Town, which is most noticeable in the Cape Flats region. This was a destination for 'coloured' or 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 segregation and their racial classifications are still used because of its enduring effects on health and social outcomes. Over time, many areas of the city have 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 occupations.

While marginalized communities generally experience more AOD problems, community members are not at equal risk for initiating or escalating substance use (Peltzer & Ramlagan, 2009). There are appreciable differences that make substance use problematic for some people while many remain resilient, even within the same conditions. 'Addictive personality' traits are commonly attributed to people who generally employ compulsive behaviors to cope with interpersonal conflicts, depression, and other stressors (Loewen, n.d.). These psychological characteristics are not necessary or sufficient causes of substance abuse, but are significant risk factors for individuals from all backgrounds.

Due to its well-documented association with substance use, personality has increasingly been explored as an avenue for intervention (Conrod, Castellanos, & Mackie, 2008; Conrod, Castellanos-Ryan, & Strang, 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 risk factors for substance use and the development of SUD (Woicik, Stewart, Pihl, & Conrod, 2009). These traits are related to substance use through distinct motivational pathways and 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 other depressants, while anxiety sensitivity is associated with substances such as alcohol that reduce inhibition and the avoidance of drugs that increase anxiety. 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).

In general, previous studies have reported good internal consistency 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 demonstrated good psychometric properties in published literature from several countries, improved treatment results when tailoring brief interventions,

and was successfully applied to predict future adolescent AOD use (Conrod et al., 2010; Malmberg et al., 2012). If proven to be reliable and valid, the SURPS could offer a convenient screening tool for identifying high risk individuals before they present with a severe problem, and also help customize treatments to address the primary motivation.

The current study employs the SURPS to measure personality risks within a large Cape Town sample, assess the association between the four personality traits and risky AOD use, and measure 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 utility of the SURPS for interventions in Cape Town and potentially other settings in Sub-Saharan Africa.

## 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 paper survey. Willing participants aged 18 and older were informed of their confidentiality before written consent was obtained. The three major languages of the area (English, Afrikaans, and Xhosa) were represented by field workers able to address any questions 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 2. 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 anticipated associations between depression, the hopelessness personality subtype, and potentially other maladaptive traits, it was hypothesized that this third variable may be necessary for regression analysis.

**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 stepwise process 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 then assessed using Cronbach alpha scores. Acceptable indicators of internal consistency and reliability were supported by alpha scores greater than 0.60 (Loewenthal, 1996).

## 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 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%.

**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, other sub-scales showed a low degree of reliability. The sensation seeking scale was especially problematic and no individual item was specifically responsible (Table 1). 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 1.** 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 | | |
| 12. I would like to learn how to drive a motorcycle | 0.11 | 0.39 |
| *Cronbach's alpha* | 0.21 | 0.29 |
| | | *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 | | |
| 15. Generally, I am an impulsive person | 0.26 | 0.43 |
| *Cronbach's alpha* | 0.29 | 0.41 |
| | | *0.49* |

**Table 2.** Prevalence ratios for SURPS traits 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.

| Drugs | 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 |

*p< 0.05; **p< 0.01

### Associations between personality and risky AOD use

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 variables and the four personality traits in logistic regression models found an increased prevalence of high-risk opioid, mandrax, and inhalant use in the hopelessness group (Table 2). The lack of internal reliability of other SURPS sub-scales makes asserting further associative relationships inappropriate.

## 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). As recognized in previous literature, this convenient sample found a high prevalence 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 also reflect the primary substances prompting treatment in the Western Cape, where alcohol and methamphetamine abuse is especially problematic (Medical Research Council, 2014).

As expected, hopelessness was associated with high-risk use of depressants such as mandrax, inhalants, and opioids. However, low levels of reliability within the other SURPS sub-scales made further analysis inappropriate. This discrepancy with literature from other regions could be influenced by unique cultural norms and the socioeconomic circumstances in Cape Town. However, results showing that being male, depressed, and coloured are significantly associated with risky substance use still 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 previous evidence for applying the SURPS in other settings, this is the first study to assess the measure in southern Africa and the first to find a lack of generalizability. However, there have been previous studies that reported 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 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 adoptability 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. 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, future studies using probabilistic sampling methods and a follow-up design may further explain this assessment of the SURPS in an African setting.

## CONCLUSION

This study demonstrated a high prevalence of substance use but the internal reliability of the SURPS measure was too low to accurately measure all four personality traits. Therefore, despite the need for more intervention methods, this study provides evidence that the SURPS is not an appropriate tool for the diverse population in Cape Town, South Africa.

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