Service Users' Perceptions of the Relationships between Cigarette Use and Recovery from Substance Use Disorders

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DECLARATION

I, Lorraine Samba Chiseya, hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university. I empower the university to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

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ABSTRACT

Introduction

Information on the relationship between cigarette use and recovery from substance use disorders (SUDs) is contradictory and limited to studies conducted in high-income countries characterised by a predominance of injection drug use. In South Africa, a low-and-middle-income country where drugs are mainly smoked, there is an absence of research examining the relationship between smoking and SUD treatment outcomes. This study seeks to bridge this gap by exploring service users' perceptions of smoking and how cigarette use affects their recovery from SUDs.

Methods

This exploratory study employed a qualitative research design. Twenty participants were recruited from six Matrix Outpatient SUD treatment programmes in the greater Cape Town region for in-depth interviews. A semi-structured interview guide structured the interviews. Interviews were audio-recorded before being transcribed verbatim. Qualitative data were analysed using the framework approach.

Results

Three main findings emerged from the data. First, powerful socio-cultural and contextual factors seem to underpin participants early initiation and maintenance of cigarette use. Participants identified socio-cultural processes that strongly influenced their perceptions of smoking and the social and emotional functions it served, which contributed to continued cigarette use. Second, participants described the intertwining of cigarettes and other substances, with shared modes of administration and mixing of substances - they thought this made it very challenging to maintain recovery from substances while continuing to smoke tobacco. Third, although service users perceive benefits to tobacco cessation for health and recovery from SUDs, most participants using tobacco expressed ambivalence about quitting

and seem to lack confidence in their ability to stop smoking and maintain their abstinence from other substances.

Conclusion

The current study suggests that SUD service users view cigarette use as potentially detrimental to their SUD treatment and recovery. As such, this study provides support, from a service user perspective, for (i) the introduction of interventions to prevent tobacco initiation among young people as part of SUD prevention and (ii) the integration of tobacco cessation interventions into SUD treatment programming to improve the likelihood of successful treatment outcomes for people who smoke tobacco. More specifically, findings highlight the potential value of a client-centred approach in screening service users for tobacco use as they enter SUD treatment, educating them about the potential impacts of continued smoking on SUD recovery, and integrating evidence-based smoking cessation programmes into SUD treatment.

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TERMINOLOGY AND ABBREVIATIONS

TIK: This term is locally used in the Western Cape to describe methamphetamine

MANDRAX: Mandrax tablets are usually crushed and mixed with tobacco and cannabis as a conduit to facilitate smoking. Locally this is termed a white pipe

LMIC: Low-and-middle-income country

SUD: Substance use disorder. This is defined by the American Psychiatric Association's Diagnostic and Statistical Manual (DSM)-V as patterns of symptoms stemming from the use of a substance that one continues to take, despite experiencing challenges as a result.

WEED: a colloquial term used for marijuana

NRT: Nicotine replacement therapy

SERVICE USERS: That is SUD treatment programme participants

CHAPTER 1: BACKGROUND AND LITERATURE REVIEW

Introduction

There is a high prevalence of cigarette smoking among people with substance use disorders (SUDs) (Streck et al., 2020). Within South Africa there is limited research addressing smoking and its impact on SUD treatment or outcomes. This thesis seeks to bridge this gap by exploring the experiences and insights of people with SUDs who also smoke cigarettes and how cigarette use affects their recovery from SUDs. This chapter describes the literature around this issue, highlighting the challenges that smoking presents to this subgroup and the importance of addressing this gap in research.

Prevalence and burden of disease associated with tobacco.

Currently there are 8 million deaths related to cigarette smoking, making this the leading cause of preventable deaths globally (World Health Organisation, 2021; Akanbi et al., 2018). Globally, there is consensus that cigarette smoking is associated with many adverse health conditions such as increased risk of cancers, stroke, and other chronic diseases (Cokkinides, 2008; Redner, White, Harder, & Higgins, 2014; Shangase, Tsoka-Gwegweni, & Egbe, 2017). Over 80% of the estimated one billion smokers globally reside in low and middle-income countries (LMICs) (World Health Organisation, 2021). It is further estimated that in 2030, 70% of the 10 million annual smoking-related deaths will occur in low-and middle-income countries (Akanbi et al., 2018). In South Africa, deaths related to smoking cigarettes have risen by 19% from 1990 to 2016 (Van der Westhuizen et al, 2019). Although this increase may be a result of population increase or improved death reporting, it could also reflect an increased prevalence of tobacco use in the population (Van der Westhuizen et al, 2019). “Although tobacco controls

in South Africa have achieved some success in decreasing the frequency of smoking, by offering cessation programmes and passing tobacco regulation policies, smoking prevalence remains high (Agaku, Egbe, & Ayo- Yusuf, 2021; Ayo-Yusuf & Szymanski, 2010)" Given tobacco use comes with a host of negative health implications, the continued high prevalence of tobacco poses a sizeable burden to the South African health system and society.

Tobacco use among people who use substances.

People who use other substances may carry the brunt of the tobacco-attributable health burden. The handful of South African studies that have examined the co-use of tobacco and other substances have highlighted a high prevalence of tobacco use among people who use other substances and who are seeking health care services (Egbe et al, 2019; Van der Westhuizen, 2018), suggesting a need to treat both tobacco use and other substance use in an integrated fashion. Studies have reported a high prevalence of smoking among people with alcohol use disorders in South Africa (Ayo-Yusuf & Szymanski, 2010; Egbe et al, 2019; Van der Westhuizen). Although there is limited general population-level data on tobacco use among South Africans with SUDs, studies from other countries report that smoking rates are higher among individuals with alcohol or other SUDs than smoking rates among the general population (Burling, Ramsey, Seidner, & Kondo, 1997; González-Roz et al., 2019; Kalman, 1998; National Institute on Drug Abuse, 1998; Richey, Garver-Apgar, Martin, Morris, & Morris, 2017; Streck et al, 2020; Sussman, 2002). In other settings, studies have shown that cigarette smoking is common among patients attending substance abuse treatment, with prevalence rates ranging from 65% to 85% of the treatment population (Knudsen, 2017; Goodwin et al., 2014; Prochaska, 2010; Redner et al., 2013; Richey et al., 2017). Additionally, evidence reveals that while cigarette use might be declining in the general population in high-income countries, it seems to be on the rise among people with SUDs (Knudsen, 2017;

Weinberger et al., 2018). These findings, together with evidence that deaths among people with SUDs are more likely to be a result of tobacco-related causes than substance-related causes (Shu & Cook, 2015), highlight the importance of reducing tobacco use among people with SUDs.

A public health imperative to address tobacco use among people with SUDs.

This high prevalence of tobacco use among people with SUDs is a public health concern. People with SUDs who smoke cigarettes are at particular risk for smoking-related health problems and early death from tobacco in comparison with the general population (Richey et al, 2017; Rohsenow et al, 2017). More specifically, the risk to this subgroup of people who use tobacco is two-fold higher than among people who smoke tobacco without SUDs (Degenhardt et al., 2005; Goodwin et al., 2014). More specifically, evidence points to an additive effect of smoking tobacco and the use of other substances on health outcomes. The co-use of cigarettes and other substances increase risk of cancer, poor foetal development in children (Gaalema et al., 2013) and lead to poorer pregnancy outcomes (Gaalema et al., 2013). People with these co-occurring risks are also at increased risk of non-malignant diseases such as cirrhosis of the liver, pancreatitis, cardiovascular diseases, loss of hearing, poor lung functioning and pulmonary disease such as emphysema and chronic bronchitis (Murphy, Steyn, & Mathews, 2016; Redner, 2014; Romberger & Grant, 2004). There seems to be similar effects with smoking cigarettes and drinking alcohol. It is "estimated that the combined health risks of smoking cigarettes and drinking alcohol are 50% higher than the sum of their individual risks" (Timothy, 1999, p. 259). Additionally, many people who use substances in South Africa smoke their drugs, with the three main illicit drugs in the Western Cape (cannabis, methamphetamine and methaqualone (Mandrax)) mainly being smoked (Harker et al., 2020). The smoking of these illicit drugs may compound the risks of lung and respiratory health problems associated

with tobacco smoking (Richey et al, 2017; Rohsenow et al, 2017; Weinberger et al., 2018). These increased risks for morbidity and mortality and the high prevalence of tobacco use among people with SUDs relative to the general population underscores the public health imperative to develop and implement effective programmes to support smoking cessation among this key population.

Tobacco use as a risk factor for poor SUD treatment outcomes.

Apart from the negative impact that smoking holds for the physical health of people with SUDs, research from high income settings has shown that cigarette use may impact negatively on SUD treatment outcomes, enhancing risk of relapse to previous patterns of substance use even after periods of abstinence (Goodwin et al., 2014; Lee et al., 2014). This is cause for concern in South Africa where SUDs remain largely untreated (Herman, 2009) despite their high prevalence (Herman, 2009; Van Wyk, 2011), and contribution to the country's burden of disease associated with interpersonal violence and injury, infectious disease, noncommunicable diseases and mental disorders (Myers et al., 2016; Trenz et al., 2013). Identifying and addressing risk factors for poor treatment outcomes among service users who manage to access SUD treatment is therefore key to reducing the health and social burden associated with substance use. Tobacco use is thought to increase risk for suboptimal SUD treatment outcomes through two main mechanisms: a neurobiological mechanism and a behavioural conditioning mechanism. These mechanisms are explained below.

Neurobiological mechanisms potentially underpinning cigarette use and relapse to other substances.

The chronic use of cigarettes and other substances (including alcohol) has been associated with structural brain irregularities (Murray, Durazzo, Mon, Schmidt, & Meyerhoff, 2015;

Pennington, Durazzo, Schmidt, Mon, & Meyerhoff, 2015). This co-use of cigarettes and other substances is associated with more brain morphometric abnormalities than substance use alone (Pennington et al, 2015). Other studies have identified altered brain perfusion among people who use both substances and cigarettes (Murray et al, 2015), with more severe cigarette use associated with reduced frontal and /or parietal perfusion. Reduced perfusion in these brain regions negatively affects inhibition and regulatory control and is associated with relapse in the first year of recovery (Murray et al 2015). These neurobiological irregularities are thought to affect a person's ability to change their substance use behaviour and maintain abstinence (Duka et al, 2011; Kalivas & Volkow, 2005; Pennington et al, 2015; Kalivas & Volkow, 2005). Although evidence suggests that these structural and neurocognitive impairments normalize after a period of abstinence from substance use, continued cigarette use seems to negatively impact this recovery process (Pennington et al, 2015; Durazzo et al, 2014).

In addition, nicotine, the psychoactive ingredient in tobacco, has similar biochemical and behavioural effects as other substances of abuse (Goodwin et al., 2014). Studies examining the neurobiological effects of the dual use of cannabis and tobacco have found these substances to be mutually reinforcing (Lee, Budney, Hughes, Etter, & Stanger, 2014). Evidence reveals that the midbrain and limbic forebrain dopamine reinforcement pathway is activated in the same way by cigarette use and other stimulant use (such as cocaine), resulting in similar effects such as elevation of mood, cognitive enhancement and decreased appetite (Goodman et al; Prochaska, 2010). Because of these shared pathways, the use of nicotine among people with other SUDs may trigger craving for other drugs, which may lead to relapse to substance use following treatment (Redner et al., 2013; Weinberger & Sofuoglu, 2009). Together this evidence provides a strong neurobiological argument for why smoking cessation may be an

important target for interventions to improve the effectiveness of SUD treatment (Pennington et al, 2015).

The gateway effect is another factor that may lead to suboptimal SUD treatment outcomes. Cigarettes are a potential "gateway" to other substances and as such would impede the recovery to other substances (Weinberger et al., 2018). Studies have observed among adolescents the progression from legal substances such as cigarettes and alcohol to illegal substances like dagga and cocaine (Kandel & Kandel, 2014). For instance, in a study nicotine was seen on a molecular level nicotine to act as gateway to cocaine (Kandel & Kandel, 2014). In other studies adolescents who reported feeling relaxed after the first-time smoking cigarettes and those who experimented with it while in a depressed mood were more susceptible to accelerated dependency (Torabi, Jun, Nowicke, de Martinez, Gassman, 2010).

Behavioural conditioning mechanisms possibly underpinning cigarette use and relapse to other substance use.

In addition, studies have suggested that behavioural conditioning might partially account for the relationship between cigarette use and poorer SUD treatment outcomes. Studies have highlighted that the ritual process of smoking cigarettes is closely associated with the use of other drugs (Sees & Clark, 1993), especially where these are smoked. Smoking cigarettes and smoking other drugs may become linked in a person's mind through a process called behavioural conditioning rooted in classical conditioning (Coombs, 2004; Lee et al., 2014; Lazev, Herzog, Brandon, 1999; Sees & Clark, 1993).

Environmental cues for smoking cigarettes parallel those for smoking other drugs (for example where the drugs are placed in pipes) and include the smell or sound of lighting a cigarette, or

the hand to mouth actions of bringing it to the mouth and inhaling and exhaling. In addition, the smoking paraphernalia for cigarette smoking is often the same as that used for smoking other drugs, such as lighters, matches, papers for rolling-tobacco, and sealable packets for tobacco leaves (Sees & Clark, 1993). All these shared environmental and paraphernalia cues can result in cigarettes becoming closely associated with the drug (e.g., alcohol, amphetamine type drugs, cannabis) or drug taking, such that they become a conditioned stimulus. When a person stops smoking other substances, they may feel physiologically and psychologically triggered to use the substance in the presence of the cigarette stimulus. These cues and stimuli can be encountered even after treatment and when unmanaged they can lead to substance use thoughts and a strong desire to use substances (also known as craving) and this can increase risk of relapse (Harrawood, McClure & Nelson, 2011; Sees & Clark, 1993; Wiseman & McMillan, 1998). For example, one study demonstrated that people with alcohol use disorders who were not allowed to smoke for six hours exhibited more cravings for alcohol during exposure to smoking cues (e.g., lighters, ashtrays etc) and consumed more alcohol after the experiment ended. This finding suggests that stopping one drug of abuse and not another may result in "cross-cue reactivity" that can increase risk for relapse and more chronic use of the abused substance (Gulliver, Kamholz & Helstrom, 2006, pg210).

Smoking cessation may help prevent relapse to substance use and improve likelihood of successful treatment outcomes.

A handful of studies have examined the relationship between smoking cessation and SUD treatment outcomes. Findings from these studies generally suggest that cigarette cessation may enhance the likelihood of positive SUD treatment outcomes. For instance, studies show that people with alcohol use disorders who stop smoking are more likely to maintain abstinence than people with alcohol use disorders who continue smoking cigarettes (Gulliver, Kamholz &

Helstrom, 2006; Kamholz & Helstrom, 2006; Knudsen, 2017; Romberger & Grant, 2004). Similarly, research among people using substances other than alcohol found that participants who stopped smoking cigarettes had a lower rate of relapse to drug use than those that continued cigarette use (González-Roz et al., 2019; Knudsen, 2017; Romberger & Grant, 2004; Sees & Clark, 1993).

Additionally, various studies have observed that individuals treated simultaneously for nicotine and SUDs have longer periods of sobriety on average, with greater time to relapse than those treated for SUDs alone (Prochaska, 2010; Romberger & Grant, 2004). For instance, a 12-month longitudinal study reported that people in a treatment facility who had undergone a smoking cessation intervention achieved significantly more days abstinent from substances than those individuals who continued smoking (Prochaska, 2010). In addition, a meta-analysis of 19 randomised controlled trials revealed that smoking cessation interventions combined with substance abuse treatment were associated with a 25% increased likelihood of long-term abstinence from alcohol and other drugs than substance abuse treatment alone (Gulliver, Kamholz & Helstrom, 2006). Consistent with these findings, recent research has reported that individuals who quit tobacco have more abstinent days one-year post-treatment than individuals who continue smoking (González-Roz et al., 2019).

While these findings suggest that patients in SUD treatment who simultaneously engage in smoking cessation programmes are better able to achieve abstinence and avoid relapse to drug use than people who continue smoking (Sees & Clark, 1993; Sussman, 2002; Weinberger et al., 2018), much of this earlier research was conducted with white men receiving SUD treatment in high-income countries where SUD services are relatively better resourced and where patients entering treatment may have different patterns and profiles of drug use. This

limits the generalizability of these findings to other settings where there is greater gender and ethnic diversity in SUD treatment, highlighting the need for more research from diverse cultural settings (Sussman, 2002).

Smoking cessation interventions within SUD treatment

Despite this evidence, there are few smoking cessation programmes (NRT, 5 A's smoking cessation programme, Ekickbutt,) within the context of substance abuse treatment in South Africa (Agaku, Egbe & Ayo- Yusuf, 2021; Ayo-Yusuf & Szymanski, 2010). The reasons for the lack of these programmes are poorly understood due to a lack of local research. However, findings from research conducted in high income settings point to factors that may impact on willingness to introduce tobacco cessation into SUD treatment programmes. One factor that may contribute to cigarette use being overlooked in the treatment of SUDs is the belief that people who use substances are not interested in smoking cessation (Gulliver, Kamholz & Helstrom, 2006). Research from high income settings opposes this view, highlighting the high rate of people with SUDs with a desire to stop smoking but lacking the tools or skills to be able to do so (González-Roz et al., 2019; Gulliver, Kamholz & Helstrom, 2006, Richey et al, 2017).

Another barrier is providers' fear that smoking cessation will jeopardize their patients' sobriety from alcohol and other substances (Knudsen, 2017). Yet most of the research reveals that people who have quit substances and who have stopped smoking can do so without this impacting their recovery (Bobo, 1987; Gulliver, Kamholz & Helstrom, 2006; Kalman, 2010 Knudsen, 2017; Lemon, Friedmann, & Stein, 2003; Miller, 2009; Timothy, 1999; Stotts, Schmitz & Grabowski, 2003).

Additional contributing factors to the lack of these programmes within treatment facilities may be a lack of clarity of when to introduce a smoking cessation programmes, a lack of knowledge about smoking cessation programmes and what works, as well as a lack of resources to implement these additional programmes (Ayo-Yusuf & Szymanski, 2010; Prochaska, 2010; Romberger & Grant, 2004;). There is some evidence suggesting that introducing smoking cessation programmes during the initial phase of SUD treatment may not be particularly effective- one study found that patients who quit both substances at the beginning of treatment were less likely to stay in treatment than those who just stopped the use of alcohol or other illicit substances. For some individuals attempting to quit smoking during this early SUD treatment phase when a person may not have sufficient social support, skills or emotional stability and may be experiencing acute withdrawal symptoms could lead to a failed tobacco cessation attempt (Sussman,2002). This is important especially with the South African context where in the context of outpatient treatment dropout rates are high within the first two weeks in treatment (Myers et al 2018) and suggests that the time of initiation of these smoking cessation programmes is also important (Stotts, Schmitz & Grabowski, 2003). There is additional evidence that suggests the link between when a person stops smoking cigarettes to outcomes of the recovery process (Sussman, 2002). Starting the smoking cessation programmes sometime after first initiating drug treatment may be better for both nicotine and drug treatment outcomes (Kalman, 2010). After 3-6 months in recovery the smoking cessation rates were the highest, in fact the longer the person was in treatment the higher the success in maintaining cessation (Gulliver, Kamholz & Helstrom, 2006). This is attributed to the high level of coping skills these individuals have acquired in treatment; thus, some treatment staff believe delaying cessation interventions until stability in recovery is reached (Sussman,2002).

Patient-level factors may also impact on willingness to engage in tobacco cessation. Prior studies have suggested that some patients use tobacco to manage their alcohol and drug cravings; and therefore, perceive some benefits to continued smoking. These perceived benefits are likely to affect their motivation for tobacco cessation. Thus, this should be taken into consideration when planning smoking cessation interventions with this population group (Gulliver, Kamholz & Helstrom, 2006).

While these findings shed some light into factors that may influence the acceptability of tobacco cessation interventions for people obtaining treatment for SUDs, most of this earlier research was conducted within first world countries. The extent to which these findings are applicable to the South African context is unknown and needs to be explored as part of efforts to assess the need for and acceptability of smoking cessation programmes within the context of South Africa's SUD treatment programmes.

Rationale for the current study

SUDs are highly prevalent in South Africa, with a representative survey conducted in 2009 reporting that nationally 13.3% of the general population meet criteria for a SUD in their lifetime (Myers et al, 2018; Herman et al, 2009; Van Wyk, 2011), although lifetime prevalence is estimated at 20.3% in the Western Cape province (Ayo-Yusuf & Szymanski, 2010; Myers et al., 2014; Van Wyk, 2011). Although SUDs have been acknowledged as a health problem requiring urgent attention in South Africa (Herman et al., 2009; Kalebka et al., 2013; Van Wyk, 2011), less than 5% of individuals obtain SUD treatment in their lifetime (Van Wyk, 2011). Given these severe constraints in access to SUD treatment services, ensuring available SUD programmes provide service users with the best possible chance of successful treatment

outcomes and recovery by addressing other risk behaviours that may contribute to relapse is key to reducing the health and social burden associated with these disorders.

Continued use of tobacco is one factor that may contribute to risk of relapse but there is a paucity of qualitative research from client centred approach, on tobacco use within the context of substance abuse treatment in South Africa. This study hopes to address this gap by providing SUD service user perspectives on the role that cigarette smoking plays in development of and recovery from SUDs. Although some previous work on this topic exists, it is largely limited to studies conducted in developed countries among economically stable white men. This research aims to broaden that scope (and enhance the potential generalisability of findings) by examining the same phenomenon in a culturally diverse SUD treatment population in a LMIC. People with SUDs in South Africa also present an interesting dynamic in that most people tend to smoke drugs in contrast to the United States where injecting drug use is more common in SUD treatment populations (Aceijas Stimson, Hickman & Rhodes, 2004). The importance attributed to cigarette smoking and perceived effects on recovery could differ among people who smoke drugs relative to those who mainly inject their drugs.

The present study's focus on the experiences and perspectives of people in SUD recovery is also unique. Prior research on this topic has focused either on quantifying the potential benefits of smoking cessation for SUD outcomes or on describing SUD providers' views on tobacco cessation programming but has neglected to explore the perspectives of service users. Service users' perspectives on what role smoking has on treatment and recovery, how it can hinder or help recovery, and whether smoking cessation is important would be crucial for improving treatment retention, satisfaction, and outcome (Marsh, Cao & Shin, 2009).

In response to these gaps, this study aimed to gain descriptive data from participants in recovery regarding the relationship that cigarettes has with recovery from SUD within a LMIC such as South Africa, and how this impacts treatment and recovery from SUDs. The information in this research may guide the design and timing of future smoking interventions.

CHAPTER 2: METHODS

Research design

This study employed a qualitative research design because of the exploratory and descriptive nature of the research questions as well as the paucity of data on this topic. Using this qualitative research design, the study sought to explore the feelings, ideas, attitudes, and insights of participants regarding their use of cigarettes and its impact on in recovery from SUDs (Ohman, 2004).

Description of study sites and treatment programme

Participants were recruited from the Matrix Outpatient SUD treatment programmes in the greater Cape Town region. At the time of the study, there were six sites within the Cape Town metropole: Tafelsig, Albow Gardens, Khayelitsha, Parkwood and Manenberg.

Each of these sites are located within the City of Cape Town's primary health clinics so that people with substance use disorders can access both health services and substance abuse treatment services simultaneously. This facilitates a holistic approach to addictions care and minimizes the stigma associated with seeking substance abuse treatment (Magidson et al., 2017). Each of these sites provides the Matrix model of intensive outpatient treatment, an evidence-based model of treatment that uses a combination of relapse prevention, family therapy, cognitive behaviour therapy, motivational interviewing and contingency management treatment approaches and elements of the 12-step programme (Magidson et al., 2017; Rawson et al., 2005). Treatment is delivered over 16 weeks through individual, group, and family counselling sessions. There are regular and random alcohol and drug tests done for clients (Rawson et al., 2005). The Matrix programme also has an aftercare programme which is initiated after the client has completed three months of the programme (Rawson et al., 2005). The aftercare programme consists of one social support session that occurs weekly, facilitated by a coleader and therapist. These sessions cover topics such as aging in recovery, exercise, sex, and addiction etc. The model also encourages clients to attend the 12 Step programme (Rawson et al., 2005). Therefore, the programme has some long-term clients, some with up to nine years of recovery. Although tobacco use is asked about when people are admitted into the programme, the Matrix programme itself does not address issues related to tobacco cessation or tobacco and recovery.

These Matrix sites are located within middle- and low-income areas and service this population.

Sampling and recruitment strategy

For this study, the researcher recruited 20 participants from five of the six Matrix sites. Participants were not recruited from the site in Delft where the researcher was a senior therapist for over ten years. A decision was made to exclude this site from data collection due to the potential for social desirability bias as participants may have had previous interactions with the researcher in her clinical role.

More specifically, four participants from each site were invited to participate in the study. Maximum variation sampling was used to ensure that participants who were approached for participation were broadly representative of the treatment population. This purposeful sampling strategy aims to sample heterogeneity of a group (Babbie & Mouton, 2001). Therapists therefore invited people from different age groups, genders, and in varying stages of recovery (ranging between four weeks to four years). They were also encouraged to approach clients with different recovery experiences to participate in the study. These were participants who currently abstinent, with some having relapsed previously but still being in treatment, others had achieved successful abstinent from the onset of treatment with no relapse episodes. After a therapeutic group, the senior therapist from each of these sites approached clients, introduced the study, and asked the person if they were interested in participating. The senior therapist obtained these clients' verbal consent to be contacted by the researcher. Only two of the clients who were approached in this manner were unwilling or unable to participate, citing time constraints.

People who agreed to participate in the interview were contacted by the researcher telephonically, who explained the study as well as the study eligibility criteria. To be eligible

participants had to be between 20 and 60 years old (the age range of clients within the Matrix programme and allows for individuals with longer substance use histories and more experience with recovery to be included); have completed a minimum of one-month of treatment so that they had some experience of substance abuse treatment; and self-report either current or past cigarette use. This included smoking and vaping; however the study's focus was on smoking, due to the socio-economic background of the participants. During interviews only 2-3 who previously experimented with vaping but smoked as their mode of using cigarettes. In addition, they had to be able to express themselves in English. Appointments for interviews were made with eligible individuals who were interested in participating in the study. All interviews took place at the Matrix sites from where they had been recruited. These interviews were scheduled for dates when participants were attending the Matrix programme to prevent them incurring additional transport costs.

Description of participants

A total of 20 men and women receiving SUD treatment or continuing care services from the Matrix programmes participated in the study. The table below describes the demographic and clinical characteristics of the sample. Participants comprised of 14 men and 8 women, reflecting the gender composition of SUD services in this region (Dada et al., 2018). Age was not recorded for all participants. Participants who provided this information were 27.0 years old on average, with the average age of cigarette smoking initiation being 13.4 years old. In total, 80% (n=16) of participants reported methamphetamine as their drug of choice. About half the sample reported polysubstance use while the remainder only used methamphetamine or one other illicit substance. All the participants reported smoking as their main route of drug administration. In terms of SUD treatment response, 100% (n=20) were abstinent from alcohol and drugs at time of study. The participants' periods of abstinence from drugs and alcohol

ranged from 1 month to 3 years. “30% (n=6) of all participants were abstinent from cigarettes at time of interview. Of the 65% (n=13) participants still smoking cigarettes 92% (n=12) highlighted a desire to stop smoking cigarettes.

Table 1

Demographic and clinical characteristics of the sample (N=20)

Participant number	**Gender**	**Age (years)**	**Age first started smoking cigarettes**	**Current cigarette use**	**Drug of choice other than cigarettes**	**Route of drug administration**
TP 1	Male	35	16	yes	Methamphetamine and cocaine	Smoke and nasal
TP 2	Male	29	13	no	Methamphetamine	Smoke
TP 3	Male	51	15	no	Methamphetamine	smoke
TP 4	Male	27	13	no	Methamphetamine	Smoke
TP 5	Male	N/A	12	yes	Methaqualone	smoke
TP 6	Male	N/A	16	no	Methaqualone	smoke
TP 7	Male	N/A	13	no	Methamphetamine, Methaqualone, crack cocaine, heroin	Smoking, injecting, nasal, oral
TP 8	Male	N/A	16	yes	Methamphetamine	Smoking
TP 9	Female	61	12	no	Methamphetamine	Smoking
TP 10	Female	31	16	no	Methamphetamine, Cannabis	Smoking
TP 11	Female	37	12	no	Methamphetamine, alcohol	Smoking, oral ingestion

TP 12	Male	36	8	yes	Methamphetamine	Smoking
TP 13	Female	40	13	yes	Methamphetamine, Methaqualone, Cannabis	Smoking
TP 14	Male	33	11	yes	Methamphetamine, Methaqualone, Cannabis	Smoking
TP 15	Female	29	19	yes	Methamphetamine, Methaqualone, alcohol	Smoking and oral ingestion
TP 16	Male	23	16	yes	Methamphetamine, Methaqualone	Smoking
TP 17	Female	34	13	yes	Methamphetamine and Methaqualone	Smoking
TP 18	Male	39	12	yes	Methamphetamine, Methaqualone, alcohol, Cannabis	Smoking and oral ingestion
TP 19	Male	29	12	yes	Methamphetamine, Methaqualone, alcohol, Cannabis	Smoking
TP 20	Female	20	10	yes	Methamphetamine, Methaqualone	Smoking

Note: N/A (Not available) Ages not obtained

Data collection methods

Prior to the start of the interviews, the researcher explained what study participation entailed before obtaining the participant's written informed consent to be interviewed and for the

interview to be audio-recorded (see Appendix A for consent form). Interviews were initiated only after the participant provided consent. The researcher then conducted in-depth qualitative interviews exploring participants' views on whether and how cigarette smoking affects relapse among people recovering from substance use disorders. Topics perceived to be related to tobacco use and cessation were also covered including drug use history, the relationship between cigarettes and other drugs and how cigarettes effected their recovery. These interviews were guided by a semi-structured questionnaire that comprised open-ended questions designed to elicit discussion as well as probes to gain clarity on the information provided during the interviewing process (see Appendix B for interview guide).

Interviews were conducted over a four-month period between July 2018 and November 2018 in English in private rooms at the Matrix sites and were audio-recorded. The duration of the interviews ranged from 60 minutes to 90 minutes. At the end of the interview, participants were provided with a small token of appreciation (a box of chocolates) to thank them for their time. The participants at this point were also given a referral form with contact numbers for local smoking cessation programmes should they wish to stop smoking. Audio recordings of the interviews were transcribed verbatim. The recordings were stored on a password protected computer, and the transcripts had no patient names. The recordings would be in kept in such a manner for the duration of 15 years as mandated by ethics.

Data analysis

The researcher used the framework approach for data analysis (Ritchie & Spencer, 1994). This approach consists of six stages: familiarization, identifying a thematic framework, indexing, charting, mapping, and interpretation of the data. The researcher familiarized herself with the transcripts to obtain an overview of the data collected, while making notes of the emergent

themes within the data via narrative memo writing. Analytic memo writing allows researchers to summarise and organise the content of qualitative interview transcripts in order to begin to extract meaning from the data (Birks, Chapman & Francis, 2008). Memo writing was done as part of the identification of themes and the development of a coding framework. Memo writing allowed the researcher to objectively familiarise herself with the data as well as identify dominant themes emerging from the data. After which she identified the themes that emerged from the interviews. Each memo and the emergent themes were discussed with a second researcher. The key issues or themes received from the interviews formed the thematic framework; this was used to filter and code the data (Ritchie & Spencer, 1994). The next stage involved indexing in which the researcher identified corresponding sections of the transcripts and coded them according to the themes. The next stage of data analysis was charting the data- this entailed getting the indexed pieces of data arranged in charts of the themes. In the final stage of the analysis, the researcher conducted mapping and interpretation, which involved mapping out major and minor themes across the transcripts, as laid out in the charts (Ritchie & Spencer, 1994). NVivo software aided this qualitative data analysis. The coding and interpretation of the data were independently verified by a second person.

Ethical considerations

Ethical approval was obtained from University of Cape Town's Human Research Ethics committee (Ref No:152/2018- Appendix C). The study protocol was also reviewed and approved by the Research Department within the City of Cape Town's Health Directorate (see Appendix D). After these approvals were obtained, the researcher contacted the facility managers as well as the senior therapists at each site and discussed the research with them.

Informed consent

Written informed consent was obtained from each participant prior to their interview. During the consent process, all the procedures, expectations and the rights of participants were thoroughly explained. Participants were informed that participation was voluntary and of their right to withdraw at any time without it affecting their involvement in the Matrix programme. Although there was minimal potential for harm, questions may have been potentially sensitive or triggered distress. Participants were told about the potential for this risk and that they would be able to terminate the interview at any point or to leave the study if this was desired. The researcher used counselling techniques such as reflective listening, normalization, affirmations, and summarizations to help the participants feel comfortable. There was an opportunity to refer participants to their therapist in case of distress or discomfort brought on by the questions.

Confidentiality

Apart from participant signatures on consent forms, no further personal identifying information was collected. Participants were each assigned a study number which was used to identify their audio-recorded interview and transcript rather than names. The professional transcriber signed a confidentiality agreement before audio-recordings were sent for transcription. All names on audio-recordings were removed before being sent for transcription. Audio-recordings were destroyed after the transcription was complete.

CHAPTER 3: RESULTS

The results are presented according to the four major themes that emerged from the data. The first theme, *Cigarettes as a primary substance and relationship to other substances of abuse of abuse*, describes participants' experiences of cigarettes and their progression from smoking to the use of other substances. The second theme, *Cigarette use as part of personal identity and socio-cultural normalization*, addresses participants' views on how the use of cigarettes became part of their identity through social and cultural normalization processes. The third theme, *Desire to stop smoking because of perceived negative impact*, explores participants' perceptions of the negative impact that smoking cigarettes has on their recovery from other substances. The last theme, *Perceived benefits of smoking cessation for recovery but multiple barriers to quitting*, describes participants' views on barriers to smoking cessation and the potential benefits of smoking cessation for substance use recovery. These themes are discussed below and illustrated through quotes from participants.

Theme 1: Cigarettes as a primary substance and relationship to other substances of abuse.

Several participants described cigarettes as their primary substance of abuse. Although they had received SUD treatment for problems related to the use of other substances, they attached the most importance to cigarettes. Almost all participants described how they first started smoking before progressing to using other substances, suggesting that cigarette use served as a gateway to the use of other substances. As these participants described:

"I think the cigarette was the most important drug that I needed to have. And then obviously the other drugs came in." TP 15

"It was a gateway. It was a gateway because it made it easier for me [to start using other drugs]. Because if I can pull and then drag it, a cigarette, a cigarette is very strong. So something else was basically easy. So it was a gateway." TP 19

For many participants, cigarettes were used consistently throughout their substance use period, regardless of any other type of substance they might have been using at the time. They described how they continued to use cigarettes once they began using other drugs and how they continued smoking cigarettes even after they quit the use of other drugs. Participants attributed this to the addictive properties of cigarettes. They described the desire to smoke cigarettes as overwhelming and dominating the desire for other substances. As a result, some of the participants who reported current tobacco use described being willing to give up the use of any other substance, so long as they could continue smoking cigarettes. As these participants said:

"I could never put my cigarette aside for any other drug, for anything I ever used in my life." TP 9

"I started cigarettes, left weed [but] still do cigarettes, so the cigarettes is the one still continuing. I'm still smoking cigarettes." TP 20

In addition, most participants perceived a synergistic relationship between their cigarette use and the use of other substances. They thought that shared routes of administration (smoking of substances and cigarettes) strengthened the ties between the use of cigarettes and other substances and contributed to them becoming cross-addicted to other substances. Most participants reported that they had smoked cigarettes immediately before or after smoking their

other drugs of choice. Some participants reported simultaneous use of tobacco and other substances, describing how they mixed tobacco with their drug of choice due to beliefs that this increased the effects of the other drugs, increasing their feelings of intoxication, and heightening feelings of euphoria. As these participants reflected:

"It gave an awesome feeling. And I loved the feeling that I got from it. The high it actually gave me it was better than just smoking my drug of choice alone." TP 13

"But when you are smoking, you need to smoke more to pull up the hype…it makes you feel better because if you are craving for cigarettes while you have used drugs, you feel like you are running out of consciousness. So immediately when you find a cigarette that feeling is a better feeling." *TP 18*

For some participants, the dual use of cigarettes and their drug of choice was so entrenched that they could not see themselves using one substance without the other. Some described how smoking drugs increased their desire to use cigarettes, and vice versa. In the words of the following participants:

"I can't have the one without the other. If I go buy my drug of choice, I make sure that I have cigarettes" TP 1

"And once I started smoking the drugs, I knew that I had to have cigarettes with everything." TP 15

For some participants, this meant that the number of cigarettes they consumed increased during periods of other drug use. According to these participants, this increased use was not only due to the co-use of these substances, but also due to tendencies to use cigarettes as a tool for managing drug withdrawal. As one participant reflected:

"I smoked more cigarettes when I used (drugs), up until where I actually started using Mandrax, and then obviously the usage of my cigarettes became more because now I need to mix cigarettes into the marijuana so that I can use my Mandrax." TP 13

Theme 2: Cigarette use as part of personal identity and socio-cultural normalization.

According to several participants, smoking cessation was challenging because they perceived smoking as an integral part of their personal identity. Almost all (95%) of the participants reported early initiation of cigarette smoking because of early childhood exposure to smoking and the normalisation of tobacco use in their social and family networks. These participants described how they associated smoking with being an adult and being "big" or mature. They noted how early exposure to cigarette use not only triggered their curiosity about this substance but also removed any fear that they might have had about experimenting with cigarettes and other substances. As participants described:

"If you play at others' house and [you pretend] you're a big lady you should have a cigarette in your hand because we used to watch everyone. All the adults had cigarettes in their hands… I guess it's something (seen as) normal as an adult." TP 20

"What started it, I think, it's because my mother was smoking, my father was smoking, my sisters was smoking and everybody around me was smoking and the friends." TP 9

Several participants thought that this early initiation of cigarette use during a critical stage of identity formation contributed to their strong attachment to cigarettes. Some participants could not imagine living without cigarettes as they viewed it as such an important part of how they viewed themselves. As one participant (TP 9) reflected, "*It became me, cigarettes became me…So maybe subconsciously the cigarette will always stay a part of me subconsciously."*

In addition, many participants also described cigarettes as an important tool for building social connections with their peers. They thought smoking helped ease their entry into a social group and feelings of belonging to this group. They described the process through which friends introduced them to smoking. They also described sharing cigarettes with others in their social group, noting that the sharing of cigarettes helped them feel more connected to peer group members. This is articulated by two participants who reflected:

"So just to be social to be in. I guess that can be the reason why I just carried on smoking." TP 14

"Because if you don't belong you don't have anyone to cherish, or to share with…this is the reason why it's easy for us to smoke because when you smoke you share. When you first smoke you don't buy a cigarette, you are given by a friend. They teach you. That's being loved in a way." TP 19

In addition, several participants described how their use of cigarettes became further entrenched as smoking became a way to cope with stressors. Notably, participants who reported traumatic experiences and experiences of adversity during their childhood described how

smoking helped them cope with the negative emotions arising from these experiences. Others who did not necessarily divulge a history of trauma, described using cigarettes as a tool for managing anxiety and stress associated with daily life. These participants were reluctant and fearful to give up smoking as they did not know how else to cope with these feelings and stressors. The following statements illustrate how participants viewed the role of cigarettes in stress management:

"Whatever feelings I'm going through, whatever emotions I'm going through, the first thing that I do is pick up a cigarette." TP 13

"When I'm stressed I'll smoke a cigarette or two, or when I'm worried I'll smoke a cigarette or when I'm having arguments with somebody and a bit worked up, I'll have a cigarette to calm myself down." TP 14

"I would say a coping mechanism for stress. Emotions I can't control. Because within recovery that happens. Because you get weird feeling sometimes and you don't know what it is…. So for me that's a coping mechanism for emotions and stress I can't handle." TP 16

Theme 3: Desire to stop smoking because of perceived negative effects of smoking on health and recovery.

Despite describing a deep personal attachment to cigarettes, almost all participants (including those still smoking) acknowledged that cigarette use had negative effects on their physical and emotional well-being. As one participant reflected:

"When I started smoking I didn't have the energy anymore, I didn't have the stamina that I used to have to do the long distance running and eventually that deteriorated to doing nothing." TP 13

In addition to these physiological effects, almost two-thirds of participants viewed cigarettes as being destructive to their SUD treatment process, stating that it devalued their recovery. They viewed cigarette use in a negative light, with several attributing their use of other substances to the early onset of cigarettes. Some viewed their use of cigarettes as a "dirty habit" and another addiction. As such, they felt they could not describe themselves as being fully in recovery from substance use unless they were abstinent from all substances, including tobacco. This perception of cigarettes was held both by people who had quit smoking as well as those who were currently smoking. For some participants, previous failed attempts to quit tobacco undermined their confidence in their ability to maintain their recovery from other substances. They reported feeling ashamed about their cigarette use, noting that this affected their self-esteem. As the following participants reflected:

"So cigarette actually to me it seems like the cigarette can be actually the main dangerous aspect of my using if I can put it like that." TP 9

"They are the root of all evil. They are the root of it all. Cigarettes is where it [substance use] all began and then none of the others I believe would have followed." TP 14

Recognising the intertwining of cigarette use and use of other substances, most participants acknowledged the negative impact of continued cigarette use on their efforts to stop using other drugs. A few participants described how cigarette use in the past triggered images or flashbacks

of using drugs, increasing urges and cravings to use drugs. Some participants attributed these flashbacks and the triggering effects of cigarettes to shared routes of administration (smoking) and the use of similar paraphernalia (pipes, lighters, matches) between cigarettes and other smoked drugs. For some, the cigarette smoke reminded them of the smoke produced when they were using their drug of choice. As these participants explained:

"I smoke my cigarettes. Flashbacks would come, of me like smoking when I used to use and that stuff. So ya that would come up. And I would sit and there's no one but that thing is saying oh you were using. And it's almost like if you smoke a cigarette you going to use again." TP 10

"I would smoke a cigarette and I would blow out and then my mind would go [to the other drugs] and that's it. Like the smoke reminds me of the meth smoke... I did it for a while and I went back to smoking [meth]. I relapsed." TP 8

Others reported that the handling of the cigarette reminded them of how they handled their drug paraphernalia, which they experienced as triggering urges to use other drugs. Some participants went so far as to attribute previous relapses to substance use to their use of cigarettes. These participants felt that they needed to quit smoking to prevent relapse to other drug use. This is illustrated through these participants' statements:

"Because cigarettes led me back to the smoking tik [methamphetamine]. And cigarettes lead me to smoking of buttons [Mandrax] in the pipe, and the weed again." TP 15

"It can maybe take you back to these drugs. That's what was happening to me. That's what I was getting, the message through my situation. I had to do [quit] both because why smoking is gonna almost trigger going back, so it's going to be very dangerous for me to keep on smoking." TP 4

Theme 4: Perceived benefits of smoking cessation but multiple barriers to quitting.

Apart from perceived benefits to recovery from SUDs, participants who had stopped smoking also highlighted additional physical and mental health benefits to smoking cessation. They acknowledged that their health had improved, they had more disposable income, their self-esteem had increased as well as their relationships. These perceived benefits increased their motivation to remain tobacco-free and not resume smoking. As one participant reflected,

"I think of the consequences and having to go back to using cigarettes. That type of thing wouldn't be good. And I think failure is one of my main defects, so I wouldn't want to fail myself, really. Because I'm dedicated to my recovery…. to the stopping of cigarettes." TP 7

For these participants, smoking cessation had helped them develop a new "substance-free" identity and had improved their sense of self-worth. They described that they now felt they could become the person they were before their cigarette and drug use started. They reflected how quitting cigarettes gave them a sense of achievement, which others in their lives acknowledged, boosting their self-esteem. As these participants explained:

"And yeah deciding to give up cigarettes with my using was because I decided to become a whole new person you know. I decided to become the person that I knew I always was before I started using a cigarette you know." TP 9

"I've got so much self-worth. I really love myself now being clean and sober and not using drugs. I'm not all together yet, but I have a tremendous amount of confidence now." TP 7

Some participants described specific tools that they thought had helped them in their cessation efforts. Avoiding triggers such as money, the smell of cigarettes, or being around people smoking cigarette together with receiving support from loved ones and staying busy to prevent boredom emerged as key strategies for supporting participants' efforts to quit smoking.

"*I prefer right now, when I do get money, I don't keep it on me. I give it to someone else. I give it to my daughters or something. For me it's better." TP 1*

"I took myself away where there's no one that I can smell that smell of cigarette you know. I always kept my distance where cigarette was concerned." TP 9

Spirituality also seemed an important tool: participants described how this allowed them to focus on something positive which gave them strength to manage their cravings for cigarettes and remaining abstinent.

"And every time when that craving came, I just talked to my high power." TP 9

"Because from past experiences also, I know it goes hand in hand. My best option was to stop everything and go back to where I came from. You see. So I'm back to God. So yeah, I turned back to Christianity." TP 11

Participants acknowledged the benefits of quitting tobacco, with almost of the participants who were currently smoking expressing a desire to quit. One participant (TP 1) said that *"I don't want to smoke anymore. I actually don't like smoking anymore."* Another participant (TRP 19) stated that *"Cigarettes is something that I really really want to quit."* Nonetheless, several participants who were currently still smoking expressed ambivalence about quitting and did not seem to have fully acknowledged their nicotine dependence. Some reported finding it easy to stop and later in the same interview acknowledged it was difficult and that they felt unable to do it. This ambivalence was driven by fear of smoking cessation and what this will mean in their lives- especially in the absence of drugs and alcohol. This ambivalence is depicted in the justifications and rationalisations that participants gave for their cigarette use.

"Over the years I've been able to stop for a few months and start again. It's not a drug really, I wouldn't classify cigarettes as something difficult to get over. It's not. I guess the nicotine has its power over you… It's not a problem. I would say I smoke a hell of a lot more since I stopped smoking drugs, but again I can stop easily." TP 17

In part, this ambivalence was driven by fears of losing the sense of security and coping mechanism that participants felt cigarettes provided. For some participants, cigarettes offered them a sense of security by helping them manage their negative feelings and cope with stress. Some of these participants were worried that they would not be able to cope with emotions or withdrawals, stress or anxiety if they stopped using cigarettes and therefore might relapse to drug use.

"And naturally I know that if I stop smoking cigarettes today I'm going to live so much longer ahead. And if I had stopped years ago, then even so. But I don't want to take up too many

challenges right now. I feel that personally I feel that I can do it. I just choose not to right now. No that's not the justification in my own mind for cigarettes, but I will eventually" TP 14

A few participants viewed cigarettes as a tool for supporting their recovery from substance use- bolstering their confidence in their ability to maintain abstinence. These participants reported using cigarettes as a substitute for drugs and alcohol once they entered treatment. They described being afraid to quit smoking, citing concerns that they might relapse to their drug of choice if they quit cigarettes as well. These participants felt that smoking helped them keep the cravings for their drug of choice at bay. For these participants, the consequences of continued smoking did not seem as bad as those associated with relapsing to other drugs. In the words of this participant,

"I'm substituting, because obviously at the back of my mind I'm getting this little drug craving, but me myself I'm not craving it. But I think my sub-conscience is substituting it with smoking cigarettes." TP 17

"That's actually the one problem I'm scared of. If I give up smoking entirely - cigarettes, I'm scared I'm going to slip up you know." TP 1

Almost half of participants who were still smoking indicated that they felt unable to stop as they lacked the skills to do so. Some described previous failed quit attempts that made them feel discouraged and helpless. Others reported trying to use the skills they had learned in SUD treatment to stop smoking cigarettes but felt that these behavioural skills alone were not sufficient to support their tobacco cessation efforts. They reported finding it hard to stop smoking partly due to difficulties in managing nicotine withdrawal. One participant even

reported being informed at the SUD treatment site that cigarettes were not drugs. As these participants stated:

"I know for a fact it's more difficult to give up smoking cigarettes than to give up drugs. I'm so sure. Drugs I gave up very easily. Cigarettes not so much. I think because it was a part of me for a very long time, more than 20 years." TP 1

"It was unsuccessful. Because as hard as I try, I'm still a bit too weak for that. My cravings of the cigarette is still overpowering my thoughts of not wanting to light that cigarette." TP 12

"But my cigarettes I don't think I can leave it. I want to but I don't think I can. I think that will be a very hard task for me." TP 15

" That's why when I came here and they said to me cigarettes is not a drug. They don't see it as a drug. But It's a drug cos it contains nicotine but to me, how could you say such a thing cos if you smoke cigarettes I am telling you it will remind you of something" TP 6

Summary of findings

In summary, these results have presented the participants' views on how cigarette use influenced their substance use and recovery from SUDs after treatment. They described how cigarettes became an integral part of their personal identity through cultural and social normalization processes, making it more difficult for them to stop smoking. Smoking began during a critical stage of participants' identity formation creating a very strong attachment to it. Participants described how they used cigarettes to facilitate entry into social groups and to build social connections and as a mechanism for emotional regulation and stress management.

Given the important functions that smoking played in the lives of participants, many were ambivalent about quitting tobacco altogether. Despite the functions that cigarette use served, most participants acknowledged the negative and devaluing effects of smoking on their recovery from other substances- noting that continued cigarette use triggered cravings and urges to use other drugs and challenged their ability to abstain from other substances. Additionally, some attributed their continued use of cigarettes to previous relapses. However, there were others who felt tobacco helped them remain abstinent from other drugs and viewed cigarettes as a recovery aide. Nonetheless, most of the participants who were currently smoking wished to stop but had previously failed quit attempts that made them feel like they lacked the skills to change. Participants who had successfully managed to quit identified many benefits and rewards to their recovery and well-being. They found strategies such as avoiding triggers such as money, people smoking, seeking social support, staying busy to prevent boredom as helpful in their efforts to quit tobacco.

CHAPTER 4: DISCUSSION AND CONCLUSION

Overview

Several studies have examined the role of cigarette use in patients' response to SUD treatment (Goodwin et al., 2014; González-Roz et al., 2019; Knudsen, 2017; Prochaska, 2010; Redner et al., 2013; Weinberger et al., 2018). Available literature is equivocal on the role that cigarettes play in recovery from other substance use (Guillaumier et al., 2019; Murray et al., 2015; Pennington et al., 2015; Sussman, 2002; Weinberger et al., 2013). Some studies argue that emphasising tobacco cessation during treatment can contribute to relapse by heightening stress and removing a coping mechanism, while others indicate that it benefits recovery by removing key triggers that may lead to relapse (Goodwin et al., 2014; Lee et al., 2014; Prochaska, 2010; Sussman, 2002; Tsoh, Chi, Mertens, & Weisner, 2010). Insights from service users are needed to better understand the relationship between cigarette use and recovery from SUDs. However, qualitative research exploring the role that cigarettes play in relapse to and recovery from substance use following treatment, from the perspective of SUD treatment service users, is limited in both high and low-and- middle-income country settings. Service user perspectives are considered critical for SUD treatment system strengthening, as they provide unique insights into the effects of phenomena based on their lived experience of SUDs and treatment that SUD treatment providers often do not have (Pettersen, et al., 2019).

This study sought to address this gap by providing a detailed account of the tobacco use experiences of people in recovery and their views of the relationship between cigarette use and SUD recovery. Three main findings emerged from the data. First, powerful socio-cultural and contextual factors seem to underpin participants early initiation and maintenance of cigarette use. Participants identified socio-cultural processes that strongly influenced their perceptions

of cigarette use and the social and emotional functions smoking served, which contributed to continued cigarette use over time. Second, findings suggest that the intertwining of cigarettes and other substances, with shared modes of administration and drug use paraphernalia and mixing of substances, made it very challenging for participants to maintain recovery from substances while continuing to smoke tobacco, heightening risk of SUDs. Third, findings indicate that although service users perceive benefits to tobacco cessation for health and recovery from SUDs, many of those who are currently using tobacco expressed ambivalence about quitting and seem to lack confidence in their ability to stop smoking while maintaining abstinence from other substances. The remainder of this chapter discusses these findings and their implications for tobacco cessation programming in the context of SUD treatment in South Africa.

Socio-cultural norms and social learning processes underpin early initiation and maintenance of cigarette use.

Findings from this study suggest that the early initiation of cigarette use, during childhood and adolescence, paves a path for the use of other substances. Similar findings have been reported by other studies conducted in high-income settings (Buchmann et al.,2011; Lewinsohn, Rohde, & Brown, 1999; Vega & Gil, 2005). In this study, participants reflected how their early initiation of cigarette use, during a critical stage of development and identity formation, seemed to contribute to difficulties in quitting tobacco. More specifically, participants described how community and social norms generally supportive and accepting of tobacco use and high levels of tobacco exposure in their social environment influenced their decision to start smoking. and the early initiation of tobacco use. None of the participants reported being punished or receiving negative feedback about their smoking from adults or other potential role models, which may have dissuaded them from continuing to smoke. This finding is similar to findings from studies

conducted in other contexts that suggest the early initiation of tobacco use is more likely to occur in environments where socio-cultural norms are supportive of smoking than in contexts where tobacco use is socially unacceptable (Vega & Gil, 2005; Yong, Why, Undarwati, & Nuzulia, 2019). Other local studies have also highlighted how socio-environmental factors related to the normalisation of substance use and substance use availability within communities increases risk of early initiation and maintains drug use (Myers et al., 2016).

From the findings, it seems that social learning processes influenced both the early initiation and continued use of cigarettes, with many participants describing how family members or peers introduced them to cigarettes. This reflects the critical role that social modelling plays in the initiation of new behaviours during childhood and adolescence. Although the influence of family and friends as influencers for smoking is well-established (Badham et al., 2019; Defoe, Dubas, Somerville, Lugtig, & Van Aken, 2016; Lakon & Valente, 2012; Leonardi-Bee, Jere, & Britton, 2011; Peters et al., 2005), this study goes further to highlight how these social relationships both positively and negatively reinforce cigarette use. First, participants described how their smoking was positively reinforced through the perceived receipt of social rewards. They thought smoking facilitated the forging of social connections with other adolescents, increasing their sense of belonging. Prior studies have also reported that smoking with peers can enhance adolescents' sense of belonging and connectedness with others (Badham et al., 2019; Spijkerman, Van Den Eijnden, & Engels, 2007). The importance of social attachment and reward may be particularly relevant for the participants in this study, many of whom came from communities riddled by crime, gangsterism and other social problems- limiting their opportunities to obtain positive reinforcement or engage in rewarding activities due to high levels of unemployment and lack of recreational facilities (Peltzer & Chirinda, 2013). In the absence of other ways to develop strong, pro-social connections and obtain positive

reinforcement, smoking may act as a vehicle for young people to feel connected to others and achieve a sense of belonging (Bonell et al., 2017; DeWall & Pond, 2011). These powerful social rewards may make it particularly difficult for people to quit smoking in this context.

Study findings also highlight the negative reinforcing effects of cigarette use. Participants in this study described how smoking quickly became a mechanism for coping with stress and negative emotions (such as anxiety) which several described as arising from traumatic and adverse experiences. This finding is in keeping with those of other studies that have reported associations between persistent smoking among adolescents and the use of maladaptive coping skills (McGee, Williams, Nada-Raja, & Olsson, 2013). Although some individuals may use tobacco for short-term relief from stressors and to cope with negative emotions, smoking is associated with the practice of more negative coping mechanisms characterised by impulsiveness and emotional dysregulation, including aggression (McGee et al., 2013). It is thought that a reliance on tobacco as a form of coping may inhibit the development of other, more adaptive problem-solving and emotional regulation skills (McGee et al., 2013; Twyman, Bonevski, Paul, & Bryant, 2014) including the seeking of emotional support. Systematic reviews across different vulnerable groups (e.g., people with SUDs) have noted that smoking for coping with negative affect is a major barrier to tobacco cessation (Buchmann et al., 2011; Twyman et al., 2014). These powerful socio-cultural norms supportive of smoking together with the positive and negative reinforcing effects of cigarettes seem to have contributed to cigarettes becoming an integral part of participants' personal and social identity.

Co-use of cigarettes and other substances heighten risk for SUDs.

There was broad consensus among participants that their early initiation of cigarettes acted as a gateway to other substances. For almost all participants, cigarette use predated their other

substance use and created opportunities for them to be exposed to and experiment with other substances that were often introduced by peers with whom they smoked cigarettes. This pattern of substance use progression is in keeping with quantitative findings from prior research that describe a link between smoking cigarettes in adolescence, increased risk of progression to the use of other substances, and increased risk of SUD onset in early adulthood (Vega & Gil, 2005; Lewinsohn et al., 1999). Notably, prior studies have shown that ever having smoked cigarettes during adolescence substantially increases the risk of developing a SUD (Buchmann et al., 2011; Coleman-Cowger & Catlin, 2013; Lewinsohn et al.,1999; Torabi et al., 1993).

One explanation for this gateway effect lies in the neurobiological effects of cigarette use on the developing adolescent brain (Lewinsohn et al., 1999). Evidence suggests that nicotine exposure can have long-term effects on the developing brain by affecting mood regulation and cognitive control processes (Leslie, 2020; Lydon et al., 2014; Vega & Gil, 2005). This can lead to difficulties with self-regulation and heightened impulsivity in decision making which may make it difficult to refuse other substances when offered (Leslie, 2020).

Apart from risk of progression to other substances, findings from this study shed light into how cigarettes use may heighten risk for SUD onset. Although the neurobiological effects of smoking were not directly examined in this study, participants' detailed descriptions of how the co-use of cigarettes and other drugs seemed to enhance the pleasurable and rewarding effects of these other drugs provides some partial support for neurobiological theories of associations between cigarette use and SUD onset that suggest that cigarette use affects the pleasure centres of the brain and can enhance the rewarding effects of other substances (Burling et al., 1997; Goodwin et al., 2014; Murray et al., 2015; Pennington et al., 2015). The ongoing activation of these reward mechanisms when smoking cigarettes is thought to result in the

continuation of addiction and underpins psychological dependence (Burling et al., 1997; Goodwin et al., 2014). More specifically, most participants described a synergistic relationship between their cigarette use and the use of other substances in which they used cigarettes to either enhance or prolong the euphoric effects of their other drug of choice. These insights from persons with SUDs bolster findings from earlier quantitative studies that the co-use of alcohol, cannabis and nicotine can enhance the addictive effects of any single substance (Gubner, Guydish, Humfleet, Benowitz, & Hall, 2017; Lipperman-Kreda & Lee, 2011). In addition, our findings provide some support for theories that behavioural conditioning mechanisms (Coombs, 2004; Lee et al., 2014; Sees & Clark, 1993) increased risk of SUD onset. In this study, almost all participants smoked their other drugs. They attributed shared routes of administration between cigarettes and these other drugs to the rapid development of SUDs, as substance use craving became a conditioned response to cigarette use cues.

Perceived impact of cigarette use on SUD treatment and recovery.

Apart from the perceived contribution of cigarette use to SUD onset, the majority of participants thought that smoking impacted their response to SUD treatment and their recovery process. Some participants attributed relapses after prior SUD treatment attempts to their use of cigarettes. This finding supports those of previous quantitative studies conducted in high-income settings that has found associations between smoking in recovery and negative treatment outcomes (González-Roz et al., 2019; Satre, Kohn, & Weisner, 2007; Skelton et al, 2019).

Both participants who had managed to stop smoking and those who were currently smoking acknowledged that cigarette use challenged their abstinence efforts through triggering images or flashbacks of using drugs, leading to cravings and urges to use drugs. In this study,

participants partly attributed tobacco's heightening of their urges and cravings to use drugs on the environmental stimuli associated with smoking tobacco and other drugs, including shared routes of administration and drug use paraphernalia, such as matches and pipes. For some participants, the process of smoking cigarettes triggered memories of other drug use and increased their desire to use drugs. This is in keeping with prior research that has outlined how the ritual process of smoking cigarettes is closely associated with the use of other drugs especially where these are smoked, and eventually can become so intertwined, such that smoking of cigarettes can trigger both the euphoric feelings associated with other drug use as well as cravings for other smoked drugs (Sees & Clark, 1993).

Another potential explanation for how cigarette use may enhance risk of relapse to substance use lies in the shared neurobiological effects of tobacco and other substances (Duka et al., 2011; Pennington et al., 2015). Continued use of alcohol and other drugs changes neural reward pathways and impacts on executive functioning, increasing behavioural disinhibition and emotional dysregulation (Pennington et al., 2015). These cognitive processes are key to maintaining abstinence through managing responses to behavioural and emotional triggers and urges to use substances (Pennington et al., 2015). During recovery and periods of abstinence from drug use, there is evidence that these neural pathways and structural impairments begin to recover, however there is now evidence that the continual use of cigarettes negatively affects this process (Duka et al., 2011; Glass et al., 2009; Kalivas & Volkow, 2005; Pennington et al., 2015). This may be due to nicotine and other drugs sharing neural pathways and similarly impacting on reward processing and brain structures (Redner et al., 2013; Weinberger & Sofuoglu, 2009). Like many other drugs of abuse, nicotine increases dopaminergic activity (Weinberger & Sofuoglu, 2009), neurotransmitters that are key to the processing of reward and pleasure. In addition, like other substances of abuse, continued nicotine use is associated with

structural changes in the frontal and parietal regions of the brain and specifically changes in glucose and blood metabolism (Murray et al., 2015). These changes are implicated in higher-order executive functioning and affect cognition, inhibition, and regulatory control processes- all of which are key to maintaining abstinence and preventing relapse to substance use (Murray et al., 2015).

Perceived benefits of tobacco cessation, but a multitude of barriers to quitting.

Reflecting on these effects, most participants were in favour of tobacco cessation as a strategy to support their recovery from SUD and to support desired treatment outcomes. This is in keeping with findings from other studies that have outlined the positive impact of tobacco cessation on SUD treatment outcomes (Chun et al.,2008; Gulliver et al., 2006; Sussman, 2002; Twyman et al., 2014; Weinberger et al., 2018) including longer periods of abstinence (Sees & Clark, 1993; Sussman, 2002; Weinberger et al., 2018) and lower rates of relapse (González-Roz et al., 2019; Knudsen, 2017; Romberger & Grant, 2004; Sees & Clark, 1993). Apart from the potential benefits for their recovery, participants thought that stopping smoking would hold additional benefits for their physical and mental health. Participants attributed respiratory challenges, weakened stamina, and dental deterioration to their continued use of cigarettes. This is not surprising given the well-established relationship between cigarette use and adverse health consequences, and evidence that co-use of tobacco and other drugs heightens risk of cancer, stroke, chronic illnesses and mortality (Cokkinides, 2008; Goodwin et al., 2014; Rohsenow et al., 2017; Shangase et al., 2017).

In addition, several participants who were currently using tobacco reported being eager to quit smoking as they felt this would boost their self-confidence and self-esteem. These participants described how continued cigarette smoking impacted negatively on their self-image and self-

esteem, largely due to feelings of disappointment, shame and regret associated with smoking cigarettes. Of concern is that these feelings may increase their risk of relapse, especially if they lack the emotional regulation and other skills to cope with these negative emotions ((Twyman et al., 2014). According to Tomita & Manuel (2020), prolonged nicotine use increases the likelihood of incident depression due to nicotine's alteration of neurochemicals which makes it challenging to regulate emotions. Reports from study participants about how successful smoking cessation boosted their self-esteem, increased their confidence in their ability to maintain abstinence from other drugs, and helped them attain better health underscore the potential value of tobacco cessation for both recovery from other substances and overall well-being. Studies from other contexts have also demonstrated how tobacco cessation can heighten a person's confidence and self-efficacy, factors that are known to be important in supporting long-term abstinence from other substances (Chun et al.,2008; Sussman, 2002). Taken together, findings from the present study together with the literature suggest that tobacco cessation may be an important target for intervention during SUD treatment and may lead to improved SUD outcomes among South Africans who smoke.

Despite these perceived benefits, there is little indication that smoking cessation was highlighted or offered during SUD treatment. Among those who stopped cigarettes, it was as a result of personal convictions, or due to stopping using drugs or alcohol and therefore having no need for cigarettes, to spiritual values and convictions, and not because it was something they were engaged with in treatment. One participant even indicated being informed that cigarette is not drug. This is not dissimilar to findings from other countries where cigarette use also is usually overlooked by SUD treatment providers (Ayo-Yusuf & Szymanski, 2010; González-Roz et al., 2019; Sussman, 2002). One factor that may contribute to cigarette use being overlooked in the treatment of SUDs is the belief that people who use substances are not

interested in smoking cessation (González-Roz et al., 2019; Gulliver et al., 2006). Our finding that nearly two-thirds of the smoking participants in this study desired to stop smoking because of the perceived destructive and devaluing effects it had on SUD treatment response and recovery challenges this assumption. In the present study, the biggest perceived barrier to tobacco cessation was not attitudinal or readiness to change but rather participants' perceived lack of knowledge and skills to support a successful tobacco quit attempt as well as socio-cultural factors. The lack of tools or skills to support tobacco cessation is a commonly reported barrier to tobacco cessation in SUD treatment (Chun et al., 2008; González-Roz et al., 2019; Gulliver et al., 2006; Sussman, 2002 Twyman et al., 2014). Those participants who managed to stop using cigarettes recommended strategies and tools that helped them in their cessation efforts and could potentially be helpful to their peers. They described how avoiding triggers such as money, the smell of cigarettes, or being around people smoking cigarette; and staying busy to prevent boredom are important strategies to support efforts to quit smoking. SUD providers could consider highlighting these strategies for tobacco cessation within SUD treatment. In addition, participants mentioned the importance of having support for a tobacco quit attempt. Within the context of SUD treatment, individuals who have successfully managed to quit tobacco could potentially act as supportive peers to those struggling with cessation. Evidence has revealed how having supportive peers in recovery from smoking offering support for cessation is highly effective and empowering way for individuals to manage health concerns (De Mendoza & Damio, 2018; Ford, et al.,2013).

Notably, a minority of participants were reluctant to attempt smoking cessation largely due to concerns that it would remove an important coping mechanism and thereby threaten their recovery. This is consistent with a study looking at the attitudes towards tobacco cessation programmes in SUD treatment. This study found that a substantial number of people with SUD

do not want to stop smoking as they perceive cigarettes as "a form of harm reduction or coping strategy" (Kelly, Greene, Hoffman, Hoeppnera & Bergman, 2020; p.5). In the current study, these participants expressed concerns about how potentially unsuccessful quit attempts may affect their recovery from other substances. These participants described how previous failed tobacco quit attempts led them to question their ability to maintain recovery from other substances. These findings underscore the need to provide tobacco cessation programmes with the most evidence in support of their efficacy within the context of SUD treatment. At present, the evidence indicates that combining pharmacological and behavioural interventions for smoking cessation is more efficacious than providing either pharmacological interventions or behavioural interventions in isolation (Velicer et al., 2006).

Implications of findings for SUD prevention and treatment

Findings from this study have several implications for SUD prevention and treatment programming. In terms of prevention, findings related to how social norms supportive of smoking lead to the early onset of tobacco use highlight the need to fully implement regulatory frameworks regarding tobacco use in public places. Although South Africa has tobacco control regulations, like many LMICs, enforcement of the implementation of tobacco control regulations can vary (Agaku et al, 2021). These regulations like other LMIC remain poorly implemented due to socio-cultural norms supportive of tobacco use and a lack of resources (Agaku et al, 2021; Dearfield et al., 2019; Luis & Palma-Oliveira, 2016).

Another aspect is the importance of smoke free policy in SUD treatment. As revealed in this study, there is a desire for smoking cessation among clients in SUD treatment. The positive aspects of smoking cessation among people with SUD in enhancing their health and abstinence from alcohol and other substances has been revealed and may be improved by the

implementation of smoke free policies in rehabilitation facilities. (Knudsen, 2017). This will add to the cessation efforts of clients in treatment and decrease possible triggering effects that form part of the social aspect of smoking that form a barrier to quitting. Implementing smoke-free policy is advantageous as it also improves the health of both the clients and staff from direct and second smoking (Richey et al, 2017). Clients within a smoke free treatment facility have been shown to remain tobacco abstinence at treatment discharge (Richey et al, 2017).

In addition, findings of the early onset of cigarette use and how this serves as a gateway to the use of other substances highlight the critical need for early interventions to prevent smoking initiation among children and adolescents especially in communities with a high prevalence of smoking. Young people with family members who smoke are at greater risk for early smoking initiation and may require more targeted interventions. Smoking intervention programmes such as “Dead Cool” (Badham et al., 2019) or early childhood programmes such as “The Good Behaviour Game” or “The Positive Action”, which do not primarily target smoking but seem effective in preventing the development of problematic behaviours such as smoking (Flay, 2009), are largely lacking in South Africa. These interventions may help prevent and delay the use of cigarettes and also the use of other substances.

Related to this, study findings highlight two key targets for these early interventions: namely the provision of alternative sources of social rewards and positive reinforcement and development of adaptive and healthier strategies for coping with negative affect and experiences. Given that cigarettes provided participants with a mechanism for developing a sense of belonging and social connectedness, interventions to reduce or support smoking cessation may need to provide young people with alternative ways of building social connectedness and obtaining positive reinforcement to be effective. In addition, our findings

suggest that these early interventions may enhance their effectiveness if they focus on helping young people develop non-substance related strategies for coping with stress. Therefore, smoking cessation programmes in SUD treatment should teach healthy coping and problem-solving skills to equip service users to better manage negative emotions and life stressors. Psychological interventions that address substance use and teach individuals alternative ways of coping with negative emotions and solving problems have been developed and tested among South African adolescents and adults in community and health service settings and can easily be adapted to address tobacco as a coping strategy (Van der Westhuizen et al, 2019).

In terms of tobacco cessation, our findings highlight the importance of providing evidence-based tobacco cessation interventions to individuals who smoke within the context of SUD treatment- both to prevent tobacco-related harms and to enhance the potential outcomes of SUD treatment. Findings highlight the importance of enquiring about tobacco use as part of treatment intake and assessment to enhance providers' understandings of how tobacco and substance use are intertwined for individuals. Our findings further suggest the value of educating people with SUDs about the relationship between cigarette use, SUD onset and risk of relapse. This may increase their motivation for exploring smoking cessation as part of their recovery from SUDs. This education should include the effects of smoking cigarettes on cravings for other substances and debunking myths surrounding smoking cessation and its negative impact on SUD treatment and recovery. Including family members in this education can be beneficial because many people who smoke live in households where there are others who smoke, potentially posing a challenge for cessation.

Apart from psychoeducation, findings from this study highlight participants' needs for practical tools and skills to support tobacco cessation. There are evidence-based behavioural

interventions available to support tobacco cessation, including for example the "Five R's of smoking cessation" and telephonic counselling using motivational interviewing (MI) (Abrams, 2016; Everett-Murphy et al., 2010). Additionally, many of the cognitive behavioural SUD treatment programmes currently used in the South African context (Gouse et al., 2016) can be expanded to include tobacco-related behaviour change. Further, our findings suggest that any tobacco cessation programme during SUD treatment may need to include an additional focus on the development of coping, emotional regulation and problem-solving skills to replace the function served by tobacco for these programmes to yield benefits. This may be particularly important in South Africa which has been characterised as being the world's second most stressful country to live in (Hillyer et al., 2020; Tadzimirwa et al., 2019) and where people who smoke report using cigarettes as a coping mechanism for managing challenging lived experiences and stressors. Programmes may also need to provide additional social support for tobacco cessation given the normative nature of smoking in this environment.

Another limited and sometimes neglected aspect of smoking cessation in South Africa is the role of pharmacological interventions using nicotine replacement therapy (NRT) including nicotine lozenges, nicotine patches and medication like bupropion (Tadzimirwa et al., 2019). Unfortunately, the availability of NRT and pharmacological interventions in South Africa is limited to those with means to privately purchase it and not accessible to smokers using public health services (Tadzimirwa et al., 2019). A combination of behavioural interventions with these pharmacological support increases the likelihood of long-term successful smoking cessation ((Abdullah & Simon, 2006; Chun et al., 2009; Piper et al., 2009; Tadzimirwa et al., 2019; Weinberger & Sofuoglu, 2009). State subsidies for the availability of NRT and bupropion to public SUD treatment services would be beneficial to smoking cessation interventions.

Study limitations and future research directions

Findings should be interpreted in the light of several limitations that are synonymous with qualitative research. The sample size was small, and participants were selected from outpatient treatment programmes in the Cape Town metropole offering a specific type of SUD treatment. The Cape Town communities where participants lived are known for their very high prevalence of tobacco use (Boachie & Ross, 2020) and social norms supportive of smoking, therefore findings may not be generalizable to demographically diverse patient populations or those seeking treatment in other parts of the province where smoking is not as pervasive. Finally, participants all have a low social economic status, reflecting the economic standing of the communities within which the SUD treatment facilities are located. This may have affected the findings, as poverty likely affected participants access to evidence-based pharmacological interventions to support tobacco cessation, such as NRT or Bupropion which is only available for those who can afford to pay for it out-of-pocket. Despite these limitations, the findings are still pertinent and relevant to a highly vulnerable subgroup of people with SUDs who live in poorer communities where there is a high prevalence of tobacco use. Future research should consider expanding the sample to include SUD treatment service users from a more diverse range of SUD treatment sites and backgrounds.

There is also a risk of selection bias. Therapists were asked to select participants for this study, and while therapists were asked to approach all clients to request volunteers, it is possible that therapists individually approached people whom they thought may have been suitable candidates for the project. This process of approaching people may have been influenced by therapists' own perspectives regarding smoking and recovery. Finally, I did not explore participants' views on the provision of smoking cessation programmes during SUD treatment.

The inclusion of this question may have provided important insights into participants' views on the benefits of tobacco cessation for recovery and perceived acceptability of behavioural and medication assisted programmes. Information on participants' perceptions of the acceptability of tobacco cessation programmes is needed to guide decisions about whether to invest in the implementation of such interventions in resource-limited settings. Future research could include more questions around smoking cessation to help provide insight for future interventions. Exploring the institutional barriers to implementing smoking cession programmes, and clients' perceptions on smoking cessation in different type of treatment settings is also a need. In addition, looking at the implementation of smoke free policies in SUD rehabilitation facilities in the South Africa is a gap for further research.

Conclusion

The current study suggests that SUD treatment service users view smoking cigarettes as potentially detrimental to SUD treatment and recovery. As such, this study provides support, from a service user perspective, for (i) the introduction of interventions to prevent tobacco initiation among young people as part of a multi-pronged approach to SUD prevention and (ii) the integration of tobacco cessation interventions into current SUD treatment programming to improve the likelihood of successful treatment outcomes. More specifically, findings highlight the potential value of screening service users for tobacco use as they enter SUD treatment, educating them about the potential impacts of continued smoking on SUD recovery, and integrating evidence-based smoking cessation programmes into SUD treatment. Given the normative nature of smoking in many communities, our findings point to the potential value of bolstering traditional tobacco cessation interventions that focus on behaviour change by also providing pharmacological support and social support for cessation. Future studies that compare the relative efficacy of these multicomponent interventions to traditional behavioural

tobacco cessation efforts are needed to provide evidence that can be used to advocate for greater investment in these programmes. Further studies that explore SUD providers and service users' perceptions and preferences for tobacco cessation programmes are needed to help guide the implementation of these programmes in SUD services. Furthermore, exploring the outcome of SUD treatment with evidence-based smoking cessation interventions in this context will be critical in adding to the knowledge base and for advocating for scale up of integrated tobacco cessation and SUD treatment programmes in South Africa.

APPENDICES

APPENDIX A

Informed Consent Form for Client of services

This informed consent form is for current or previous Matrix clients, and we are inviting to participate in this research titled "The relationship between cigarette smoking and recovery from Drug and alcohol"

[Name of Principle Investigator: Samba Wisbeach]

[Name of Organization: University of Cape Town: health sciences]

This Informed Consent Form has two parts:

- **Information Sheet (to share information about the study with you)**
- **Certificate of Consent (for signatures if you choose to participate)**

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Introduction

My name is Samba Wisbeach working as a therapist in the Delft South Matrix and studying at the university of Cape town, I am doing research on the relationship that cigarettes has on recovery from drugs and alcohol. I am going to give you information and invite you to be part of the research. Before you decide you can speak to myself or anyone you feel comfortable about the research. The consent form may contain words you may not understand, please ask me to stop as we go through and I will take time to explain. If you have questions later you can ask them of me.

Purpose of the research

Some people smoke cigarettes in active addiction and when they enter treatment, we want to find out what this effects the person in recovery. We believe that you can help us my telling us what your experience has been relating this. We want to learn what the experience had been like for you and what part cigarettes lay in your treatment and recovery.

Type of Research Intervention

This research will involve your participation, in being interviewed for an hour and half, using a questionnaire.

Participant Selection

You are being invited to participate in the research because we feel that your experience as a recovering client can add to our understanding of recovery from drugs and alcohol.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. If you choose not to participate all the services, you receive at this Centre will continue and

nothing will change.

Procedures

A. We are asking you to help us learn more about recovery from alcohol and cigarettes. We are inviting you to take part in this research project. If you accept, you will be asked to answer some questions in an interview.

B. You are invited to participate in an interview with myself (the interviewer).
During the interview, I will sit down with you in a comfortable place at the Site. If you do not wish to answer any of the questions during the interview, you may say so and the interviewer will move on to the next question. No one else but the interviewer will be present unless you would like someone else to be there. The information recorded is confidential, and no one else except [myself] will have access to the information documented during your interview. The entire interview will be audio-recorded, but no-one will be identified by name on the recorder. The audio files will be kept on a password protected phone kept in a locked place. The information recorded is confidential, and no one else except myself will have access to the files. The recorded audio files will be destroyed after 12 months of being recorded.

Duration

The research takes place over 3 years. During that time, the interviewer will visit you one time for interviewing you. Each interview will last for about one and a half hours each.

Risks
We are asking you to share some information that might bring up sensitive issues with you, and you may feel uncomfortable talking about some topics. You do not have to answer any question or take part in the interview if you don't wish to do so, and that is also fine. You do not have to give us any reason for not responding to any question, or for refusing to take part in the interview

Benefits
There will be no direct benefit to you, but your participation is likely to help us find out more about how to prevent and create effective drug and alcohol interventions.

Reimbursements
You will not be provided any incentive to take part in the research. However, we will give you a small token of appreciation (chocolate) for taking time to participate in the research.

Confidentiality
The research being done at the Site may draw attention and if you participate you may be asked questions by fellow clients at the Matrix. We will not be sharing information about you to anyone outside of the research team. The information that we collect from this research project will be kept private. Any information about you will have a number on it instead of your name. Only the researcher will know what your number is and she will lock that information up with a lock and

key. It will not be shared with or given to anyone except (Bronwyn Myers: researcher's supervisor as Matrix staff)

Sharing the Results
Nothing that you tell us today will be shared with anybody outside the people mentioned above, as well as the Matrix staff and nothing will be attributed to you by name. The knowledge that the researcher gets from this research will written up and presented as a thesis for the university as part of the course the researcher is studying.

Right to Refuse or Withdraw
You do not have to take part in this research if you do not wish to do so, and choosing to participate will not affect your programme at the Matrix in any way. You may stop participating in the interview at any time that you wish without your treatment being affected. I will give you an opportunity at the end of the interview to review your remarks, and you can change or remove portions that you would like or if I did not understand you correctly.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact the researcher on 0727041039, schiseya@yahoo.co.uk
This proposal has been reviewed and approved by [City of Cape Town research committee], which is a committee whose task it is to make sure that research participants are protected from harm. As well as the Ethics committee of the University of Cape Town.

Part II: Certificate of Consent

I have been invited to participate in research about cigarette smoking and recovery from drugs and alcohol.

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Print Name of Participant_____

Signature of Participant _____

Date _____
Day/month/year

APPENDIX B

Interview guideline:

Hello my name is Samba and I am conducting research on recovery and how the use of cigarettes affects this process. I am going to ask you some questions about your recovery and the use of cigarettes in order to better understand the relationship that may exist between these. This interview is going to take about an hour to an hour and half are you available to answer some questions?

1. **First, let's start by talking about your use of cigarettes. Can you give me an overview of your cigarette use?**

   Probes: When did you start smoking cigarettes?

   How did you start smoking cigarettes?

   Why did you start smoking?

   How did smoking make you feel?

   How did smoking cigarettes after a while make you feel regarding the following?

1. yourself
2. Other drugs?

   What are some of the effects of smoking cigarettes on your physical, social, mental self?

2. **Next, I would like to explore your use of other drugs? Please tell me the story of your drug use.**

   Probes: When did you start using other drugs- what did you use, how long and what method did you use you drug of choice?

   To what extent did your using cigarettes change when you started using other drugs?

3. **For you, what was the relationship between cigarettes use and other drugs?**

   Probes: How do you feel after you have smoked drugs?

   Did you use cigarettes with other drugs or alcohol?

How was using/smoking cigarettes linked to drug use for you?

When did you use cigarettes/ before or after or during your drug/alcohol use?

How does smoking cigarettes when you using drugs and/or alcohol make you feel?

How did using alcohol or drugs change the amount of cigarettes you were smoking?

4. **In your view, how did cigarette use help or hinder your recovery?**

Probes: To what extent did smoking cigarettes change when you entered treatment? Did you want it to change?

In recovery, how does smoking cigarettes affect you?

What role did smoking cigarettes have in your recovery?

What are some of the strategies you have used to make changes to your cigarette use in recovery?

We have come to the end of the interview, is there any other thing you could like to tell me about smoking cigarettes and recovery from alcohol or drug use?

Thank you so much for your willingness to participate in this interview, your participation has been invaluable.

APPENDIX C

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

Room E53-46 Old Main Building
Groote Schuur Hospital
Observatory 7925
Telephone [021] 406 6492
Email: sumayah.ariefdien@uct.ac.za
Website: www.health.uct.ac.za/fhs/research/humanethics/forms

10 May 2018

HREC REF:152/2018

Prof B Myers
Addiction Psychiatry Division
Room 76, J-Block
GSH

Dear Prof Myers

PROJECT TITLE: THE RELATIONSHIP BETWEEN SMOKING CIGARETTES AND RELAPSE TO ALCOHOL AND OTHER DRUGS (MPhil-candidate-S Wisbeach)

Thank you for your response letter dated 2 May 2018, addressing the issues raised by the Human Research Ethics Committee (HREC).

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

Approval is granted for one year until the 30 May 2019.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

We acknowledge that the student: S Wisbaech will also be involved in this study.

Please quote the HREC REF in all your correspondence.

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

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval, where necessary, before the research may occur.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE

Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938

HREC:152-2018

UNIVERSITY OF CAPE TOWN

FACULTY OF HEALTH SCIENCES
Human Research Ethics Committee

FHS016: Annual Progress Report / Renewal

HREC office use only (FWA00001637; IRB00001938) This serves as notification of annual approval, including any documentation described below.			
☑ Approved	Annual progress report	Approved until/next renewal date	30.5.22
☐ Not approved	See attached comments		
Signature Chairperson of the HREC/ Designee		Date Signed	25/5/22

Note: Please note that incomplete submissions will not be reviewed.
Please email this form and supporting documents (if applicable) in a combined pdf-file to hrec-enquiries@uct.ac.za.
Please clarify your plan for research-related activities during COVID-19 lockdown

Comments to PI from the HREC
We note all data was collected prior to the lapse Thank you for the deviation document

Principal Investigator to complete the following:

1. Protocol information

Date (when submitting this form)	29/05/2021		
HREC REF Number	152/2018	Current Ethics Approval was granted until	30 May 2019
Protocol title	The relationship between smoking cigarettes and relapse to alcohol and other drugs		
Protocol number (if applicable)			
Are there any sub-studies linked to this study?	☐ Yes √☐ No		
If yes, could you please provide the HREC Ref's for all sub-studies? **Note:** A separate FHS016 must be submitted for each sub-study			
Principal Investigator	Lorraine Chiseya (student) Prof. Bronwyn Myers (supervisor)		

(Note: Please complete the Closure form (FHS010) if the study is completed within the approval period)

APPENDIX D

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

CITY HEALTH
Dr Natacha Berkowitz

Epidemiologist: Specialised Health

T: 021 400 6864 F: 021 421 4894
E: Natacha.Berkowitz@capetown.gov.za

2018-06-05

Re: The relationship between smoking cigarettes and relapse to alcohol and other drugs 7990

Dear Ms Lorraine Chiseya

Your research has been approved as per your request at the following City Health Matrix Sites:

Eastern & Khayelitsha:	Town Two CDC
Mitchells Plain & Southern:	Tafelsig CDC, Parkwood Clinic
Tygerberg/Klipfontein:	Manenberg Clinic
Northern & Western:	Albows Gardens CDC

Contact Person: Ms Letitia Bosch
Tel/Cell: 021 400 5414/078 338 1200

Please note the following:

1. All individual patient information obtained must be kept confidential.
2. Access to the clinics and clients must be arranged with the relevant Managers such that normal activities are not disrupted.
3. A copy of the final report must be sent to the City Health Head Office, P O Box 2815 Cape Town 8001, within 6 months of its completion (which is currently scheduled for Dec 2018) and feedback must also be given to the clinics involved.
4. Your project has been given an ID Number (7990): please use this in any future correspondence with us.
5. No monetary incentives to be paid to clients on the City Health premises
6. If this research gives rise to a publication, please submit a draft before publication for City Health comment and include a disclaimer in the publication that "the research findings and recommendations do not represent an official view of the City of Cape Town".
7. As a City Health employee approval to conduct research needs to be given by your line manager. Please contact Natacha Berkowitz for documentation to complete.

Thank you for your co-operation and please contact me if you require any further information or assistance.

Yours sincerely

DR N BERKOWITZ
Epidemiologist: SPECIALISED HEALTH

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