Attitudes towards individuals with substance use disorders: The impact of knowledge and the moderating effects of exposure

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Academic Declaration

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Abstract

The current study aimed to explore whether or not levels of substance use disorder-related knowledge is associated with attitudes towards people with Substance Use Disorders (SUDs) through a convenience sample of young adult psychology students registered at the University of the Witwatersrand (Wits). This research particularly sought to explore the potential moderating effects of exposure to people with SUDs in this relationship. METHOD: The convenience sample employed in this study comprised 253 participants, all of whom completed an online survey which included a brief demographic questionnaire, a questionnaire measuring SUD-related knowledge, a questionnaire measuring SUD-related exposure, and a questionnaire measuring SUD-related attitudes. RESULTS: The results of the study indicated that, on average, the current sample evidenced positive SUD-related attitudes across more domains than not. Additionally, SUD-related knowledge amongst participants in this study appeared to be somewhat limited. The results suggest that exposure to SUDs amongst the participants is varied and that significant links exist between SUD-related attitudes and exposure. Furthermore, the results call to question the extent to which SUD-related knowledge alone impacts on attitudes towards SUDs. CONCLUSIONS: The primary implication of these findings relates to the SUD-specific training of health professionals. This research suggests the inadequacy of such knowledge-focused training and motivates for the incorporation of exposure to real individuals living with SUDs in such training programmes.

Keywords: SUD, Substance Use Disorders, Addiction, Attitudes, Knowledge, Exposure, Training

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Simone Dennis

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1. Introduction and Rationale

1.1 Introduction

Substance use disorders (SUDs) represent a widespread, highly prevalent and growing mental health concern (Grant et al., 2016). Not only are SUDs pervasive across age, gender, ethnicity, socioeconomic status and other population subgroups (Grant et al., 2016), but the consequences extend far beyond the individual level and are found to infiltrate families, communities and society at large (Wood, Patterson, Katikireddi, & Hilton, 2014). To elaborate, individuals with SUDs are negatively impacted by their disorder in various ways. For example, they exhibit a greater predisposition towards co-morbid mental and other health issues (Torre, 2015), often experience immeasurable financial difficulties (Meltzer, Bebbington, Brugha, Farrell, & Jenkins, 2013), and struggle to gain and/or maintain employment (Uggen & Shannon, 2014). In addition, the nature of SUDs impedes the sufferer's ability to engage meaningfully and appropriately in different social contexts (Kopetz et al., 2014). As such, those with SUDs are often unable to form and/or maintain healthy social relationships, naturally affecting both familial and social systems (Rodriguez & Derrick, 2017). Finally, SUD-related issues within the broader societal framework refer to issues such as unemployment (Holtyn, DeFulio, & Silverman, 2015), crime (Chen & Gueta, 2015) and poverty (Matto & Cleaveland, 2016), amongst others, which negatively affects the greater community.

1.2 Rationale

The negative effects of and consequences associated with psychoactive substance use and abuse and the drug industry itself have resulted in a society that has greatly stigmatised individuals living with SUDs (McGinty, Goldman, Pescosolido, & Barry, 2015). Moreover, misconceptions relating to both SUDs and those affected by this mental health disorder are common and reflect erroneous beliefs regarding the aetiology of SUDs and the effects thereof (Gidman & Coomber, 2014). The result is that sufferers and their families are often devalued by society and subjected to discrimination (Selbekk & Sagvaag, 2016). Research indicates that negative attitudes towards individuals with SUDs are common (Palamar, Kiang, & Halkitis, 2012) and universal (Lancaster, Santana, Madden, & Ritter, 2015). The stigmatisation of individuals with SUDs is a serious social issue and the rampant stereotyped and unfavourable interpretations of SUDs and those suffering with the disorder, which seem to have cultivated and exacerbated the stigmatisation of and discrimination against SUD sufferers, are particularly

concerning (Hippel et al., 2017). Those living with SUDS are often treated with malice, as exemplified by the stigmatising language generally used in discussions related to SUDs and the way in which SUD sufferers are portrayed by the media (Ferestad & Thompson, 2017). Negative attitudes towards SUDs and those living with the disorder contribute to the SUD stigma that has been identified as a primary deterrent in the recovery processes of such individuals (Corrigan et al., 2017). That is, the stigmatisation of this population complicates SUD rehabilitation efforts, as the community of people living with SUDs remains marginalised and lacks social support (Earnshaw, Smith, & Copenhaver, 2013). Not surprisingly, therefore, individuals with SUDs face a high risk of relapse after treatment (Panebianco, Gallupe, Carrington, & Colozzi, 2016). However, research on this topic remains lacking and several research gaps in this area have yet to be filled (Corrigan et al., 2017).

In light of the aforementioned issues, it seems crucial to explore factors associated with negative attitudes towards individuals with SUDs, as such research could better inform efforts aimed at mitigating the stigmatisation of this vulnerable population (Mattoo et al., 2015). Existing interventions aimed at combatting the SUD stigma generally seem to place great emphasis on SUD-related education (Shidlansik, Adelson, & Peles, 2016). However, the relationship between SUD-related knowledge and attitudes remains unclear, raising questions about the efficacy of such interventions. Additionally, very little research has explored whether or not real-life exposure to individuals living with SUDs impacts on attitudes towards this population.

The current study aimed to explore some of these questions. Specifically, the present study sought to elucidate some of the attitudes that exist towards individuals with various SUDs in the South African context. More specifically, this study aimed to determine whether SUD-related knowledge is associated with attitudes towards SUD sufferers and, more importantly, whether this relationship is dependent on whether or not individuals have had some exposure to such sufferers or not. The researcher attempted to also contribute to the literature by gathering information on statistics regarding specific substances that are presently known to, and perhaps even used by, the specific population under study. It seems vital to note, however, that the identified substance-related trends may not be the same as those observed in different populations. It should further be noted that the identified trends are subject to continuous change, even within the population from which they will be drawn.

2 Literature Review

2.1 The role and impact of terminology

The term "substance use disorder" (SUD) is most often used by health professionals and refers to a diagnosable mental health condition related to abnormal and unhealthy patterns of psychoactive substance use that ultimately results in significant impairment in functioning by the user (American Psychiatric Association, 2013). Such impairment is typically observable within the sufferer's work environment (Rice et al., 2014), social environment (Barry, McGinty, Pescosolido, & Goldman, 2014), and familial environment (Orford, Velleman, Natera, Templeton, & Copello, 2013). Not surprisingly, SUDs often cause the sufferer much distress (Andreas, Lauritzen, & Nordfjærn, 2015). The SUD diagnostic criteria are explicitly outlined in the newest edition (i.e. the 5th edition) of the Diagnostic and Statistical Manual of Mental Disorders (DSM 5) (American Psychiatric Association, 2013). Although the previous edition of the aforementioned diagnostic manual (i.e. the DSM-IV-TR) identified two separate conditions, namely "substance abuse" and "substance dependence", the DSM 5 has adopted a new overarching term, "SUD", which is currently applied to both of the formerly distinguishable conditions (Hasin et al., 2013). In an effort to ensure that accurate diagnoses are not compromised, SUDs are currently described according to the degree of severity, where severity is determined by the number of clinical symptoms present in the clinical presentation over a 12-month period (Compton, Dawson, Goldstein, & Grant, 2013).

The importance of appropriate language use in SUD-related discussions is vital given the significant impact of language use on perceptions of both SUDs and those living with SUDs (Broyles et al., 2014). Broyles et al. (2014) have argued that language provides a framework for the way in which society perceives SUDs. When used carelessly and inappropriately, language may promote stigma; however, when used mindfully and appropriately, language combats stigma (Broyles et al., 2014). Thus, while it appears that the terms "addiction" and "SUDs" are commonly used interchangeably, the researcher has made a deliberate effort to employ the term "SUD" rather than "addiction" throughout both her research proposal and the current research report. The researcher recognises the negative connotations attached to the term "addiction" and the associated term "addict" (Nelson, Browne, & Lavoie, 2016), as well as her responsibility to ensure that the proposed research does not perpetuate such connotations and/or their negative impact. The term "SUD" has been selected and deliberately employed because it accurately frames the disorder as a health-related matter according to the DSM 5.

However, it is assumed that the general public is not yet conversant with the term "SUD". For that reason, the researcher decided against employing the term "SUD" and other medical terminology in the research instruments.

2.2 Substance use in South Africa

Research indicates that approximately 13.3% of South Africans are living with SUDs (Meade et al., 2015). South Africa's unique economy reflects an extremely unequal distribution of wealth as it is comprised of co-existing affluence and extreme poverty, which seems to have created a favourable climate for an emerging drug market (Das-Munshi et al., 2016). While SUDs are believed to have emerged in South Africa during apartheid, a drastic increase in this mental health issue was observed after the end of that era (Goga, 2014). South Africa's transition away from the system of apartheid allowed for its global reintegration, which in turn exposed the nation to both positive and negative influences (Alden & Schoeman, 2015). The country's developing systems of transport and communication rendered it more susceptible to the illegal activities associated with drug trafficking (Geyer & Lombard, 2014). As such, the country experienced an influx of psychoactive substances previously unavailable in the country (Geyer & Lombard, 2014). Naturally, this has negatively impacted South Africa, as the country has since faced a number of consequent challenges including a rising rate of SUDs and related health consequences and criminal activity (Nyabadza, Njagarah, & Smith, 2013).

In 2010, Peltzer, Ramlagan, Johnson and Phaswana-Mafuya conducted an amalgamated review of available SUD research, relevant to post-apartheid South Africa. The authors identified cannabis, methamphetamine, ecstasy, crack/cocaine, mandrax/methaqualone and heroin as South Africa's most commonly used illicit psychoactive substances (Peltzer, Ramlagan, Johnson, & Phaswana-Mafuya, 2010). The growing trend towards the legalisation of cannabis is also observed in South Africa (Minnaar, 2015). Cannabis, or "dagga" as it is commonly referred to in South Africa, functions as a depressant (Schuster, Mermelstein, & Hedeker, 2016), with the most common method of its use being through inhaling the substance, either through smoking or vaping it (Minnaar, 2015). The South African slang term for methamphetamine is "tik" (Watt et al., 2014), a popular psychostimulant that is most commonly smoked (Flynn, 2015). Other methods of use include snorting, injecting and ingesting orally (Roth et al., 2015). Since the early 2000s, certain parts of the country have seen a drastic increase in methamphetamine use (Watt et al., 2014), particularly within "coloured" communities (Weybright, Caldwell, Wegner, Smith, & Jacobs, 2016). Ecstasy has

properties of both a stimulant and a hallucinogen (Bhatia & Hassan, 2017). In South Africa, it is used recreationally and has traditionally been most common in white and upper-income communities, though its use within other race groups is on the rise (Plüddemann, Parry, Myers, & Bhana, 2004). Crack/cocaine is a stimulant (Strike, Rotondi, Watson, Kolla, & Bayoumi, 2016). Crack is more common amongst lower-income communities, while cocaine is more common amongst higher-income communities (Palamar et al., 2015). Crack is usually smoked, while powder cocaine is typically snorted (Jeppesen, Busch-Nielsen, Larsen, & Breindahl, 2015). Mandrax is a depressant (Kempen, 2015) that is often crushed and smoked by users in combination with cannabis or tobacco (Westhuizen, Wyatt, Williams, Stein, & Sorsdahl, 2016). Heroin is also a depressant (Darke, 2016). Common modes of heroin use include injecting, snorting and smoking (Scherer, Harrell, Trenz, Canham, & Latimer, 2016).

Though no updated prevalence statistics currently exist regarding commonly used drugs in South Africa, it is likely that such statistics would be quickly rendered obsolete even if compiled, as the drug market in South Africa as well as across the globe is growing rapidly (Mokwena & Huma, 2014). In addition to the significant increase in the number of users, the pool of available psychoactive substances is also constantly expanding and changing, which is partly due to efforts made to evade substance-related legal regulations. To elaborate, by removing, adding or replacing a single compound of a specific substance, manufacturers are able to produce an entirely different substance that has not been classified as an illicit substance due solely to the fact that it did not exist previously (Redford, 2017). Thus, given the continued influx of novel psychoactive substances into the country, it seems reasonable to assume that the list of commonly used drugs in South Africa is continually changing (Mokwena & Huma, 2014).

2.3 Attitudes towards people living with SUDS

In an American web-based study, Barry, McGinty, Pescosolido and Goldman (2014) compiled and distributed an online survey aimed at gathering information related to SUDs and other mental health disorders. In comparing the attitudes of the 709 adult respondents, the researchers found that the sample's attitudes towards individuals with SUDs were considerably negative (Barry et al., 2014). Noteworthy findings included the unwillingness of participants to accept individuals with SUDs marrying into their families as well as their unwillingness to engage closely with such individuals within a work context (Barry et al., 2014). Furthermore, the attitudes of the respondents also reflected a greater tolerance for discrimination against

those with SUDs and a lack of support for policies designed to help such individuals (Barry et al., 2014). The negative impact of society's stigmatisation of mental health illnesses also weighs heavily on the families of those affected, as is depicted in the qualitative study conducted by Sanden, Bos, Stutterheim, Pryor and Kok (2015). The authors of the aforementioned study conducted semi-structured interviews with individuals who have an immediate family member living with a mental health illness (Sanden et al., 2015). Through these interviews, the researchers gained insight into their painful experiences of discrimination as a result of their familial association to a mental health sufferer (Sanden et al., 2015). The participants reported having fallen victim to the consequences of the stigma in various settings, as negative attitudes and discriminatory behaviour were reported to be prevalent within their communities as well as amongst health and other professionals (Sanden et al., 2015). These experiences of mental health stigma hold true amongst family members of individuals with SUDs (Dion, 2014).

Current research on the topic of SUD-related attitudes appears largely limited to investigations of attitudes amongst healthcare professionals, despite the fact that negative attitudes are known to exist commonly within society in general, as demonstrated by Earnshaw and colleagues (2013). Nonetheless, amongst the numerous studies investigating the attitudes of health professionals towards individuals with SUDs is the study conducted by Vargas and Luis (2008), who investigated the attitudes of nurses towards this patient population. The authors found that negative attitudes towards these patients were common amongst the nurses, who generally reflected a lack of empathy and seemed to place excessive blame on the patient (Vargas & Luis, 2008). Moreover, the nurses' attitudes appeared to reflect a belief that individuals with SUDs are weak-willed, defiant and ultimately unlikely to recover (Vargas & Luis, 2008). However, as a result of the small sample size, the poor generalisability of these findings represents a major limitation of the study (Vargas & Luis, 2008). Another research gap relates to the specific attitudes measured. Although it has been noted that a fair amount of research exists regarding the attitudes of healthcare professionals, it appears that the attitudes most thoroughly investigated are those that concern treatment interventions (Zuroff, Kelly, Leybman, Blatt, & Wampold, 2010). That is, investigations of the attitudes of healthcare professionals towards various treatment interventions, rather than towards individuals with SUDs, appear to dominate the current body of research (Zuroff et al., 2010).

Research has explored effects of negative SUD-related attitudes and the associated stigmatisation of and discrimination against this population and indicates that the quality of

health care provided to patients with SUDs is negatively affected by such stigmatising attitudes (Polat, Ka'opua, Coban, & Attepe, 2016). This is evidenced by various studies in the current body of SUD research. In a study conducted by Zogmaister, Roccato and Borra (2013), the researchers found that many health professionals view patients with SUDs as difficult and untreatable and thus make efforts to avoid treating them, by being absent from work for example. While some health professionals might reluctantly agree to treat patients with SUDs, a study by De Miranda in 2005 reported cases in which health professionals outright refused treatment to this patient population. Additionally, research indicates a strong link between the social stigma of SUDs and the self-stigma of sufferers (Jennings et al., 2015). Evans-Lacko, Brohan, Mojtabai and Thornicroft (2012) reported that self-stigma amongst addicts was more commonly observed in countries in which a more dominant social stigma towards addicts appeared to preside. SUD sufferers with such self-stigma typically avoid seeking professional help for their mental health issues due to their reluctance to discuss their substance-related experiences and suffering (Stringer & Baker, 2015). Left untreated, the disorder often worsens, exacerbating both their symptoms and suffering and leading to significant and longer-term debility (Ghitza & Tai, 2014). The aggravated SUD presentation in turn results in both the maintenance and promotion of the already problematic social stigma (Kulesza, Ramsey, Brown, & Larimer, 2014). Evidently, this cyclical problem fuels itself, naturally progresses over time and complicates treatment (Corrigan, Druss, & Perlick, 2014). In sum, research appears to suggest that there are many negative consequences associated with negative SUD-related attitudes when it comes to both treating professionals and the general public alike. It is important to understand the impact of these attitudes, especially as research suggests that attitudes predict behaviour.

It is also important to note that many researchers have assumed that a linear relationship between attitudes, cognitions and behaviour exists and this assumption has guided much research to date (Jaccard & Blanton, 2014). However, this assumption is falsified by research evidencing non-linear relationship between these variables (Jaccard & Blanton, 2014). Furthermore, the false assumption of linearity has led to many failed programmes and campaigns such as Alive Arrive for traffic behaviour (Cismaru, 2014) and knowledge-based campaigns aimed at reducing illicit substance use (Allara, Ferri, Bo, Gasparrini, & Faggiano, 2015), amongst others. While the assumption that knowledge always translates to behaviour is not substantiated, there is much evidence highlighting the significant impact of attitudes on behaviour (Chen, 2016). This points to the importance of addressing and targeting attitudinal

issues in campaigns such as those mentioned above as well as in other relevant areas, such as training programmes addressing SUD treatment.

The current study adopts a five factor conceptualisation of attitudes related to SUDs, as per the Substance Abuse Attitude Survey (SAAS) developed by Chappel, Veach and Krug (1985). The authors and developers of the aforementioned survey identify five domains of SUD-related attitudes, namely: Permissiveness, Treatment Intervention, Non-stereotypes, Treatment Optimism and Non-moralism. These five attitudinal factors provide a framework for understanding and measuring SUD-related attitudes in the current study.

2.4 Challenging assumptions about the impact of knowledge

One might assume that an obvious link exists between SUD-related knowledge and attitudes towards individuals with SUDs, and it is therefore not surprising that research findings have evidenced the aforementioned link (Matheson et al., 2014). That is, research findings have indicated that greater SUD-related knowledge is shown to be associated with more positive attitudes and that a lack of such knowledge is associated with more negative attitudes towards individuals with SUDs (Matheson et al., 2014). To illustrate, a community-based research study in the Hunan province of China highlights the coinciding SUD-related knowledge and the particularly negative attitudes towards addicts amongst participants (Luo et al., 2014). This is likely a key motivator for the incorporation of SUD education within health-training programmes as well as SUD education-focused interventions offered to the general public (Crapanzano, Vath, & Fisher, 2014). However, despite the seemingly "obvious" nature of this assumption, a closer examination of research puts the assumed link between SUD-related knowledge and attitudes into question. While there may be a link between such knowledge and attitudes, it does not appear to be simple or linear in nature (Meurk, Carter, Partridge, Lucke, & Hall, 2014). Meurk and colleagues (2014) conducted a telephonic social survey in an investigation of the association between beliefs regarding the aetiology of SUDs and SUD-related attitudes. The authors predicted that an understanding of biological aetiology of SUDs would be significantly associated with attitudes towards those living with the disorder, such as attitudes regarding the imprisonment or coercive treatment of such individuals. However, contrary to their prediction the results of the study did not suggest any significant association in this regard (Meurk et al., 2014). As a result of the methodological choice to conduct the survey via landline telephone, the generalisability of the findings of this study was inevitably limited by the poor response rate (i.e. 35.3%) and sample bias towards older individuals within

the population (Meurk et al., 2014). The authors attribute these limitations of their study to the shift away from landline telephone use towards cellphone use, which has become increasingly common within the population, especially amongst the younger generation (Meurk et al., 2014). Nonetheless, other studies have also suggested that no significant attitudinal differences exist between physicians and members of the general population towards addicts. To illustrate, in a 2015 study conducted by Mayda, Soyucok, Guzel, Gorucu and Bagcioglu, the authors posited that medical education does not significantly impact such attitudes. The results of their study found that negative attitudes towards addicts were held by approximately 67% of both of the aforementioned groups (i.e. doctors and the general population) (Mayda et al., 2015). Similarly, in an investigation of the experiences of addicts within a methadone maintenance therapy programme, Earnshaw et al. (2013) found that the discrimination and stigmatisation suffered by patients was not limited to such negative experiences within any particular context. Rather, the study confirmed discriminatory behaviour towards the patients across contexts. The findings indicated that the patients fell victim to unjust treatment individuals within their familial, work and social environments as well as from professionals within the healthcare system (Earnshaw et al., 2013).

Raising further doubt about the supposed positive association between SUD-related knowledge and attitudes are the numerous studies that have provided evidence to suggest the contrary. For example, Wheeler, Crozier, Robinson, Pawlow and Mihala (2014) conducted a quantitative study in which SUD-related knowledge and attitudes were examined amongst various mental health professionals. The results indicated that while there appeared to be a lack of SUD knowledge amongst the participants, they held fairly positive attitudes towards addicts (Wheeler et al., 2014). This is somewhat exemplified in recent study examining the attitudes of psychiatry residents towards addicts, which found that negative attitudes towards addicts were more common amongst senior residents than amongst junior residents (Avery et al., 2017). Considering that senior residents have acquired a higher level of training than junior residents, these results seem to contradict the assumption that increased knowledge results in more positive attitudes. Given the limitations of the study conducted by Avery et al. (2017), definitive conclusions cannot be drawn but tentative speculations may be made. For instance, one speculation is that the senior residents had more exposure to individuals with SUDs, which might explain the inconsistency of the research. This could be an indication that exposure to people with SUDs acts as a moderator of the relationship between SUD-related knowledge and attitudes. The most significant limitation of the study conducted by Avery et al. (2017) is the

limited generalisability of the research findings due to the fact that the researchers were unsuccessful in attaining a desirable response rate. Moreover, the participants in this study were not adequately representative of the population from which they were drawn (Avery et al., 2017).

2.5 The role of exposure

In his narrative literature review, Lloyd (2013) advocates the need for greater exposure to SUDs in order to improve attitudes towards people living with SUDs. Further research findings also seem to suggest that stigmatising attitudes towards this population may be curbed by mere exposure to individuals suffering with SUDs (Merrill & Monti, 2015). The underlying theoretical concept, known as the "mere-exposure effect" or the "familiarity principle", refers to a psychological phenomenon in which humans typically demonstrate a greater proclivity for that which is familiar to them (McCoy, Everard, Galletta, & Moody, 2017). Research studies indicate a positive correlation between frequency of interpersonal interaction and perceived likability (Merrill & Monti, 2015). To illustrate, one study investigated the impact of incorporating a week-long placement at an SUD treatment facility into a psychiatry clerkship on third year medical students' attitudes towards individuals with SUDs. The findings indicated that the period of placement at an SUD treatment facility was associated with positive shifts in attitudes towards this patient population amongst the students (Christison & Haviland, 2003). In yet another study, an experiment was conducted in which university undergraduate students were exposed to either a convicted individual with a heroin use disorder or a fictional person with an SUD, by listening to interviews conducted with these individuals (Batson, Chang, Orr, & Rowland, 2002). Once the participants had listened to the interviews, they were presented with the opportunity to offer a recommendation that funds belonging to the Student Senate be allocated to an organisation in support of those living with SUDs (Batson et al., 2002). The results of the study indicated that such exposure to individuals with SUDs carried the potential to elicit positive attitudes towards these individuals as well as to promote supportive action for this population (Batson et al., 2002).

As evidenced in this literature review, it appears that there are inconsistent findings linking SUD-related knowledge with attitudes in the literature reviewed. However, it is possible that some of these inconsistencies pertain to the diverse samples employed in this research, much of which has been conducted on healthcare workers and other personnel, often with very diverse levels of exposure to individuals living with SUDs. It seems critical that these

relationships be explored in a more homogenous sample in a manner that would allow a purer exploration of the impact of exposure to people living with SUDs. For this reason, the relationship between SUD-related knowledge and attitudes towards people living with SUDs will be explored in a community sample of young adults. The potential moderating effects of exposure will also be explored. As such, the proposed study will use a sample of convenience to explore whether SUD-related knowledge predicts attitudes towards people living with SUDs and, most importantly, whether this relationship is moderated by exposure to individuals living with SUDs.

Initially, the researcher had considered limiting the scope of the proposed study to an investigation relating to an unofficial subgroup of psychoactive substances, namely "hard drugs" (Palamar, 2014), in light of the complexity of a study aimed at investigating SUDs as an all-encompassing phenomenon (Camus, Sastre, Sorum, & Mullet, 2014). To illustrate, in lieu of the ongoing debate regarding the decriminalisation of cannabis, the aforementioned substance appears to be considered differently than other commonly used illegal drugs in South Africa (Khan, 2015). That is, the plea for cannabis to be legalised by a significant portion of the South African public suggests greater social acceptance of the drug relative to others (Hopfer, 2014). As such, the researcher recognised that the inclusion of seemingly more socially acceptable substances in the proposed investigation bears the potential to confound the research results (Kulesza, Larimer, & Rao, 2013). Nonetheless, the researcher relinquished the idea on the basis that the specific substances implicated are not believed to carry inordinate value when evaluating and drawing conclusions about substance-related attitudes and behaviours. Accounting for extraneous variables, it is more likely than not that such substance-related attitudes and behaviours would remain consistent across a wide array of substances. This notion seems to be implicated by the use of the term "substance-use disorder", in the DSM 5, which is broadly applied to the problematic use of various types of substances. More specifically, the DSM 5 identifies several types of substances applied to SUDs, including tobacco, alcohol, cannabis, hallucinogens, stimulants, opioids, sedatives and inhalants (American Psychiatric Association, 2013).

2.6 Aims and Research Questions

2.6.1 Aims

The present study aimed to explore the relations between SUD-related knowledge and attitudes towards people living with SUDs. The study specifically sought to explore whether or not exposure to people living with SUDs moderated the relation between SUD-related knowledge and attitudes towards such individuals. These relations were explored in a sample of undergraduate students.

2.6.2 Research Questions

The current study intended to answer the following research questions:

1) What are the current attitudes of undergraduate psychology students towards individuals with SUDs?
2) What are the average levels of SUD-related knowledge amongst Wits undergraduate psychology students?
3) To what extent have undergraduate psychology students been exposed to SUDs?
4) Is the relation between SUD-related knowledge and attitudes towards individuals with SUDs moderated by exposure to SUDs?

3 Methodology

3.1 Research design

The current cross-sectional study is quantitative in nature and thus offers the benefit of producing research findings that are generalisable to the greater population from which the sample is drawn (Cozby, 2005). This study adopted a correlational research design, as the researcher intended to explore the interactions between the variables under study (Campbell & Stanley, 2015). The increasingly popular quantitative online survey technique of data collection (Mertens, 2014) was employed in this study for a number of reasons, one of which being that this online data collection technique offered an affordable approach to reaching a large number of participants. Although it was not assumed that all of the participants would have access to personal laptops, computers, cellphones or tablets in order to participate in the study, it was certain that the population under study would have access to university computer libraries and Internet facilities, given that the participants included in the study were registered university students and that such facilities were available to all students registered at the university. Research also indicates that online surveys tend to yield higher response rates in a shorter period of time compared to surveys that are mailed or conducted in-person.

In order to explore whether or not SUD-related knowledge predicts SUD-related attitudes as a function of exposure, the following variables were used in the study: SUD-related knowledge was used as an independent variable, while the five domains of SUD-related attitudes were used as dependent variables factors (i.e. Permissiveness, Treatment Intervention, Non-stereotypes, Treatment Optimism and Non-moralism). These five domains will be discussed in further detail under the measures section below. Finally, the study operationalised three different types of exposure which were used as moderators in the analysis, namely knowledge exposure (i.e. having heard that certain substances exist), exposure through knowing someone with an SUD, and exposure through personal use of substances.

3.2 Sampling strategy

The proposed study employed a non-probability sampling method in the form of convenience sampling (Robinson, 2014), whereby Wits undergraduate psychology students were specifically recruited. The sample included both males and females and all participants included in the study were adults (i.e. over the age of 18 at the time of their participation). In order to participate in the study, participants were required to be first-time psychology

undergraduate students and had to be at least 18 years of age. The online survey was set up in such a way that students who did not meet these criteria were not able to proceed with participation.

An a priori power analysis was conducted using G*Power 3 software (Faul, Erdfelder, Lang, & Buchner, 2007) holding β at .80 and α at .05 to detect small to medium effect sizes. The results indicated that a target sample of approximately 136 research participants would suffice to explore the hypothesised relationships. However, the researcher aimed to collect a larger sample in order to achieve maximum available power to detect smaller effect sizes.

3.3 Procedure

Following the confirmation of ethical approval, a questionnaire was developed using an online survey-building platform, namely SurveyMonkey. The "anonymous responses" function was activated on the survey. This function ensured the anonymity of the respondents and their responses and simultaneously allowed the researcher to track information regarding individual participation (e.g. "completed response", "opted out", "not responded" etc.). As such, the researcher was able to verify the participation of any individuals who required such confirmation for the purpose of gaining academic credits for their participation. Moreover, the researcher was able to do so without compromising the anonymity of responses since the aforementioned participation information was linked to the email invitation as opposed to the survey responses.

A participation invitation email was then formulated and sent to the relevant administrative officer(s) and course co-ordinators in the undergraduate psychology department, who distributed the invitation to prospective participants (i.e. Wits undergraduate psychology students) by forwarding the invitation email to them via email and/or the Wits online learning platform (i.e. Sakai). The invitation email included a hyperlink that directed the participants to an online Participant Information Sheet (PIS: Appendix B and C) and the study questionnaires. The PIS was drafted to include all requisite information for participants to make an informed decision regarding whether or not to participate in the current study. Furthermore, in the event that participants experienced participation as distressing or triggering, the PIS provided participants with relevant free counselling resources if necessary.

Once the participants had read the PIS and had clicked the "consent" button, they were directed to a demographic questionnaire, which included a question regarding the participants' age. Participants who selected the "18 years or younger" option were immediately directed to

the end of the survey and were thus unable to continue any participation therein. The demographic questionnaire also included a question relating to the participants' academic year of study. Participants who did not select one of the three undergraduate options (i.e. "Year 1", "Year 2", or "Year 3") were similarly directed to the end of the survey, which immediately terminated their participation.

Once the data collection phase had been completed, the research data was captured and analyzed using SAS 9.4. In order to guarantee the integrity of the research data, during the data analysis phase the researcher had sole access to participant data and ensured its safe and secure management and storage. To elaborate, the researcher had sole access to the laptop computers used during the research analysis process. As a further precaution, the laptop computers were password protected with passwords known only by the researcher. A second copy of research data was saved onto an external hard drive to ensure that the research data was backed up. The hard drive was safely stored in a locked cabinet when not in use. Access to the aforementioned cabinet remained limited to the researcher.

3.4 Measures

A series of three measures were used to meet the objectives of this research, namely: a demographic questionnaire, a knowledge questionnaire and an exposure questionnaire, including a measure of attitudes towards SUDs. The specific measures utilised are discussed below.

3.4.1 Brief Demographic Questionnaire

In a recent review of literature regarding the addiction stigma, Magdalena (2013) identified a trend of inadequate reporting of participant demographic information amongst existing studies. The author explained that such information is vital to a holistic understanding of research findings, as without this information research conclusions are largely limited. As such, Magdalena (2013) urged future researchers to include basic participant demographic information in their studies and identified age, sex, race, marital status and employment status as key demographic variables. In addition to the variables identified by Magdalena (2013), the researcher included a question relating to the participant's year of study, given that the sample employed in this study was drawn from a university student population. Accordingly, the brief demographic questionnaire (Appendix D) employed in the current study is comprised of these six core items.

3.4.2 Knowledge Questionnaire (KQ)

SUD-related knowledge was measured using the 15-item Knowledge Questionnaire (KQ) **(**Heckman, Dykstra, & Collins, 2011), which may be found in Appendix E. The KQ was developed by Heckman, Dykstra and Collins (2011), who explored attitudes and behaviours related to SUDs amongst American college students, and was amended slightly in order to fit the South African context. The measure employs "true or false" questions related to substances and SUDs. The authors reported good pre-test ($\alpha = .85$) and post-test ($\alpha = .96$) reliability of the instrument. Minor revisions were made to the measure in order to contextualise it better. For example, an item in the original instrument that read, *"Crank is a slang term for methamphetamine",* was amended to read, *"Tik is a slang term for methamphetamine".* This change in the terminology reflects the current situation in South Africa. Furthermore, three of the items in the original instrument (i.e. items 9, 11 and 12) were not included in the current questionnaire, as they referred to substances outside of the list identified as commonly used in South Africa (Peltzer et al., 2010). The three removed items read: *"Nicotine is a highly toxic drug"*, *"Aspirin interferes with blood clotting"*, and *"Opium comes from the poppy plant"* respectively. These items were replaced by three items that the researcher deemed more contextually relevant. The replacement items read: *"Nyaope contains ARVs and rat poison"*, *"A mixture of heroin and cocaine is referred to as a speedball"*, and *"The poppy plant is the source of codeine"*. The basis of these revisions was to ensure the appropriateness of the instrument for the current population under study based on present trends of substance use in South Africa (Carte Blanch, 2016). Correct responses on the KQ received a score of 1, while incorrect responses received a score of 0. The KQ was simply summed for each participant, and the total score was used to represent SUD-related knowledge in the analyses.

3.4.3 Exposure Questionnaire (EQ)

The Exposure Questionnaire (EQ), located in Appendix F, was designed to investigate SUD-related exposure amongst the research participants. The questionnaire is made up of three questions, which were originally drawn from Bryan's (2000) 39-item Knowledge, Attitudes, and Beliefs (KAB) survey, used to investigate substance-related knowledge, attitudes and beliefs within the Irish population. Of the 39 items in the KAB survey, only three related to SUD-exposure. For that reason, the other 36 items were not deemed relevant to the current EQ as they assessed other domains of knowledge and beliefs pertaining to SUDs. Furthermore, the three items selected were significantly revised so as to provide the current population under

study with appropriately contextualised questions as well as to allow the researcher to extract more information, as the ability of the original questions to elicit information was largely limited. This is discussed in more detail below.

The first of the three questions was based on item 1 of the KAB, which reads, *"Which of the following drugs have you heard of?"* When conducting the KAB survey, the participants were presented with a card with a list of substances including cannabis, ecstasy, cocaine, heroin, LSD, revelin and amphetamines. Participants were expected to respond to this KAB question by identifying named substances that they were familiar with. In amending this item for use in the current EQ, the first change related to the rephrasing of the question to allow for a *"Yes"* or *"No"* response, which was deemed more efficient given the electronic format of the current survey. Furthermore, for the purpose of consistency regarding the use of language in the current study, the term "drugs" was replaced with the term "substances". As such, the amended question read, *"Have you heard of the following substances?"* and subsequently presented participants with a list of substances (i.e. tobacco, alcohol, cannabis/marijuana, mandrax, nyaope, codeine, crack/cocaine, benzodiazepines, amphetamines, methcathinone, ecstasy, heroin, LSD and solvents). Additional street names of the substances were also provided in brackets and participants were required to provide a *"Yes"* or *"No"* response to each of the individual substances listed. The full measure is presented in Appendix F, while the list of substances was also amended in the current instrument. Given that the current study was conducted within the South African context, the researcher deemed it crucial to appropriately contextualise the research instruments used. One way in which such contextualisation was instigated was by incorporating substances commonly used in South Africa in the list of substances included in the instruments. While it was difficult to acquire an official and current report that identified substances that were commonly used in the country, a publicly distributed investigative journal report compiled by the popular South African investigative journalism team, *Carte Blanche,* provided such a list (Carte Blanch, 2016). The researcher has incorporated the list of substances provided in the *Carte Blanche* report in the instruments used in the current study. In scoring this question, *"Yes"* responses were allocated a score of 1, while *"No"* responses were allocated a score of 0. Additionally, a summed variable (i.e. "Knowledge Exposure") was created to calculate the total number of substances participants were familiar with.

The second question of the Exposure questionnaire was based on item 39 of the KAB, which reads, *"I personally know someone who has/had a drug problem"* and required

participants to provide a *"Yes"* or *"No"* response. This item was amended in the current questionnaire to read, *"Do you know of someone who has/had a substance-use disorder/problem? If yes, please specify who."* Following this question, participants were presented with the same list of substances used in question one of the Exposure Questionnaire and, once again, additional street names of each of the substances were provided in brackets. The same list of substances used in the knowledge-exposure question were used here. Participants were required to select a response to each of the individual substances listed, which best described the individual whom they knew with the relevant SUD. The categorical response options for the nature of the relationship with the person known to them as having problematic substance use included the following: *"Myself"*, *"Family Member"*, *"Partner"*, *"Friend"*, *"Other"*. A response option, *"No"*, was also included to indicate not knowing of anyone with that specific SUD. Additionally, the structure of the question allowed for more comprehensive participant responses and, thus, richer data. A summed variable (i.e. "Someone Exposure") was created to calculate the total number of SUDs participants had been exposed to through knowing people with SUDs. In scoring this summed variable, the *"No"* response was allocated a score of 0, while a response indicating exposure to an SUD in this way was allocated a score of 1. The scores for participants' responses to each substance were then added to calculate the Someone Exposure variable.

The final question included in the EQ was based on item 38 of the KAB, which reads, *"Have you ever taken cannabis e.g. hashish/marijuana?"* and required participants to provide a *"Yes"* or *"No"* response. This item was amended and, in the current questionnaire it reads, *"Which of the following substances have you used?"* In the same fashion as the first two questions, participants were presented with the list of substances and additional street names thereof. Participants were required to select a response to each of the individual substances listed which best described the extent of their personal of the specific substance. This question employs an ordinal scale and the response options include, *"Never used"*, *"Used once or twice"*, *"Previously used regularly, but stopped"*, and *"Currently use regularly"*. In contrast to the significantly restricted original KAB question, the amended question employed in the current questionnaire allowed the researcher to explore participants' personal use of substances much more comprehensively. Additionally, a summed variable (i.e. "Self-use Exposure") was created to calculate the total number of substances participants had personally used. In scoring this summed variable, the *"Never used"* response was allocated a score of 0, while all other responses (i.e. *"Used once or twice"*, *"Previously used regularly, but stopped"*, and

"Currently use regularly") were allocated a score of 1. The objective of this was to identify exposure to an identified substance through personal use thereof, irrespective of the extent of such use.

3.4.4 Substance Abuse Attitude Survey (SAAS)

Attitudes towards SUDs were assessed using a slightly amended version of the Substance Abuse Attitude Survey (SAAS), which was originally developed by Chappel, Veach and Krug (1985). The SAAS was originally developed to help healthcare workers gain an understanding of their attitudes towards SUDs and those suffering with SUDs (Wagner, 2001). The original instrument includes 31 items, all of which were retained in the instrument for the present study. The primary revision, however, relates to the fact that the original instrument employed an open-ended questioning technique, whereas the current instrument employs a 5-point Likert scale. As such, participants were required to respond to the questions by indicating their level of agreement or disagreement with each statement by selecting one of five responses, ranging from "strongly disagree" to "strongly agree". Furthermore, slight linguistic revisions were made to the original instrument. For example, the term "addicts" was replaced by terms such as "people with addictions", which continues to reflect lay terms and yet arguably portray a less harmful narrative. In scoring the SAAS, a fair number of the items (i.e. Q31, Q32, Q40, Q41, Q42, Q43, Q44, Q45, Q46, Q47, Q50, Q51, Q52, Q53, Q54, Q55, Q56, Q57 and Q58) were identified as requiring reverse scoring. The final questionnaire will be referred to as the Revised SAAS (R-SAAS) and may be found in Appendix G.

The measure identifies and evaluates five attitudinal domains. The first of these is "Permissiveness" (Chappel, Veach, & Krug 1985), which evaluates attitudes of tolerance or intolerance towards substance use and towards people with SUDs. The second is "Treatment Intervention" (Chappel, Veach, & Krug 1985), which distinguishes between attitudes reflecting disinclination towards SUD treatment interventions and attitudes indicating openness towards SUD treatment interventions. The third attitudinal factor is "Non-stereotyping" (Chappel, Veach, & Krug 1985), which distinguishes derisive attitudes reflecting oversimplifications and inappropriate generalisations related to SUDs from deferent attitudes that reflect more comprehensive and meaningful understanding of SUDs. The fourth attitudinal factor is "Treatment Optimism" (Chappel, Veach, & Krug 1985), which distinguishes pessimistic attitudes surrounding SUD treatment from optimistic attitudes in this regard. Finally, the fifth attitudinal factor is "Non-moralism" (Chappel, Veach, & Krug 1985), which distinguishes

judgmental moralistic SUD-related attitudes from accepting and non-judgmental SUD-related attitudes. The current study explored participant attitudes according to each of these five attitudinal domains. In addition, a total score reflecting the sum of the scores on each of the five domains was calculated, so as to provide an index of participants' overall attitude towards SUDs.

3.5 Data Analysis

Quantitative statistical analyses were conducted once the data collection phase had been completed (Mertler & Reinhart, 2016). Included in the statistical analyses were correlations, descriptive statistical analyses and two-way ANOVAs. In order to explore whether or not SUD-related knowledge predicts SUD-related attitudes as a function of exposure, the following variables were used in the study: Knowledge of SUDs was used as an independent variable, the five domains of SUD-related attitudes were used as dependent variable factors (i.e. Permissiveness, Treatment Intervention, Non-stereotypes, Treatment Optimism and Non-moralism), and the three exposure variables (i.e. exposure through having heard of substances, exposure through knowing someone with an SUD, and exposure through personal use of substances) were explored as possible moderators.

Correlations (Cohen, Cohen, West, & Aiken, 2013) were used in order to explore relations between all key study variables. Additionally, basic descriptive analyses were conducted (mean, standard deviation and range) (Jackson, 2015) in order to describe the sample in terms of the attitudes of Wits undergraduate students towards individuals with SUDs, the level of SUD-related knowledge that exists amongst Wits undergraduate students, and the extent of SUD exposure amongst Wits undergraduate students. As such, descriptive statistical analyses were used to address research questions 1, 2 and 3 of the current study.

A series of two-way ANOVAs (Punch, 2013) were then conducted on the primary research variables in order to test whether or not there were interactions between SUD-related knowledge and exposure in predicting attitudes. The researcher chose this specific method of statistical analysis because it is useful in determining the interactional influence of two independent variables on a single dependent variable, as was necessary in addressing research question 4 of the current study (Jackson, 2015).

4 Results

The following chapter details the results of the data analyses. The analyses aimed to address the specific research questions identified in the current study as well as the associated hypotheses. Specifically, this study aimed to determine the level of SUD-related knowledge and levels of exposure (both knowledge exposure and exposure to people with SUDs) in a sample of undergraduate university students. Additionally, this study aimed to explore the relations between SUD-related knowledge and student attitudes towards individuals with SUDs while exploring the potential moderating effects of levels of exposure. Descriptive statistical analyses will be reported in the preliminary analyses section, along with correlational analyses that were conducted to determine any significant correlations between the aforementioned primary variables in the current study. Finally, a series of two-way ANOVAs were conducted to examine the moderating effects of exposure in the relationship between knowledge and attitudes in a hypothesis-testing paradigm.

4.1 Sample

A total of 253 responses were collected during this study. Of those, 35 were eliminated due to respondents having either not met the inclusion criteria for participation or having failed to complete the survey. As such, the analyses were conducted on the remaining 218 responses, which comprised the final sample.

4.2 Descriptive statistics of demographic variables

Table 1: **Frequency table of demographic variables**

Variable	Freq (n)	%	Cum. Freq	Cum. %
Sex				
Female	165	75.69	165	75.69
Male	53	24.31	218	100
Age (years)				
18 – 20	174	79.82	174	79.82
21 – 25	42	19.27	216	99.08
26 – 30	1	0.46	217	99.54
30+	1	0.46	218	100
Race				
White	76	34.86	76	34.86
Black	93	42.66	169	77.52
Coloured	13	5.96	182	83.49
Indian	27	12.39	209	95.87
Asian	0	0	209	95.87
Other	9	4.13	218	100
Employment				
Full-time	2	34.86	2	0.92
Part-time	42	19.27	44	20.18
Unemployed	174	79.82	218	100
Relationship status				
Single	211	96.79	211	96.79
Partnered	7	3.21	218	100
Year of study				
1st year	183	83.94	183	83.94
2nd year	8	3.67	191	87.61
3rd year	27	12.39	218	100

The current sample comprised 165 (75.69%) female participants and 53 (24.31%) male participants. The majority of the participants (83.94%) were first-year students, with only eight (3.67%) in their second year of study, and 27 (12.39%) in their third year. Almost all the participants (99%) fell within the 18–25-year-old age group. The sample was racially diverse, with 93 (42.66%) participants who self-identified as "Black", 76 (34.86%) who identified themselves as "White", 27 (12.39%) self-identified as "Indian", 13 (5.96%) identified as "Coloured", and 9 (4.13%) who identified themselves as "Other". There were no self-identified people of Asian origin.

4.3 Descriptive statistics of primary variables

Participant attitudes towards individuals with SUDs were measured in terms of five attitudinal factors, namely: "Permissiveness", "Treatment Intervention", "Non-stereotypes", "Treatment Optimism" and "Non-moralism". It should be noted that these factors were named slightly differently during the data analysis procedure, as certain acronyms were used. A number of acronyms related to exposure variables were also employed during the data analysis procedure. All of the aforementioned acronyms may be located in Appendix H.

Table 2: Descriptive statistics of primary variables

Variable	n	SD	M	Minimum	Maximum
Knowledge	218	1.47	6.9	1	9
Exposure					
Knowledge Exposure	218	2.82	11.04	1	14
Someone Exposure	218	2.98	4.68	0	14
Self-use Exposure	218	1.63	2.21	0	9
Attitudes					
Permissiveness	218	4.45	20.33	8	31
Rx_Intervention	218	3.19	23.01	6	30
Non_Stereotypes	218	4.45	24.4	11	38
Rx_Optimism	218	2.71	18.27	9	24
Non_Moralism	218	3.43	17.37	8	27

4.3.1 SUD-related Knowledge

Participant scores on the knowledge questionnaire ranged from a minimum score of 1 out of 15 to a maximum score of 9 out of 15, with a mean score of 6.89 (*SD* = 1.47) out of 15 amongst the participants. This suggests that levels of SUD-related knowledge were rather low in this sample of participants. However, there was a good spread of levels of knowledge.

4.3.2 Exposure to SUDs

Knowledge Exposure

Figure 1: Substances participants had heard of (Knowledge Exposure)

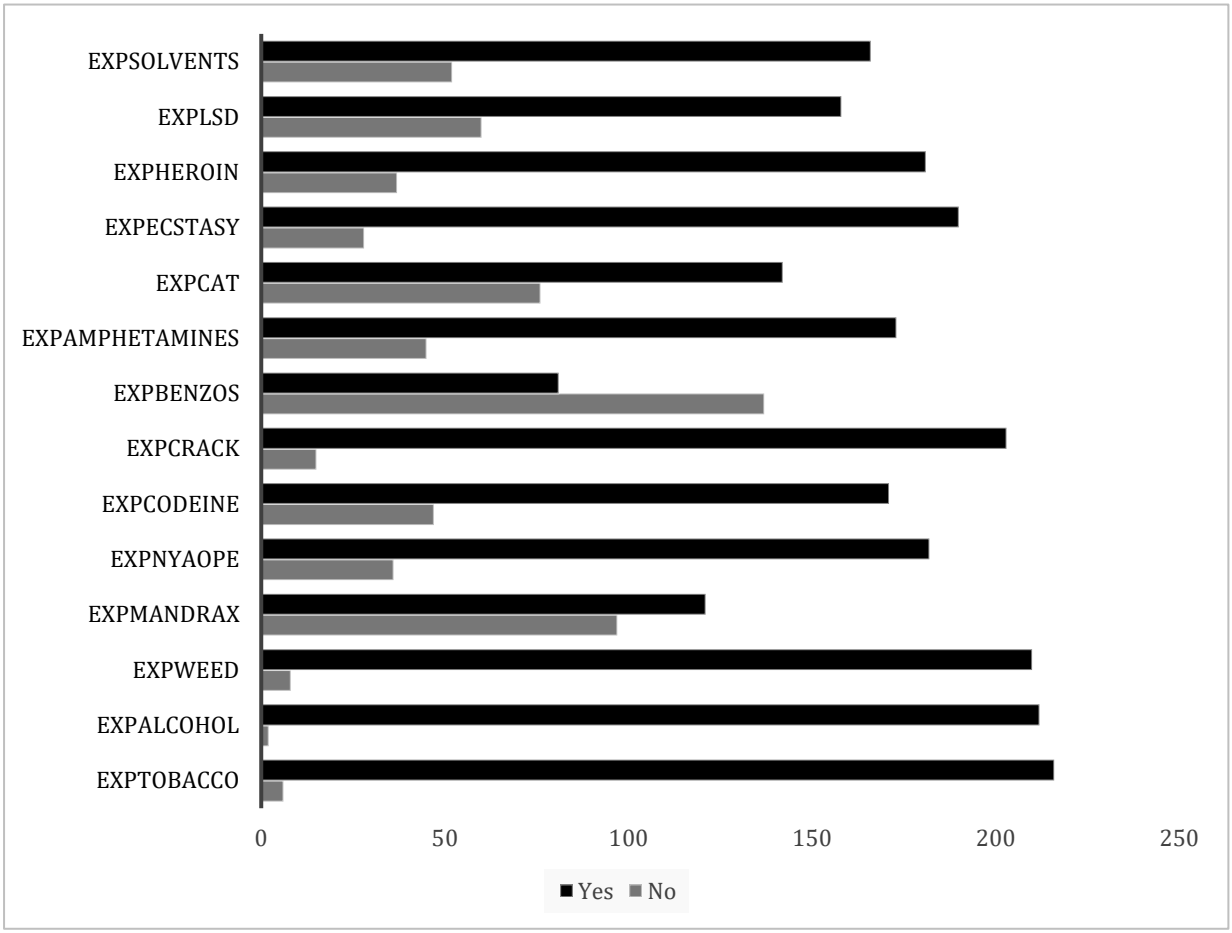


Figure 1 above is a bar chart depicting substances that participants reported they had heard of versus those that they had never heard of. The following patterns were observed. Of the 14 substances listed above, the total number of substances that participants had heard of ranged from a minimum of one to a maximum of 14 (*M* = 11.04*; SD* = 2.82*)*. The most heard of substance amongst the sample was alcohol, with 216 participants (99.08%) reporting that

they had heard of it and only 2 participants (0.92%) reporting that they had not. Other substances participants reported having heard of, in order of knowledge thereof amongst participants, included tobacco (n = 212, 97.25%), cannabis (n = 210, 96.33%), crack/cocaine (n = 203, 93.12%), ecstasy (n = 190, 87.16%) nyaope (n =182, 83.49%) heroin (n = 181, 83.03%), amphetamines (n = 173, 79.36%), codeine (n = 171, 78.44%), solvents (n = 166, 76.15%), LSD (n = 158, 72.48%), methcathinone (n = 142, 65.14%), and mandrax (n = 121, 55.50%). The least heard of substance amongst the sample was benzodiazepines, with only 81 participants (37.16%) reporting that they had heard of it and 137 participants (62.82%) reporting that they had not.

Knowing Someone Exposure

Exposure through knowing someone who has an SUD (Knowing Someone Exposure) is reported in this section. In examining the exposure of participants to individuals with SUDs, the following was found:

Tobacco

Thirteen participants (5.96%) were personally suffering with a tobacco use disorder, 94 participants (43.12%) had a family member suffering with a tobacco use disorder, 2 (0.92%) participants were in a relationship with someone suffering with a tobacco use disorder, 36 (16.51%) had a friend suffering with a tobacco use disorder, and 15 (6.88%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with a tobacco use disorder, while 58 participants (26.61%) did not know of anyone who has a tobacco use disorder.

Alcohol

Eleven participants (5.05%) were themselves suffering with an alcohol use disorder, 97 participants (44.50%) had a family member suffering with an alcohol use disorder, one (0.46%) participant was in a relationship with someone suffering with an alcohol use disorder, 35 (16.06%) had a friend suffering with an alcohol use disorder, and 33 (15.14%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with an alcohol use disorder, while 41 participants (18.81%) did not know of anyone who has an alcohol use disorder.

Cannabis

A total of 12 participants (5.50%) were themselves suffering with a cannabis use disorder, 28 participants (12.84%) had a family member suffering with a cannabis use disorder, five (2.29%) participants were in a relationship with someone suffering with a cannabis use disorder, 92 (42.20%) had a friend suffering with a cannabis use disorder, 24 (11.01%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with a cannabis use disorder, while 57 participants (26.15%) did not know of anyone who has a cannabis use disorder.

Mandrax

Five participants (2.29%) had a family member suffering with a mandrax use disorder, seven (3.21%) had a friend suffering with a mandrax use disorder, nine (4.13%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with a mandrax use disorder, while 197 participants (90.37%) did not know of anyone who has a mandrax use disorder.

Nyaope

One participant (0.46%) was personally suffering with a nyaope use disorder, 12 participants (5.50%) had a family member suffering with a nyaope use disorder, 10 (4.59%) had a friend suffering with a nyaope use disorder, 33 (15.14%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with a nyaope use disorder, while 162 participants (74.31%) did not know of anyone who has a nyaope use disorder.

Codeine

One participant (0.46%) was personally suffering with a codeine use disorder, six participants (2.75%) had a family member suffering with a codeine use disorder, 35 (16.06%) had a friend suffering with a codeine use disorder, 13 (5.96%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with a codeine use disorder, while 163 participants (74.77%) did not know of anyone who has a codeine use disorder.

Crack/cocaine

One participants (0.46%) was personally suffering with a crack/cocaine use disorder, 13 participants (5.96%) had a family member suffering with a crack/cocaine use disorder, one (0.46%) participant was in a relationship with someone suffering with a crack/cocaine use disorder, 28 (12.84%) had a friend suffering with a crack/cocaine use disorder, 29 (12.84%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with a crack/cocaine use disorder, while 146 participants (66.97%) did not know of anyone who has a crack/cocaine use disorder.

Benzodiazepines

One participants (0.46%) was personally suffering with a benzodiazepine use disorder, two participants (0.92%) had a family member suffering with a benzodiazepine use disorder, 11 (5.05%) had a friend suffering with a benzodiazepine use disorder, seven (3.21%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with a benzodiazepine use disorder, while 197 participants (90.37%) did not know of anyone who has a benzodiazepine use disorder.

Amphetamines

11 participants (5.05%) had a family member suffering with an amphetamine use disorder, 16 (7.34%) had a friend suffering with an amphetamine use disorder, 17 (7.8%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with an amphetamine use disorder, while 174 participants (79.82%) did not know of anyone who has an amphetamine use disorder.

Methcathinone

One participant (0.46%) was personally suffering with a methcathinone use disorder, 13 participants (5.96%) had a family member suffering with a methcathinone use disorder, 29 (13.30%) had a friend suffering with a methcathinone use disorder, 20 (9.17%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with a methcathinone use disorder, while 155 participants (71.10%) did not know of anyone who has a methcathinone use disorder.

Ecstasy

One participant (0.46%) was personally suffering with an ecstasy use disorder, seven participants (3.21%) had a family member suffering with an ecstasy use disorder, two (0.92%) participants were in a relationship with someone suffering with an ecstasy use disorder, 30 (13.76%) had a friend suffering with an ecstasy use disorder, 22 (10.09%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with an ecstasy use disorder, while 156 participants (71.56%) did not know of anyone who has an ecstasy use disorder.

Heroin

A total of seven participants (3.21%) had a family member suffering with a heroin use disorder, eight (3.67%) had a friend suffering with a heroin use disorder, 19 (8.72%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with a heroin use disorder, while 184 participants (84.40%) did not know of anyone who has a heroin use disorder.

LSD

Two participants (0.96%) were personally suffering with an LSD use disorder, five participants (2.29%) had a family member suffering with an LSD use disorder, 17 (7.78%) had a friend suffering with an LSD use disorder, 17 (7.80%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with an LSD use disorder, while 177 participants (81.19%) did not know of anyone who has an LSD use disorder.

Solvents

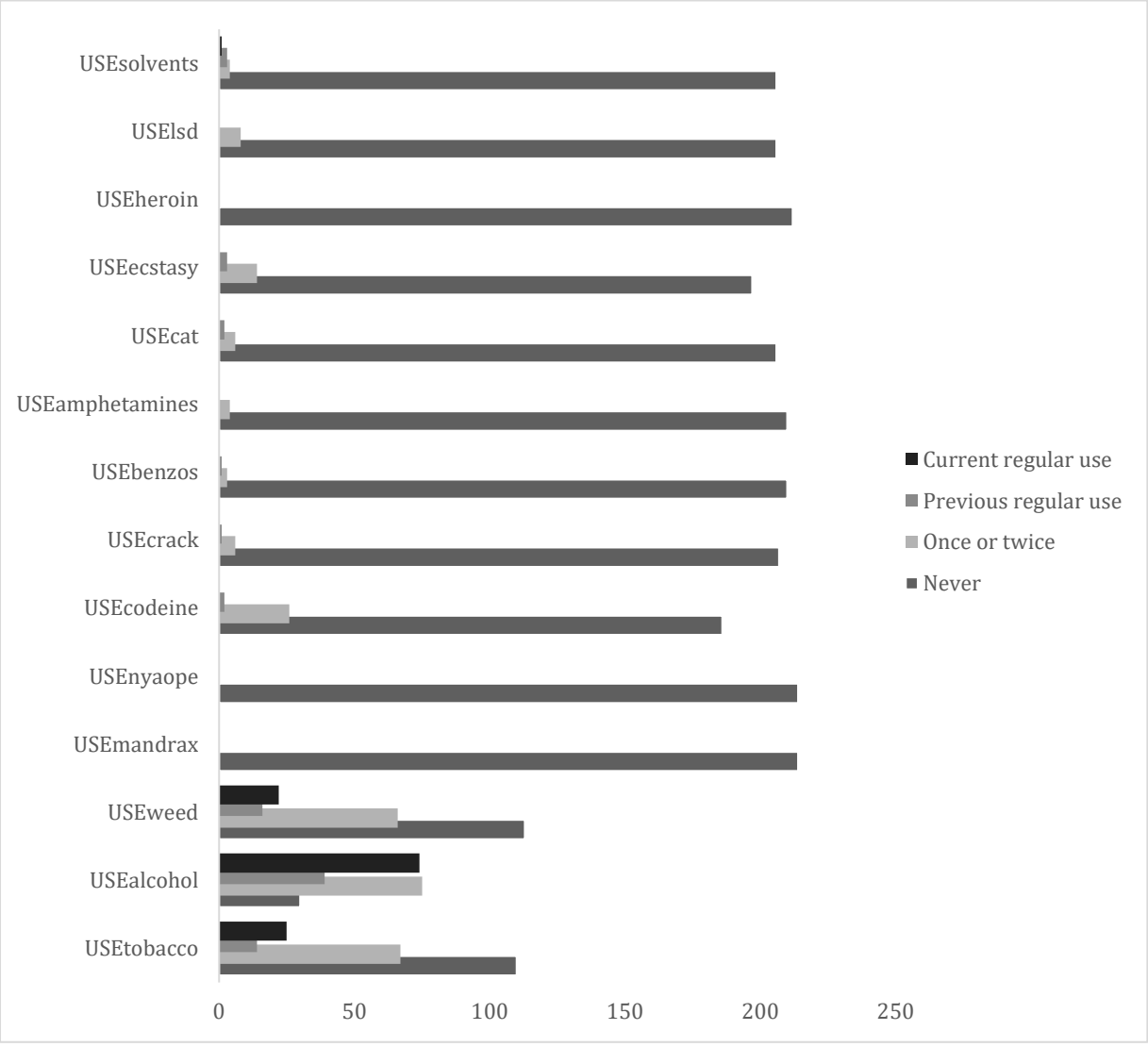
Two participants (0.96%) were personally suffering with a solvent use disorder, five participants (2.29%) had a family member suffering with a solvent use disorder, nine (4.13%) had a friend suffering with a solvent use disorder, 37 (16.97%) knew of someone else (i.e. someone other than themselves, members of their family, or their friends) suffering with a solvent use disorder, while 165 participants (75.69%) did not know of anyone who has a solvent use disorder.

Summary

Of the 14 SUDs listed above, the total number of SUDs to which participants had been exposed through knowing a sufferer ranged from a minimum of 0 to a maximum of 14 (*M = 4.68; SD = 2.98)*. In sum, it appears that the majority of participants identified problematic tobacco, alcohol and cannabis use in family members, friends, partners or other people close to them. Exposure to problematic mandrax, nyaope, codeine, crack/cocaine, benzodiazepines, amphetamines, methcathinone, ecstasy, heroin, LSD and solvents use disorders through knowing of someone with the disorder appeared less frequently amongst the sample.

Self-Use Exposure

Figure 2: Bar chart of Self-Use Exposure



In investigating participants' self-use of substances (Figure 2 above), the following patterns were found as detailed below.

Alcohol

Alcohol was the most commonly used substance in this sample with only 30 participants (13.76%) reporting that they had never used alcohol, 75 participants (34.40%) having used alcohol once or twice, 39 participants (17.89%) having previously used alcohol regularly but stopped, and 74 participants (33.94%) currently using alcohol regularly.

Tobacco

According to their self-reports, 110 participants (50.93%) had never used tobacco, 67 participants (31.02%) had used tobacco once or twice, 14 participants (6.48%) had previously used tobacco regularly but stopped, and 25 participants (11.57%) currently used tobacco regularly.

Cannabis

A total of 113 participants 113 (52.07%) had never used cannabis, 66 participants (30.41%) had used cannabis once or twice, 16 participants (7.37%) had previously used cannabis regularly but stopped, and 22 participants (10.14%) currently used cannabis regularly.

Codeine

A total of 186 participants (86.92%) had never used codeine, 26 participants (12.15%) had used codeine once or twice, and two participants (0.93%) had previously used codeine regularly but stopped.

Ecstasy

A total of 197 participants (92.06%) had never used ecstasy, 14 participants (6.54%) had used ecstasy once or twice, and three participants (1.40%) had previously used ecstasy regularly but stopped.

Methcathinone

A total of 206 participants (96.26%) had never used methcathinone, six participants (2.80%) had used methcathinone once or twice, and two participants (0.93%) had previously used methcathinone regularly but stopped.

LSD

A total of 206 participants (96.26%) had never used LSD, and eight participants (3.74%) had used LSD once or twice.

Solvents

A total of 206 participants (96.26%) had never used solvents, four participants (1.87%) had used solvents once or twice, three participants (1.40%) had previously used solvents regularly but stopped, and one participant (0.47%) currently used solvents regularly.

Crack/cocaine

A total of 207 participants (96.73%) had never used crack/cocaine, six participants (2.80%) had used crack/cocaine once or twice, and one participant (0.47%) had previously used crack/cocaine regularly but stopped.

Benzodiazepines

A total of 210 participants (98.13%) had never used benzodiazepines, three participants (1.40%) had used benzodiazepines once or twice, and one participant (0.47%) had previously used benzodiazepines regularly but stopped.

Amphetamines

A total of 210 participants (98.13%) had never used amphetamines, and four participants (1.87%) had used amphetamines once or twice.

Mandrax, Nyaope and Heroin

All 214 participants (100%) reported that they had never used mandrax, nyaope or heroin.

Summary

In sum, of the 14 substances listed above, the total number of substances that each participant had been exposed to through self-use ranged from a minimum of 0 to a maximum of 9 (*M* = 2.21*; SD* = 1.63). The most commonly used substances were alcohol, tobacco and cannabis in this sample.

4.3.3 Attitudes towards individuals with SUDs

Participant attitudes towards individuals with SUDs were measured using the five domains of the Attitude Questionnaire, specifically Permissiveness, Treatment Intervention, Non-stereotypes, Treatment Optimism and Non-moralism.

Overall, participant scores for Permissiveness ranged from a minimum score of 8 to a maximum score of 31 (*M = 20.33; SD* = 4.45), suggesting great variability in attitudes towards substance use permisssiveness in this sample. The second measure was the Treatment Intervention subscale. Participant scores for Treatment Intervention ranged from a minimum score of 6 to a maximum score of 30 (*M* = 23.01*; SD* = 3.19). High scores on this measure are indicative of more positive attitudes towards treatment interventions for people with SUDs. The observed means were therefore suggestive of generally more positive attitudes towards SUD treatment interventions. The third measure was the Non-Stereotypes subscale. Participant scores for Non-Stereotypes ranged from a minimum score of 11 to a maximum score of 38 (*M* = 24.40*; SD* = 4.45). The observed means reflect more non-stereotyped attitudes towards individuals with SUDs, as opposed to stereotyped attitudes towards this population, amongst the participants. The third measure was the Treatment Optimism subscale. Participant scores for Treatment Optimism ranged from a minimum score of 9 to a maximum score of 24 (*M* = 18.27*; SD* = 2.71). These scores suggest that the participants' attitudes towards SUD treatment were more optimistic than pessimistic. Finally, the last measure was the Non-Moralism subscale. Participant scores for treatment optimism ranged from a minimum score of 8 to a maximum score of 27 (*M* = 17.37*; SD* = 3.43). Low scores on this measure indicate moralistic attitudes, while high scores indicate non-moralistic attitudes. As such, the observed means point to generally more non-moralistic attitudes relating to substance use.

4.4 Preliminary correlational analyses

4.4.1 Association between knowledge of SUDs and attitudes towards individuals with SUDs

The results of the correlational analyses, which examined the association between knowledge of SUDs and attitudes towards individuals with SUDs, found that such knowledge was not significantly associated with any of the attitudinal factors. To elaborate, no significant correlations were found to exist between knowledge and "permissiveness" ($r = 0.05$, $p = 0.48$), knowledge and "treatment intervention" ($r = 0.11$, $p = 0.09$), knowledge and "non-stereotypes" ($r = - 0.00$, $p = 0.99$), knowledge and "treatment optimism" ($r = 0.02$, $p = 0.80$), or knowledge and "non-moralism" ($r = - 0.01$, $p = 0.86$). These results suggest that SUD-related knowledge is not associated with attitudes towards SUD in this sample.

4.4.2 Association between exposure to SUDs and attitudes towards individuals with SUDs

Correlational analyses were also conducted to examine the associations between participant attitudes towards individuals with SUDs and their three types of exposure to SUDs (i.e. having heard about substances, knowing someone with an SUD, and self-use of substances). The results of these analyses are discussed in the following section.

Permissiveness

No significant correlations were found to exist between Knowledge Exposure and "permissiveness" ($r = 0.12$, $p = 0.07$) or between Knowing Someone Exposure and "permissiveness" ($r = -0.06$, $p = 0.39$). However, a significant positive correlation was found to exist between self-use of substances (Self-use Exposure) and "permissiveness" ($r = 0.28$, $p = < 0.01$). This suggests that people who have used substances reported more permissive attitudes towards SUD in this sample.

Treatment intervention

No significant correlations were found to exist between Knowledge Exposure and "treatment intervention" ($r = 0.04$, $p = 0.59$), between Knowing Someone Exposure and "treatment intervention" ($r = 0.12$, $p = 0.08$), or between Self-use Exposure and "treatment intervention" ($r = - 0.00$, $p = 0.99$).

Non-stereotypes

No significant correlations were found to exist between Non-Stereotype attitudes and Knowledge Exposure (r = 0.10, p = 0.13) and Knowing Someone Exposure (r = -0.08, p = 0.23). However, a significant positive correlation was found to exist between Self-Use Exposure and non-stereotype attitudes towards SUD (r = 0.31, p = < 0.01). This suggests that, in this sample, people who reported difficulties with substance use were more likely to have positive, non-stereotyping attitudes about SUDs.

Treatment optimism

Treatment optimism was not correlated with Knowledge exposure (r = 0.09, p = 0.19) and with Knowing Someone exposure (r = -0.07, p = 0.30). However, a significant positive correlation was found between Self-Use Exposure and "treatment optimism" (r = 0.18, p = < 0.01). This finding suggests that people who have personally struggled with problematic substance use were more likely to have positive and optimistic attitudes towards treatment.

Non-moralism

No significant correlation was found to exist between Knowledge Exposure and "non-moralism" (r = 0.09, p = 0.17). However, a significant negative correlation was found to exist between Knowing Someone Exposure and "non-moralism" (r = -0.17, p = < 0.01) and a significant positive correlation was found between Self-Use Exposure and "non-moralism" (r = 0.21, p = < 0.01). This suggests that people who had been exposed to SUDs through friends, partners, family and other individuals in their social network were more likely to report moralistic attitudes towards SUDs, whereas those who have personally struggled with SUDs reported more non-moralistic attitudes.

4.5 Main Analyses

Two-way ANOVAs were conducted to determine whether knowledge of SUDs predicts attitudes towards individuals with SUDs, as well as to determine whether knowing someone with an SUD, personal use of substances, or both, moderates the association. Below are the results of the two-way ANOVA. In these ANOVAs, SUD-related knowledge was used as a predictor variable, each of the five domains of Attitudes (i.e. Permissiveness, Treatment Intervention, Non-stereotypes, Treatment Optimism and Non-moralism) were used as the criterion variables, and the three types of exposure variables were used as potential moderators (Baron & Kenny, 1986).

4.5.1 Moderating effects of knowing someone with an SUD on the predictive effects of knowledge of SUDs on attitudes towards individuals with SUDs

Permissiveness

A two-way ANOVA was conducted to test whether the main effects and interaction of SUD-related knowledge and knowing someone with an SUD were predictive of Permissiveness. It should be noted that SUD-related knowledge is referred to as "Knowledge" and knowing someone with an SUD is referred to as "Knowing Someone Exposure". A non-significant overall effect was found, ($F_{(5,216)} = 0.97$, $p = 0.44$). As expected, non-significant main effects for Knowledge ($F_{(1,216)} = 0.74$, $p = 0.39$) and for Knowing Someone Exposure ($F_{(2,216)} = 1.76$, $p = 0.17$) were also recorded. This finding suggests that Knowledge was not associated with Permissiveness in this sample. As such, Knowing Someone Exposure was not a moderator of this relationship as it was non-significant.

Treatment Intervention

A two-way ANOVA found that overall, the main effects and interactions of Knowledge and Knowing Someone Exposure were significantly associated with positive attitudes towards treatment interventions ($F_{(5,216)} = 2.33$, $p = 0.04$). A non-significant interaction was found ($F_{(2,216)} = 0.94$, $p = 0.39$). For this reason, the main effects will be interpreted. The main effect of Knowledge was found to be non-significant ($F_{(1,216)} = 2.93$, $p = 0.09$). Nevertheless, it is important to note that while this effect was not found to be significant, the recorded level of significance falls reasonably close to what would be considered significant. As such, it is possible that a significant effect of Knowledge could be found in samples with greater power to detect more modest effect sizes. Furthermore, the main effect of Knowing Someone Exposure was found to be significant ($F_{(2,216)} = 3.41$, $p = 0.03$). This suggests that knowing someone living with an SUD may be associated with attitudes towards SUD treatment interventions.

Non-stereotypes

A two-way ANOVA was used to test whether the main effects and interaction of Knowledge and Knowing Someone Exposure were predictive of non-stereotyped attitudes towards individuals with SUDs. A non-significant overall effect was found, ($F_{(5,216)} = 1.22$, p

= 0.30). As expected, non-significant main effects for Knowledge ($F_{(1,216)} = 0$, $p = 0.98$) and for Knowing Someone Exposure ($F_{(2,216)} = 2.12$, $p = 0.12$) were also recorded. This suggests that neither SUD-related knowledge nor exposure to SUDs through knowing someone living with an SUD is associated with non-stereotyped attitudes.

Treatment optimism

A two-way ANOVA was conducted to determine whether the main effects and interaction of Knowledge and Knowing Someone Exposure were predictive of optimism towards SUD treatments. A non-significant overall effect was found, ($F_{(5,216)} = 0.38$, $p = 0.86$). As expected, non-significant main effects for Knowledge ($F_{(1,216)} = 0.03$, $p = 0.86$) and for Knowing Someone Exposure ($F_{(2,216)} = 0.67$, $p = 0.51$) were also recorded, suggesting that neither Knowledge nor Knowing Someone Exposure is associated with optimism about SUD treatment in this sample.

Non-moralism

A two-way ANOVA was conducted to test whether the main effects and interaction of Knowledge and Knowing Someone Exposure were predictive of non-moralistic attitudes towards individuals with SUDs. A non-significant overall effect was found, ($F_{(5,216)} = 2.11$, $p = 0.07$). However, it is important to note that while this effect was not found to be significant, the recorded level of significance falls reasonably close to what would be considered significant and it is possible that a significant effect was not detected due to the limited power of this study. Though a non-significant interaction was found ($F_{(2,216)} = 0.24$, $p = 0.79$), the interpretation of the main effects are of particular relevance. That is, although the main effect of Knowledge was found to be non-significant ($F_{(1,216)} = 0.05$, $p = 0.83$), the main effect of Knowing Someone Exposure was found to be significant ($F_{(2,216)} = 5.02$, $p = 0.01$). This suggests that Knowing Someone Exposure is significantly associated with non-moralistic attitudes towards individuals with SUDs. Specifically, the correlation matrix suggests that this association is a positive one. Therefore, people who had had exposure to individuals living with SUDs were more likely to hold non-moralistic attitudes towards SUDs.

4.5.2 Moderating effects of personal use of substances on the predictive effects of knowledge of SUDs on attitudes towards SUDs

Permissiveness

A two-way ANOVA found that overall, the main effects and interactions of SUD-related knowledge and self-use of substances were significantly associated with permissive attitudes ($F_{(3,217)} = 5.25$, $p = <0.01$). A non-significant interaction was found ($F_{(1,217)} = 3.17$, $p = 0.08$). However, it is important to note that while this effect was not found to be significant, the recorded level of significance falls reasonably close to what would be considered significant. As such, it is possible that a significant interaction effect of knowledge of SUDs and self-use of substances simply went undetected as a result of the limited available power of the study and should therefore not be excluded. Furthermore, given that a non-significant interaction was found, the main effects will be interpreted. The main effect of knowledge of SUDs was found to be non-significant ($F_{(1,217)} = 0.52$, $p = 0.47$). On the contrary, the main effect of self-use of substances was found to be significant ($F_{(1,217)} = 12.05$, $p = <0.01$). This suggests that self-reported difficulties with substance use are significantly associated with permissive attitudes towards substances use. The correlation analyses described in the previous section found that the correlation between self-use exposure and permissiveness is significant ($r = 0.28$, $p = < 0.01$), suggesting that people who struggle with SUDs are more likely to report more permissive SUD-related attitudes.

Treatment intervention

A two-way ANOVA was conducted to test whether the main effects and interaction of SUD-related knowledge and self-use of substances were predictive of positive attitudes towards SUD treatment interventions. A non-significant overall effect was found, ($F_{(3,217)} = 2.25$, $p = 0.08$). Although a non-significant interaction was found ($F_{(1,217)} = 0.28$, $p = 0.59$), the interpretation of the main effects seem to be of relevance. That is, although the main effect of knowledge of SUDs was found to be non-significant ($F_{(1,217)} = 2.90$, $p = 0.09$), as was the main effect of self-use of substances ($F_{(1,217)} = 3.56$, $p = 0.06$), the recorded levels of both of these main effects fall reasonably close to what would be considered significant. Again, it is possibly due to the limited available power to detect smaller effect sizes. As such, a significant main effect of either knowledge of SUDs or of self-use of substances, or both, may have gone

undetected. Thus, these effects should not be excluded and would need further exploration in a larger sample.

Non-stereotypes

A two-way ANOVA was conducted to test whether the main effects and interactions of SUD-related knowledge and self-use of substances were significantly associated with non-stereotyped SUD-related attitudes. As per the results, a significant overall effect was found ($F_{(3,217)} = 3.45$, $p = 0.01$). A non-significant interaction was found ($F_{(1,217)} = 0.23$, $p = 0.63$). For that reason, the main effects will be interpreted. The main effect of knowledge of SUDs was found to be non-significant ($F_{(1,217)} = 0$, $p = 0.98$). On the contrary, the main effect of self-use of substances was found to be significant ($F_{(1,217)} = 10.12$, $p = <0.01$). This suggests that self-use of substances has a significant and positive impact on non-stereotyped attitudes related to SUDs and those suffering therefrom.

Treatment optimism

A two-way ANOVA found that overall, the main effects and interactions of SUD-related knowledge and self-use of substances were significantly associated with optimistic attitudes towards SUD treatment interventions ($F_{(3,217)} = 2.7$, $p = 0.05$). A non-significant interaction was found ($F_{(1,217)} = 0.25$, $p = 0.62$). For that reason, the main effects will be interpreted. The main effect of knowledge of SUDs was found to be non-significant ($F_{(1,217)} = 0.07$, $p = 0.78$). On the contrary, the main effect of self-use of substances was found to be significant ($F_{(1,217)} = 7.77$, $p = 0.01$). This suggests that self-use of substances has a significant and positive impact on optimistic attitudes towards SUD treatment interventions.

Non-moralism

A two-way ANOVA was conducted to test whether the main effects and interaction of SUD-related knowledge and self-use of substances were predictive of non-moralistic attitudes towards SUDs and individuals with SUDs. A non-significant overall effect was found, ($F_{(3,217)} = 2.44$, $p = 0.07$). However, it is important to note that while this effect was not found to be significant, the recorded level of significance falls reasonably close to what would be considered significant. As such, it is possible that a significant overall effect simply went undetected as a result of the limited available power of the study and should therefore not be excluded. Although a non-significant interaction was found ($F_{(1,217)} = 0.01$, $p = 0.93$), the

interpretation of the main effects seems to be of particular relevance. That is, while the main effect of knowledge of SUDs was found to be non-significant ($F_{(1,217)} = 0.03$, $p = 0.86$), the main effect of self-use of substances was found to be significant ($F_{(1,217)} = 7.29$, $p = 0.01$). This suggests that self-use of substances is significantly associated with non-moralistic SUD-related attitudes.

4.6 Post-hoc analyses

Further analyses were conducted in order to evaluate whether significant differences would be found when investigating these patterns amongst illicit substances as compared to investigations of these patterns amongst legal substances. No significance differences were found to exist. Instead, similar patterns emerged when exploring these phenomena amongst all of the substances included in the current study.

5 Discussion

A more comprehensive exploration of the findings of this study ensues in the following discussion. More specifically, the research questions, as presented at the start of this paper, are answered directly and the research findings explained. Next, the implications of the relevant findings are discussed. Finally, this discussion considers the extent to which the current study has addressed existing research gaps and offers recommendations for future research in this area.

5.1 Answering the research questions

5.1.1 What are the current attitudes of undergraduate psychology students towards individuals with SUDs?

The current study examined five different kinds of SUD-related attitudes amongst the sample. The first of these was "Permissiveness". The incorporation of this attitudinal factor allowed the researcher to determine the extent to which the attitudes of the sample reflected tolerance and acceptance with regard to SUDs. The low average score for "Permissiveness" reflects the predominantly negative attitudes of intolerance and disapproval held by the participants within this domain. The second attitudinal sub-category investigated was "Treatment Intervention", which allowed for the assessment of attitudes towards SUD treatments. The high average score for "Treatment Intervention" suggests that, in general, the participants held positive attitudes towards treatment interventions, as they demonstrated openness rather than disinclination towards such interventions. The average score for the third factor, "Non-stereotypes", leaned slightly closer to the higher end of the spectrum of scores and suggests a slightly positive attitude within this domain, as participants seemed to hold more non-stereotyped SUD-related attitudes than they did stereotyped attitudes. Next, "Treatment optimism" was examined and the results yielded a high average score, suggesting positive and optimistic attitudes regarding SUD treatment, as held by the participants. Finally, the "Non-moralism" factor explored moralistic versus non-moralistic attitudes amongst participants. The low average score on this domain suggests that participants held predominantly moralistic attitudes, which reflects a negative SUD-related attitude.

These findings suggest that SUD-related attitudes are comprised of various factors and that it cannot be assumed that attitudes are consistent across domains. That is, while an individual may hold specific positive attitudes in one domain, he/she may hold negative attitudes in another. Nevertheless, the current sample holds positive attitudes across more domains than not, as participants exhibited positive attitudes amongst three of the five attitudinal factors (i.e. "Treatment Intervention", "Non-stereotypes", and "Treatment optimism"). On the contrary, participants demonstrated negative attitudes within the other two domains (i.e. "Permissiveness" and "Non-moralism"). The positive attitudes amongst the participants in the current study and, in particular, their attitudes reflecting openness to SUD-treatment interventions and optimistic beliefs about SUD treatments might be explained by the fact that the participants are students of psychology. In other words, it seems reasonable to assume that these participants would hold positive attitudes towards interventions geared at treating mental health issues, such as SUDs, given their chosen field of study.

5.1.2 How much SUD-related knowledge exists amongst undergraduate psychology students?

The results of this study shed light on the striking lack of SUD-related knowledge amongst the participants, whose scores on the knowledge questionnaire were particularly low. To elaborate, the average score of 6.89 out of 15 (i.e. 45.93%) suggests that, on average, the sample was unable to correctly answer even half of the questions. Even the highest score obtained (i.e. 9 out of 15) reflects a relatively low score, as it is indicative of only 60% correct answers. These results correspond to existing research, which highlights the widespread lack of SUD-related knowledge (Gidman & Coomber, 2014). Though one might expect the participants in the current study to have greater knowledge about SUDs, given that they are enrolled in tertiary-level education and are students of psychology, the results of the current study as well as those of previous studies highlight knowledge shortfalls in this area, even amongst healthcare professionals with extensive training and education (Klimas et al., 2017).

5.1.3 To what extent have Wits undergraduate psychology students been exposed to SUDs?

The research explored participant exposure to SUDs on three levels. The first of these investigated the substances that participants had heard of. The next level investigated the exposure of participants to various individuals with SUDs. Finally, the researcher explored participants' self-use of substances. As mentioned above, the investigation of SUD-related exposure began by investigating which of the specific substances, identified by and incorporated into the current study, the participants had heard of. It was found that almost all participants had heard of alcohol (99.08%), tobacco (97.25%), cannabis (96.33%) and crack/cocaine (93.12%). Fewer, albeit still a large majority of the sample, had heard of ecstasy (87.16%), nyaope (83.49%), heroin (83.03%), amphetamines (79.36%), codeine (78.44%), solvents (76.15%) and LSD (72.48%). Still fewer had heard of methcathinone (65.14%) and only lightly more than half of the sample had heard of mandrax (55.50%). The least heard of substance was benzodiazepines (37.16%), with most of the sample having indicated that they had not heard of it. In exploring participant exposure to SUDs at the second level, the researcher went on to investigate participant exposure to individuals with SUDs. The results indicated that, on average, participants had been exposed to close to five of the 14 listed SUDs through knowing a sufferer (i.e. either themselves, a family member, a partner, a friend or someone else). Lastly, participant exposure to SUDs was explored at the level of self-use. The results of this study found that, on average, participants had been exposed to at least two of the 14 substances through personal use thereof. Furthermore, the results indicated that alcohol was the most commonly used substance amongst the participants, with 86.24% of the sample having indicated that they had used alcohol at least once before. Tobacco and cannabis were also identified as relatively commonly used amongst the participants, albeit less so than alcohol, with 49.07% having used tobacco at least once before and 47.93% having used cannabis at least once before. Less commonly used were codeine (13.08%), ecstasy (7.94%), LSD (3.74%), methcathinone (3.74%), crack/cocaine (3.27%), benzodiazepines (1.87%) and amphetamines (1.87%). The least commonly used substances within this sample were mandrax, nyaope and heroin. None of the participants indicated ever having used any of these three substances. It should be noted, however, that some participants failed to respond to certain questions related to self-use. Although it goes without saying that these non-responses had some bearing on the results, it is not believed that the results would reflect significantly differently had those responses been provided.

5.1.4 Does SUD-related knowledge significantly impact on attitudes towards SUDs, as a function of exposure to SUDs?

The second and third levels of exposure (i.e. exposure through knowing SUD sufferers and exposure through self-use of substances) were identified as most pertinent in exploring the moderating effects of exposure on the predictive effects of knowledge of SUDs on attitudes towards individuals with SUDS. This is due to the fact that the results of the preliminary statistical analyses indicated that no significant associations existed between the first level of exposure (i.e. exposure through having heard about substances) and any of the five attitudinal factors. As such, the moderating effects of these two levels of exposure were investigated.

Investigations of the moderating effects of exposure on the relationship between SUD-related knowledge and attitudes found that exposure was not found to be a moderator of the relationship between knowledge and attitudes. Instead, exposure was found to have a direct relationship with attitudes. The aforementioned results are outlined in more detail below.

When investigating the moderating effects of exposure to SUDs through knowing someone with an SUD, it was found that knowing someone with an SUD did not significantly impact the relationship between knowledge of SUDs and any of the five attitudinal factors (i.e. "Permissiveness", "Non-stereotypes", "Treatment optimism", "Treatment intervention" and "Non-moralism"). Instead, exposure to SUDs through knowing someone was significantly associated with certain SUD-related attitudes and, more specifically, attitudes related to the "Treatment Interventions" and "Non-moralism" domains. Thus, any impact of knowing someone with an SUD on the relationship between SUD-related knowledge and both "Treatment intervention" and "Non-moralism" is better attributed to a more direct association between this level of exposure and the relevant attitudes, rather than any interactional effect of such exposure and SUD-related knowledge on these attitudes.

A similar investigation examined the moderating effects of personal use of substances on the relationship between SUD-related knowledge and attitudes. The findings suggest that personal use of substances does not significantly impact the relationship between SUD-related knowledge and any of the five attitudinal factors (i.e. "Permissiveness", "Non-stereotypes", "Treatment optimism", "Treatment intervention" and "Non-moralism"). However, exposure to SUDs through personal use of substances was significantly associated with certain SUD-related attitudes and, more specifically, attitudes related to the "Permissiveness", "Non-

stereotypes", "Treatment optimism" and "Non-moralism" domains. Thus, any impact of personal use of substances on the relationship between SUD-related knowledge and "Permissiveness", "Non-stereotypes", "Treatment optimism" or "Non-moralism" is better attributed to a more direct association between this level of exposure and the relevant attitudes, rather than any interactional effect of such exposure and SUD-related knowledge on these attitudes.

Overall, these findings highlight significant links between exposure to SUDs and SUD-related attitudes and seem to dispute the relevance of SUD-related knowledge on such attitudes, as seems to have been posited mistakenly by many researchers to date. Contrary to the seemingly widespread supposition that a significant association exists between knowledge of SUDs and attitudes towards individuals with SUDs and the findings of certain research studies evidencing this (Matheson et al., 2014), the results of this study suggests the opposite. No significant links were found to exist between SUD-related knowledge and any of the five attitudinal factors (i.e. "Permissiveness", "Treatment intervention", "Non-stereotypes", "Treatment optimism" and "Non-moralism"). It has become increasingly apparent that stark contrasts exist between various research findings regarding the link between SUD-related knowledge and attitudes, as exemplified by the contrasting findings of the current study and the findings of the study conducted by Matheson et al. (2014). These inconsistencies raise doubt about the presiding assumption that knowledge of SUDs significantly impacts SUD-related attitudes and offers support for the notion presented at the start of this paper that a more critical exploration of this relationship is necessary.

However, significant associations were found to exist between certain attitudinal factors and exposure to SUDs. More specifically, links were found been various SUD-related attitudes and exposure to SUDs through personal use of substances as well as through knowing of an individual with an SUD. To elaborate, exposure through personal use of substances was found to be significantly positively associated with "Permissiveness", "Non-stereotypes", "Treatment optimism" and "Non-moralism". This suggests that those who have personally used substances are likely to demonstrate greater tolerance towards and acceptance of individuals with SUDs. Such individuals are also likely to hold non-stereotypical, non-moralistic and non-stigmatising attitudes towards SUD sufferers. Furthermore, those who have been exposed to substances through self-use thereof also seem to hold more optimistic attitudes towards SUD-treatment interventions. These findings seem to offer some explanation for the prevalence of paraprofessionals currently working as "addiction counsellors" in the field of

SUD treatment (Doukas & Cullen, 2010). Many SUD-treatment facilities employ individuals who are living with SUDs, but no longer actively using, as counsellors based on the notion that such lived experiences uniquely equip these individuals to offer treatment to those currently struggling with SUDs (Olsson & Yismaw, 2013). Although this notion seems to have been contested in some instances (Doukas & Cullen, 2010), the findings of this study offer support for the fact that such paraprofessionals are likely to hold more positive attitudes towards this population. Furthermore, in light of the strong correlation between attitudes towards patients and treatment outcomes (Van Boekel, Brouwers, Van Weeghel, & Garretsen, 2013), these findings ultimately support the notion that individuals with personal experiences of SUDs are indeed uniquely equipped to offer treatment. This is especially relevant given the current climate across various health fields, in which a great number of professionals hold negative attitudes towards individuals with SUDs (Zogmaister et al., 2013). Nonetheless, even though the lived experiences related to SUDs and resultant positive attitudes contribute to the efficacy of SUD treatment provided by such paraprofessionals, it is important to note that those suffering from SUDs often require interventions that fall outside of the scope or skillset of these paraprofessionals, especially when considering that SUDs are commonly found to exist alongside a host of other co-morbid disorders (Schumm & Gore, 2016). The inability of paraprofessionals to offer such interventions is likely a contributing factor to the persistently high rates of relapse amongst this patient population. Thus, the need for fully trained professionals in SUD treatment remains crucial (Fishman, 2015). It is posited that improving SUD-related attitudes amongst fully-skilled and training professionals would ultimately permit more effective/comprehensive treatments for individuals with SUDs that might, in turn, result in lower rates of relapse (Haibach, Beehler, Dollar, & Finnell, 2014).

Interestingly, exposure through knowing someone (i.e. self, family member, partner, friend or other) with an SUD is negatively associated with “Non-moralism”. This suggests that participants who personally knew of someone with an SUD generally held more negative, moralistic SUD-related attitudes than those who did not. At face value, this specific finding seems inconsistent with the results of some recent research, which suggest a positive correlation between exposure to individuals with SUDs and positive attitudes towards this patient population (Meltzer et al., 2013). However, it is believed that rather than contradicting the aforementioned previous research findings, these results point to the significance of varying contexts in the influence of exposure to SUDs through knowing someone with an SUD on SUD-related attitudes. The current study investigates exposure through knowing someone with

an SUD predominantly within the context of personal relationships with such individuals (e.g. family members, partners or friends). In the study conducted by Meltzer et al. (2013), the focus of participants' exposure to individuals with SUDs related to professional relationships within a treatment context (i.e. medical students' exposure to SUDs through knowing of patients with SUDs). This distinction between personal and professional contexts appears to be especially relevant. A further contextual distinction that seems to be of key significance is that, while the exposure of participants to individuals with SUDs in the study conducted by Meltzer et al. (2013) related to participants' interactions with patients during their placement at an SUD treatment facility, it is evident that the participants were exposed to individuals with SUDs currently receiving treatment. The same cannot be assumed for the participants in the current study. Instead, it is likely that most of the individuals with SUDs known to the participants in this study were not currently receiving treatment. In yet another study, it was found that senior psychiatry residents held more negative attitudes towards individuals with SUDs than junior psychiatrist residents (Avery et al., 2017). Based on the assumption that the senior residents are likely to have had more exposure to patients with SUDs than junior residents, the potentially negative impact of exposure on attitudes is once again recognised, as the findings of that study seem to mimic the finding of the current study. However, while it is certain that participants in the study conducted by Meltzer et al. (2013) were exposed to patients in a facility specialising in SUD treatment, the same cannot be said for the participants in the study conducted by Avery et al. (2017), especially since the incorporation of such SUD-specific placements remains largely uncommon in most psychiatry and other training programmes. As such, the importance of the specific kind of exposure to individuals with SUDs is again identified as a critical influencing factor impacting attitudes towards this population. Moreover, these findings suggest that the kind of exposure to SUDs is of greater relevance than the frequency of exposure to SUDs in this regard.

5.2 Implications of the findings

The primary implication of these findings relates to the SUD-specific training of health professionals. At present, the trend across training programmes in various health fields related to SUDs and associated treatments appears to be knowledge-based. Stigma remains a massive challenge amongst health professionals and is largely still associated with standards of care. As hypothesised, the findings of this research evidence the inadequacy of such knowledge-focused training and motivates for the incorporation of exposure to individuals living with SUDs. Exposure to people who have struggled with substances may result in shifts in certain

attitudes, which are proposed to be associated with reduced stigma and improved treatment environments. This reflects a reiteration of the notion that exposure/contact-based SUD-training is vital, as presented in previous research studies, including a recent study in which the stigmatisation of individuals with SUDs amongst Egyptian health professionals and students was explored (El Rasheed, El Sheikh, El Missiry, Hatata, & Ahmed, 2016). As exemplified by the findings of the current study, a link exists between exposure to SUDs and attitudes towards SUDs. Moreover, contrary to popular belief, the supposed link between knowledge of SUDs and attitudes towards SUDs, which seems to form the basis of most training programmes, has not been supported in this study. It is argued that a shift in the focus and structure of such training programmes across health fields, which reflects the incorporation of exposure to individuals with SUDs, would be of great value in effecting attitudinal change towards those with SUDs amongst healthcare providers. However, since this research had identified differing outcomes on SUD-related attitudes depending on the kind of exposure, it is important that this is taken into consideration when effecting changes within training programmes. A tentative assumption is made that exposure to individuals with SUDs currently receiving SUD treatment in a facility that adopts a specific/specialised focus on SUD treatment is mostly likely to elicit positive attitudinal changes towards individuals with SUDs. However, further research regarding the impact of varying kinds of exposure to individuals with SUDs seems necessary in order to corroborate that assumption before any definitive conclusions can be drawn.

A further implication of this study relates to the efficacy of SUD treatments provided by paraprofessionals who are living with SUDs. It seems that such individuals are generally more likely to hold positive attitudes towards patients with SUDs as a result of their personal experiences of SUDs, such as greater treatment optimism and non-moralism. Thus, such paraprofessionals are uniquely equipped to offer a useful contribution to the field of SUD treatment and stigma reduction. Many treatment and rehabilitation facilities appear to have adopted this exact same model, i.e. having people who are recovering and have often been treated with SUDs themselves as critical staff on the treating team in various capacities. This research has found support for such models as they seem to contribute to more positive attitudes and faith in the treatment programmes, which consequently create expectancy effects. However, while their contribution should not be discredited, it does not detract from the dire need for the specialist contribution of fully-trained and skilled health professionals in the treatment of individuals with SUDs. As such, it remains crucial that negative SUD-related attitudes amongst health professionals are addressed and the issue of stigma continues to be

tackled. It is assumed that positive shifts in SUD-related attitudes amongst health professionals would, in turn, elicit more positive treatment experiences and ultimately outcomes. That is, the envisioned attitudinal changes bear the potential to reduce rates of relapse and increase treatment adherence amongst individuals with SUDs. Moreover, such positive shifts would likely yield even greater societal benefits, as the broader societal consequences associated with SUDs (e.g. unemployment, crime, poverty etc.) would thereby lessen (Aslam, 2015).

5.3 Strengths and limitations of the current study

The current study is quantitative in nature, which naturally renders it subject to the inherent limitations of the quantitative research approach, including the limited capacity of such research to offer in-depth explorations of the phenomena under study. This is due to the relatively narrow scope of research studies that adopt quantitative approaches. As a result, the current research is not able to fully explain certain research findings that resulted from the current study (e.g. the finding that the kind of SUD-related exposure seems to have a more significant impact on SUD-related attitudes than the frequency of exposure to SUDs), since they fell outside of the scope of the current study. Another potential limitation is that the study relied on self-reports of a sensitive topic such as substance abuse. Despite the mechanisms that were in place to assure anonymity, the possibility that social desirability influenced responses cannot be entirely excluded. This remains one of the challenges of self-report research. Similarly, potential implications of these findings could not be sufficiently substantiated, as a result of this inherent quantitative limitation. Furthermore, in light of the constraints of the chosen sampling strategy, the sample employed in the current study may not be representative of the population from which it has been drawn (Miller, 2017). In other words, the participant group in the current study reflects an ethnically diverse group of mostly single female, young adult, undergraduate university students and generalisation may be limited to this particular demographic. Also impacting the generalisability of the findings is that the identified substance-related trends may not be the same in other populations. Moreover, the substance-related trends in the current context are deemed subject to continuous change, even within the population from which they will be drawn.

Despite these limitations, a number of strengths of this study have been identified. The convenience sampling strategy yielded a particularly large sample of 253 participants, which is believed to be appropriately representative. Thus, the research findings are believed to be substantially supported and largely generalisable. This study has also benefitted from various

inherent strengths of the quantitative research approach, including the fundamental objectivity that is characteristic of quantitative research. Additionally, despite the aforementioned limitations regarding the research scope of this study, the quantitative approach ultimately ensured that each of the four research questions identified in this study were addressed and answered. Thus, all of the research aims were met.

5.4 Recommendations for future research

This study, along with other studies, has identified significant research gaps in the area of attitudes towards individuals with SUDs. Although this study has aimed to contribute meaningfully in this regard, further research remains necessary. Similar findings would further validate the need for changes in the focus and structure of training programmes across health fields, while more extensive research could offer greater insight into the influence of various kinds of exposure to SUDs on attitudes towards those suffering with this particular mental health disorder. The latter is especially relevant as the current study could not address that particular issue in full since that exploration fell outside of the current research scope. Another important focus for future research is the continued exploration of the various factors associated with treatment optimism as well as further exploration of the relevance and impact of treatment optimism. Moreover, while this study investigated the current phenomena amongst undergraduate psychology students at a South African university, it might be useful to explore these phenomena in different contexts (e.g. at other universities, in other countries, across different health fields, across varying levels of education etc.). An exploration of the specific implications across these different contexts could also contribute to a more comprehensive and holistic understanding of attitudes towards individuals with SUDs, factors influencing such attitudes and the effects thereof. In particular, further research is needed in more gender-balanced samples with more diversity in age, vocation and marital status. The challenge is that negative SUD-related attitudes likely represent a perpetuating factor for the limited research and the enduring research gap in this area of study.

6. Conclusion

SUDs represent a widespread, highly prevalent and growing mental health issue and those living with this disorder remain greatly stigmatised. Research indicates that the stigmatisation of this population complicates rehabilitation efforts for various reasons and contributes to the persistently high rates of relapse amongst those with SUDs (Panebianco et al., 2016). As such, the researcher deemed it crucial to conduct the current study in order to explore factors associated with negative attitudes towards individuals with SUDs. The researcher believed that such research was necessary to better inform efforts aimed at mitigating the stigmatisation of this vulnerable population (Mattoo et al., 2015). The researcher noted that while existing interventions aimed at combatting the SUD stigma generally seem to place great emphasis on SUD-related education (Shidlansik et al., 2016), the relationship between SUD-related knowledge and attitudes appeared unclear. Furthermore, the researcher identified a significant gap in current research regarding the influence of exposure to individuals living with SUDs on attitudes towards this population. As such, the researcher aimed to contribute to the bridging of the aforementioned research gap by examining attitudes towards individuals with SUDs in South Africa. More specifically, the researcher aimed to determine whether knowledge of SUDs improves attitudes towards SUD sufferers and, more importantly, whether this relationship is dependent on whether or not individuals have had some exposure to such sufferers. The current study yielded a number of significant results, however, the most noteworthy findings relate to the significant links found to exist between SUD-related attitudes and exposure. These results seem to nullify the relevance of SUD-related knowledge on such attitudes, which has significant implications for the SUD-specific training of health professionals. The findings of this research evidence the inadequacy of such knowledge-focused training and motivates for the incorporation of exposure to individuals with SUDs in such training programmes. It goes without saying that additional research is necessary to further validate the findings of the current study, especially given the large gap that exists in this regard in the existing body of research.

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Appendices

Appendix A: Consent Form

Psychology School of Human & Community Development University of the Witwatersrand Private Bag 3, Wits, 2050
Tel: 011 717 4503 Fax: 011 717 4559

Title of Research Project:	Attitudes towards individuals with substance use disorders: The impact of knowledge and the moderating effects of exposure
Researcher(s):	Ms. Simone Dennis (Student Researcher) Dr Esther Price (Research Supervisor)

1. I confirm that I have read and have understood the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my rights being affected. ☐
3. I understand that, I can at any time ask for access to the information I provide and I can also request the destruction of that information if I wish. ☐
4. I understand that I will not be identified or identifiable in any report subsequently produced by the researcher. ☐
5. I accept that taking part in an study intervention is voluntary and confirm that any risks associated with this have been explained to me. ☐
6. I agree to take part in the above study. ☐

Appendix B: Participant Information Sheet for First Year Psychology Students

Psychology School of Human & Community Development University of the Witwatersrand Private Bag 3, Wits, 2050
Tel: 011 717 4503 Fax: 011 717 4559

Hello,

My name is Simone Dennis. I am conducting research at the University of the Witwatersrand (Wits) as a requirement to obtain a Master's degree in Clinical Psychology. I am interested in understanding what you know and understand about Substance Use Disorders (SUDs) as well as how much exposure you have had to people living with SUDs and addictions. It is hoped that this research will help us understand better how people experience and understand substance use disorders in general. I would like to extend an invitation to you to take part in this study.

Participation will entail completing an online questionnaire and brief demographic questionnaire for descriptive purposes only, which should take no more than 15 minutes of your time. Participation is completely voluntary, there will be no advantage or disadvantage should you choose to participate or not to participate in the study. The questionnaires are entirely anonymous and no identifying information will be required or included in the final report. If you would like to obtain 1% extra credit for participation in this research, you will need to provide your student number in order for your credit to be awarded. Your details and participation will still remain completely confidential and your identifying details will in no way be linked with your participation. The completed questionnaires will only be handled by me and my supervisor Dr Esther Price.

The results of this study will be reported in the form of a research report and may also be published in a scientific journal. Should you wish to view a summary of the results please email me after September 2018, and a one-page summary of the findings will be made available to you. Results will be in the form of group statistics; therefore individual results cannot be provided.

SUDs: Attitudes, knowledge, and the moderating effects of exposure

Participation in the study may entail answering questions about whether or not you have been exposed to people living with addictions or SUDs in the past or present. Although unlikely, there is a very minimal risk that some of these questions could be mildly distressing to you perhaps as you recall personal experience. In the event that participation leaves you feeling slightly distressed, you are welcome to contact any one of the following free counselling services provided within the university:

1. Emthonjeni Community Psychology Clinic
   Phone: +27-11-717-4513

2. Counselling and Careers Development Unit
   Phone: +27-11-717-9140/32

If you have any further questions regarding this study or need more information, please feel free to contact me, the student research, or Dr Esther Price, my research supervisor. Both my contact details and that of Dr Price are provided below.

Thank you for considering taking part in this study.

Ms Simone Dennis (Student Researcher)
Email: simonedennispsychology@gmail.com

Dr Esther Price (Research Supervisor)
Email: esther.price@wits.ac.za

Appendix C: Participant Information Sheet for Second and Third Year Psychology Students

Psychology School of Human & Community Development
University of the Witwatersrand
Private Bag 3, Wits, 2050 Tel: 011 717 4503 Fax: 011 717 4559

Hello,

My name is Simone Dennis. I am conducting research at the University of the Witwatersrand (Wits) as a requirement to obtain a Master's degree in Clinical Psychology. I am interested in understanding what you know and understand about Substance Use Disorders (SUDs) as well as how much exposure you have had to people living with SUDs and addictions. It is hoped that this research will help us understand better how people experience and understand substance use disorders in general. I would like to extend an invitation to you to take part in this study.

Participation will entail completing an online questionnaire and brief demographic questionnaire for descriptive purposes only, which should take no more than 15 minutes of your time. Participation is completely voluntary, there will be no advantage or disadvantage should you choose to participate or not to participate in the study. The questionnaires are entirely anonymous and no identifying information will be required or included in the final report. The completed questionnaires will only be handled by me and my supervisor Dr Esther Price.

The results of this study will be reported in the form of a research report and may also be published in a scientific journal. Should you wish to view a summary of the results please email me after September 2018, and a one-page summary of the findings will be made available to you. Results will be in the form of group statistics; therefore individual results cannot be

provided. If you have any further questions regarding this study or need more information, please feel free to contact me, the student research, or Dr Esther Price, my research supervisor. Both my contact details and that of Dr Price are provided at the end of this form. If you are not satisfied with our responses or have a complaint, which you feel you cannot come to us with, please contact the research ethics representative, Prof. Sumaya Laher. All relevant contact details are provided below:

1. Ms Simone Dennis
   (Student Researcher)
   Email: simonedennispsychology@gmail.com

2. Dr Esther Price
   (Research Supervisor)
   Phone: +27-11-717-4517
   Email: esther.price@wits.ac.za

3. Prof. Sumaya Laher
   (Research Ethics Representative)
   Phone: +27-11-717-4532
   Email: sumaya.laher@wits.ac.za

Participation in the study may entail answering questions about whether or not you have been exposed to people living with addictions or SUDs in the past or present. Although unlikely, there is a very minimal risk that some of these questions could be mildly distressing to you perhaps as you recall personal experience. In the event that participation leaves you feeling slightly distressed, you are welcome to contact any one of the following free counselling services provided within the university:

Emthonjeni Community Psychology Clinic
Phone: +27-11-717-4513

Counselling and Careers Development Unit
Phone: +27-11-717-9140/32

SUDs: Attitudes, knowledge, and the moderating effects of exposure

Thank you for considering taking part in this study.

Ms Simone Dennis

(Student Researcher)

Email: simonedennispsychology@gmail.com

Dr Esther Price

(Research Supervisor)

Phone: +27-11-717-4517

Email: esther.price@wits.ac.za

Appendix D: Brief Demographic Questionnaire

Please complete all of the following questions designed to gather anonymous background information.

Q1: Age	Less than 18	18 – 20	21 – 25	26 – 30	Older than 30
Q2: Sex			Female	Male	
Q3: Race/Ethnicity	White	Black	Coloured	Indian	Asian	Other
Q4: Marital status	Single	Married	Divorced	Widowed	
Q5: Current year of study			1st year	2nd year	3rd year
Q6: Employment	Full-time employment	Part-time employment	Unemployed		

Appendix E: Knowledge Questionnaire

Please complete all of the following questions designed to evaluate knowledge of substances and substance use disorders.

	True	False
Q7: Most drugs, including legal ones, can be abused.		
Q8: Tolerance and withdrawal indicate psychological, not physical, dependence.		
Q9: Taking a drug by mouth is more effective than inhaling it.		
Q10: Powder cocaine is more addictive than crack cocaine.		
Q11: “Tik” is a slang term for methamphetamine.		
Q12: Withdrawal from alcohol can be life-threatening.		
Q13: A liquor that is 90 proof is 90% alcohol.		
Q14: The disease model of alcoholism was made popular by AA.		
Q15: Nyaope contains ARVs and rat poison.		
Q16: Cigarette smoking is ***not*** associated with other drug use.		
Q17: A mixture of heroin and cocaine is referred to as a speedball.		
Q18: The poppy plant is the source of codeine.		
Q19: Tolerance to LSD develops slowly.		
Q20: Ecstasy is a methamphetamine with hallucinogenic effects.		
Q21: Cannabis, THC, and marijuana all describe the same kind of drug.		

Appendix F: Exposure Questionnaire

Please complete all of the following questions designed to evaluate exposure to substances and substance use disorders.

Q22: Have you heard of the following substances? (Knowledge exposure)
(Additional street names of substances listed in brackets)

Substance *(street name)*	**Yes**	**No**
1. Tobacco		
2. Alcohol		
3. Cannabis/Marijuana *(Weed, Pot, Dagga)*		
4. Mandrax (Buttons)		
5. Nyaope (Whoonga, Whunga)		
6. Codeine *(Syrup)*		
7. Crack/Cocaine (Coke, Charlie, Blow, Rocks, Klippe)		
8. Benzodiazepine *(Benzos)*		
9. Amphetamines (Meth, Tik, Speed)		
10. Methcathinone *(Cat)*		
11. Ecstasy (E, Molly)		
12. Heroin (H, Smack)		
13. LSD (Acid)		
14. Solvents *(Glue)*		

Q23: Do you know of someone who has/had a substance-use disorder/problem? If yes, please specify who. (Exposure through knowing of someone).
(Additional street names of substances listed in brackets)

	Yes (please specify)					**No**
	Myself	Family member	Partner	Friend	Other	
1. Tobacco						
2. Alcohol						
3. Cannabis/Marijuana *(Weed, Pot, Dagga)*						
4. Mandrax (Buttons)						
5. Nyaope (Whoonga, Whunga)						
6. Codeine *(Syrup)*						
7. Crack/Cocaine (Coke, Charlie, Blow, Rocks, Klippe)						
8. Benzodiazepine *(Benzos)*						
9. Amphetamines (Meth, Tik, Speed)						
10. Methcathinone *(Cat)*						
11. Ecstasy (E, Molly)						
12. Heroin (H, Smack)						
13. LSD (Acid)						
14. Solvents *(Glue)*						

Q24: Which of the following substances have you used? (Self-use exposure)

(Additional street names of substances listed in brackets)

	Never used	Used once or twice	Previously used regularly, but stopped	Currently use regularly
1. Tobacco				
2. Alcohol				
3. Cannabis/Marijuana *(Weed, Pot, Dagga)*				
4. Mandrax (Buttons)				
5. Nyaope (Whoonga, Whunga)				
6. Codeine *(Syrup)*				
7. Crack/Cocaine (Coke, Charlie, Blow, Rocks, Klippe)				
8. Benzodiazepine *(Benzos)*				
9. Amphetamines (Meth, Tik, Speed)				
10. Methcathinone *(Cat)*				
11. Ecstasy (E, Molly)				
12. Heroin (H, Smack)				
13. LSD (Acid)				
14. Solvents *(Glue)*				

Appendix G: Revised Substance Abuse Attitude Survey Exposure Questionnaire

Please complete all of the following questions designed to evaluate your thoughts towards substances and substance use disorders.

	Strongly Disagree	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
Q25: Marijuana should be legalized.					
Q26: Personal use of drugs should be legal in the confines of one's home.					
Q27: Daily use of one marijuana cigarette is not necessarily harmful.					
Q28: It can be normal for a teenager to experiment with drugs.					
Q29: Lifelong abstinence is a necessary goal in the treatment of alcohol use problems.					
Q30: Once a person becomes drug-free through treatment, he/she can never become a social user.					
Q31: Parents should teach their children how to use alcohol.					
Q32: Family involvement is a very important part of the treatment of alcohol and drug use problems.					

Q33: The best way to treat people with addictions is to refer them to a good treatment programme.					
Q34: Group therapy is an important part of the treatment of alcohol and drug use problems.					
Q35: Urine drug screening can be an important part of the treatment of drug use problems.					
Q36: Long-term outpatient treatment is necessary for the treatment of drug use problems.					
Q37: Lay counselors can provide effective treatment for people with addictions.					
Q38: People who use marijuana usually do not respect authority					
Q39: Smoking leads to marijuana use, which, in turn, leads to hard drugs.					
Q40: Marijuana use leads to mental illness.					
Q41: Heroin is so addictive that no one can really recover one he/she has a heroin addiction.					
Q42: All heroin use leads to addiction.					

Q43: Weekend users of drugs will develop drug use problems.					
Q44: A hospital is the best place to treat people with addictions.					
Q45: Recreational drug use precedes drug use problems.					
Q46: Drug addiction is a treatable illness.					
Q47: Alcohol addiction is a treatable illness.					
Q48: People with addictions who have relapsed several times probably cannot be treated.					
Q49: Most people with addictions are unpleasant to work with.					
Q50: People with addictions cannot be helped until he/she has hit “rock bottom”.					
Q51: Street pushers are the initial source of drugs for young people.					
Q52: Alcohol is so dangerous that it could destroy the youth of our country if not controlled by law.					
Q53:					

Angry confrontation is necessary when treating people with addictions.					
Q54: People with addictions should only be treated by specialists in the field.					
Q55: Alcohol addiction is associated with a weak will.					
Q56: Using any hard drugs shortens one's lifespan.					

Appendix H: Ethics Clearance Certificate

Appendix I: Glossary

Acronyms related to attitudinal factors	
Non_Moralism	The attitudinal factor "Non-moralism"
Non_Stereotypes	The attitudinal factor "Non-stereotypes"
Permissiveness	The attitudinal factor "Permissiveness"
Rx_Intervention	The attitudinal factor "Treatment Intervention"
Rx_Optimism	The attitudinal factor "Treatment Optimism"
Acronyms related to exposure variables	
Knowledge Exposure	The total number of substances participants had heard of.
Knowing Someone Exposure	The total number of SUDs participants had been exposed to through knowing someone with the relevant SUD.
Self-use Exposure	The total number of substances participants personally used.
EXP	Used to refer to exposure to a specific substance through having heard of the substance. Below are more specific acronyms. "EXPtobacco": exposure to tobacco through having heard of it. "EXPalcohol": exposure to alcohol through having heard of it. "EXPweed": exposure to marijuana through having heard of it. "EXPmandrax": exposure to mandrax through having heard of it. "EXPnyaope": exposure to nyaope through having heard of it. "EXPcodeine": exposure to codeine through having heard of it. "EXPcrack": exposure to crack/cocaine through having heard of it. "EXPbenzos": exposure to benzodiazepines through having heard of it. "EXPamphetamines": exposure to amphetamines through having heard of it. "EXPcat": exposure to methcathinone through having heard of it. "EXPecstasy": exposure to ecstasy through having heard of it. "EXPheroin": exposure to heroin through having heard of it. "EXPlsd": exposure to LSD through having heard of it. "EXPsolvents": exposure to solvents through having heard of it.

KNOW	Used to refer to exposure to a specific SUD through knowing someone with the SUD. Below are more specific acronyms: "KNOWtobacco": exposure to tobacco use disorder through knowing of someone with the disorder. "KNOWalcohol": exposure to alcohol use disorder through knowing of someone with the disorder. "KNOWweed": exposure to marijuana use disorder through knowing of someone with the disorder. "KNOWmandrax": exposure to mandrax use disorder through knowing of someone with the disorder. "KNOWnyaope": exposure to nyaope use disorder through knowing of someone with the disorder. "KNOWcodeine": exposure to codeine use disorder through knowing of someone with the disorder. "KNOWcrack": exposure to crack/cocaine use disorder through knowing of someone with the disorder. "KNOWbenzos": exposure to benzodiazepine use disorder through knowing of someone with the disorder. "KNOWamphetamines": exposure to amphetamine use disorder through knowing of someone with the disorder. "KNOWcat": exposure to methcathinone use disorder through knowing of someone with the disorder. "KNOWecstasy": exposure to ecstasy use disorder through knowing of someone with the disorder. "KNOWheroin: exposure to heroin use disorder through knowing of someone with the disorder. "KNOWlsd": exposure to LSD use disorder through knowing of someone with the disorder. "KNOWsolvents": exposure to solvents use disorder through knowing of someone with the disorder.
USE	Used to refer to exposure to a specific substance through personal use of the substance. Below are more specific acronyms:

	"USEtobacco": exposure to tobacco through personal use of the substance. "USEalcohol": exposure to alcohol through personal use of the substance. "USEweed": exposure to marijuana through personal use of the substance. "USEmandrax": exposure to mandrax through personal use of the substance. "USEnyaope": exposure to nyaope through personal use of the substance. "USEcodeine": exposure to codeine through personal use of the substance. "USEcrack": exposure to crack/cocaine through personal use of the substance. "USEbenzos": exposure to benzodiazepines through personal use of the substance. "USEamphetamines": exposure to amphetamines through personal use of the substance. "USEcat": exposure to methcathinone through personal use of the substance. "USEecstasy": exposure to ecstasy through personal use of the substance. "USEheroin: exposure to heroin through personal use of the substance. "USElsd": exposure to LSD through personal use of the substance. "USEsolvents": exposure to solvents through personal use of the substance.