Evaluation of the Cape Town Drug Counselling Centre: A Theory and Outcomes-Based Approach

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COMPULSORY DECLARATION

This work has not been previously submitted in the whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or the works, of other people has been attributed, and has been cited and referenced.

Signature:_____ Date:_____

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Abstract

Aims: This study examined treatment response and participant characteristics amongst substance misusing clients of a Cape Town low-cost out-patient treatment programme.

Design: A theory-based approach to the evaluation was used and substance use outcomes of participants were measured over the three time periods of admission, 6- weeks post-admission (immediately after the intervention) and 10-weeks post-admission as were elements of the Centre's causal chain mechanism: Relationships between the domains of motivation (comprising the three sub-scales of Recognition, Taking Steps and Ambivalence), drug-taking confidence (self-efficacy), Alcoholics/Narcotics Anonymous affiliation and previous clean time against levels of substance use and severity of dependence at each time point were measured.

Hypotheses: Substance use and levels of severity of dependence should decline over time. As Self-Efficacy, Taking Steps and NA/AA Affiliation scores increase, so substance use levels and levels of severity of dependence should decrease. Higher scores of Recognition and Ambivalence should be associated with higher levels of substance use and severity of dependence.

Main Findings: Forty seven percent of participants reported abstinence of all substances at 10-week follow-up and a further 13% abstained from all substances with the exception of alcohol which they had used only once or twice. Reductions in use of individual substances were high: 95% of participants who, on admission, reported use of methaquolone (mandrax), 89% of heroin users, 84% of cocaine users and 73% of methamphetamine users reported abstinence of those drugs at 10-week follow-up. Self-Efficacy and Taking Steps scores significantly increased over time and were also significantly associated with reduction in substance use and severity of dependence. Higher Recognition scores were significantly associated with higher levels of substance use at admission and 10-week follow-up. There was an inverse association between amount of exposure to the treatment programme and levels of substance abuse and severity of dependence. NA/AA affiliation was low at all time points and did not appear to be associated with reductions in substance use.

Conclusion: As substance use and substance dependence significantly decreased and as measurable elements in the chain of causal mechanisms changed over time consistent with programme causal theory, and as the change in those elements impacted on levels of substance use in a significant way, it can be tentatively suggested that there was a treatment programme effect. KEYWORDS: substance abuse, substance misuse, substance dependence treatment outcomes, self-efficacy, motivation, evaluation.

CHAPTER ONE

Introduction

As substance abuse is a major contributor towards crime, poverty, injury, unemployment, chronic diseases and premature death, it constitutes both a health and socio-economic problem throughout South Africa (Department of Social Development, 2005). Since the breakdown of the apartheid system in 1994 and the concomitant relaxation of border management, South Africa has been targeted as a conduit country for onward transportation of drugs as well as a lucrative market for the sale of drug products (Myers & Parry, 2003). This has resulted in a marked increase in the availability and consumption of a variety of drug products (Department of Social Development, 2005) evidenced by the increase in use of heroin, cocaine and crystal methamphetamine (methamphetamine) in particular (Parry, Plüddemann, & Myers, 2005).

Alcohol, too, presents as a serious problem: With an annual average alcohol consumption of 20 litres per drinker, South Africa ranks as one of the largest consumers of alcohol in the world. Estimates of the proportion of South Africans with an alcohol problem or of being at risk of developing such a problem are at 31.5% while binge drinkers (those who consume large quantities of alcohol at sporadic intervals) amount to about 7.5% of the population (Department of Social Development, 2005). The prevalence of alcohol abuse in the Western Cape, as well as in Cape Town, is abnormally high both within a South African and a global context (Wechsberg et al., 2008), with over one quarter of drinkers in the Western Cape consuming alcohol at 'risky' levels at weekends and half of all those dying non-natural deaths having blood alcohol levels of 0.05g per100ml or more (Parry, 2005).

Alcohol's strong association with crime and injury include that more than one third of intimate femicide perpetrators in South Africa have an alcohol use problem (Mathews et al., 2004). A three-metro study, including Cape Town, reported an average of 49% of family violence perpetrators being under the influence of alcohol at the time of offence, while 23% of all Cape Town arrestees interviewed in 2000 reported being under the influence of alcohol at the time of their offences (Parry, Plüddemann, Louw, & Leggett, 2004). Another South African study found that more than half of drivers injured in traffic accidents were alcohol-positive while 54.7% of patients experiencing injury through transport, violence or unintentional means, tested positive for alcohol (Marais, Sukhai, & Donson, 2004).

Alcohol use immediately before sex is considered a significant predictor of unprotected sex, while problem drinking and soft-drug use increase the odds of drinking

immediately before sex and subsequent unprotected sex (Wong et al., 2007). Not only is substance abuse more likely to lead to high risk sexual behaviour and the concomitant spread of sexually transmitted diseases, but, due to its detrimental impact on the immune system, use of alcohol alone may speed up the progression of existing Human Immunodeficiency Virus (HIV) infections (Morojele et al., 2010).

The three-metro study of crime and drugs in South Africa found that in 2000, 45.3% of all arrestees tested positive for at least one of six drugs including cannabis, methaqualone (mandrax), opiates, cocaine, amphetamines and benzodiazepines. Cannabis and mandrax use in particular were earmarked as drugs linked to offences with 50.2% of arrestees in 2000 reporting lifetime cannabis use and 31.7% lifetime mandrax use (Parry et al., 2004). The frequency of use of these drugs in arrestees echoes findings of a comprehensive study addressing the prevalence and correlates of substance use among primary care clinic patients in Cape Town. This study offers some insight into patterns of substance use outside the context of admission trends: Prevalence rates of hazardous alcohol use were highest in all age groups while hazardous use of alcohol and other drugs combined ranked second. Cannabis was reported as the most used drug (apart from alcohol) at hazardous levels across all groups (Ward et al., 2008). These patterns of use highlight a possible disconnect between actual drugs used in the community and primary drug choices currently reported at Cape Town substance use treatment centres on admission: Currently, methamphetamine is reported in the highest proportions (Dada et al., 2011). However, because Ward and colleagues'(2008) and Parry and colleagues' (2004) studies utilized data collected from a period prior to the recent spike in methamphetamine-use reports on admission to treatment, it is entirely possible that actual methamphetamine use in communities is now higher than reported in those studies.

Drug abuse in the Western Cape, as well as in Cape Town, is also high in relation to South African and global substance abuse contexts (Wechsberg et al., 2008). Methamphetamine has dominated reported primary substance of abuse statistics in Western Cape treatment centres from 2006 (Plüddemann et al., 2009). Again, in 2011, methamphetamine was reported by the highest proportion of patients (37%) at treatment intake as the most abused drug overall. Second was alcohol at 26%, while cannabis was the third most popular drug of abuse at 16.5% (see Table 1; Dada et al., 2011).

Table 1

Primary Substance of Abuse Reported at Western Cape Treatment Centres (Dada et al., 2011)

From January to June 2011	%	*From July to December 2011*	%
Alcohol	28	Alcohol	24
Mandrax	3	Mandrax	2
Cannabis	18	Cannabis	15
Crack/Cocaine	2	Crack/Cocaine	2
Heroin	13	Heroin	17
Methamphetamine	35	Methamphetamine	39

It is quite clear that methamphetamine use, in Cape Town in particular, presents as a considerable problem on a number of levels: It is considered to play a role in acts of violence (Plüddemann, Myers, & Parry, 2008) and recent methamphetamine use is significantly associated with depression and aggressive behaviour in a Cape Town high-school population (Plüddemann, Flisher, McKetin, Parry, & Lombard, 2010). Its strong association with high risk sexual behaviour and concomitant increased risk for HIV infection (Plüddemann, Flisher, Mathews, Carney, & Lombard, 2008) is of particular concern in the light of the estimated 5.6 million HIV positive people living in South Africa in 2009, the largest HIV positive population in any country in the world at that time (UNAIDS, 2010).

The prevailing high drug and alcohol usage in South Africa, the Western Cape and Cape Town in particular, indicates a need for effective substance abuse treatment centres to service multicultural communities. A number of South African research studies have to date been completed on treatment centre admission trends and the South African Community Epidemiology Network on Drug Use (SACENDU) monitors substance abuse treatment admissions in South Africa (Plüddemann et al., 2008, Plüddemann et al., 2009, Dada et al., 2011). Although SACENDU provides comprehensive admission statistics of substances used as well as demographic trends, outcomes-based research on out-patient substance abuse treatment facilities in South Africa could not be identified in the literature. This apparent scarcity is consistent with findings of a study investigating the extent to which South African service providers in the substance abuse treatment field evaluate and monitor their treatment programmes: Routine evaluation and monitoring throughout South Africa was found to be relatively low, with less than half of facilities in Cape Town having ever conducted outcomes evaluations on their programmes (Myers, Burnhams, & Fakier, 2010).

An imperative, therefore, is to conduct outcomes evaluations of existing treatment centres to which end permission was sought and granted, after a meeting with the Cape Town Drug Counselling Centre's clinical manager and senior counsellor, to conduct outcomes-based evaluative research at this Centre.

Research Rationale

Rossi, Lipsey and Freeman (2004) describe the role of evaluation and outcomes monitoring of programmes as "to systematically investigate the effectiveness of social intervention programs…[and should be]…designed to inform social action in ways that improve social conditions" (p. 28).

Contemporary concerns relating to the allocation of scarce resources require evaluations to establish the effectiveness of interventions in social contexts (Rossi e al., 2004). Harker et al. (2008) reflect that much-needed research into interventions to reduce substance related harms should focus on establishing "the cost-effectiveness, efficiency and effectiveness of current prevention and treatment services in the [Western] province" (p. 5). Cost concerns are of particular relevance in the light of the limited funding available to substance abuse treatment centres in Cape Town (Myers & Parry, 2003), the severe budgetary constraints of the Cape Town Drug Counselling Centre, as well as the financial concerns of potential treatment seekers, reported as barriers to treatment (Myers, Louw, & Pasche, 2011).

Pertinent to these financial concerns, The Cape Town Drug Counselling Centre employs the counselling style of motivational interviewing (MI) which is considered a cheaper option than other strong competing therapies due to its relative brevity (Lundahl & Burke, 2009). Supporting this view is that MI's brevity of treatment and attendant cost-effectiveness is responsible for some United States third party payers promoting MI strategies (Van Wormer, 2007). These findings, combined with MI's enduring effects at 2-years post treatment and possibly beyond (Lundahl et al., 2010) or at least up to one year after treatment (Burke et al. 2003; Lundahl & Burke 2009), offer excellent financial reasons to establish outcome efficacy of an MI centred programme in a South African substance abuse setting.

Good reasons for initiating a programme evaluation, cited by Rossi et al. (2004), include obtaining information about programme effects, using results to support programme advocacy or funding, and to improve on an existing programme. All of these reasons were valid cause for this study as an evaluation of the treatment programme in place at the Cape Town Drug Counselling Centre may highlight those components of the programme

associated with its success, initiate suggestions for possible programme improvements, and provide information pertinent to potential or existing funders.

Louw (2000) describes a programme evaluation as the methodical assessment of programme results and the equally methodical assessment of the extent to which the programme itself is responsible for those findings. Standardized, objective measurements in outcome monitoring are limited in South African substance abuse treatment settings, with clinicians' unstandardized and subjective case notes generally the means used to assess clients' progress (Myers et al., 2010). Therefore, a theory and outcomes based study using standardized instruments may contribute towards filling a gap in the South African substance abuse treatment literature.

As there was an awareness from inception of this project that a randomized field experiment design was impossible due to no wait-list or other potential control group, an alternative approach to attempt to establish whether it was only the programme potentially causing change, was to assess the theoretical basis of the programme and ascertain whether changes occurred as predicted by theory. In addition, as Rogers (2007) advises combining programme theory evaluation with other methods to improve causal attribution, substance use and substance dependence outcomes were measured. Theory-driven evaluations are based on the premise that programme theory is explicated by detailing expected relationships between "inputs, mediating processes and short and long-term outcomes" (p. 501); that constructs explicated in this causal chain are measured; and that results of data analyses to determine the extent to which the postulated relationships actually occur are analysed (Shadish , Cook, & Campbell, 2002).

A previous evaluation, conducted on this Centre in 2001, focused on the relationship between abstinence and employment rates, as well as between abstinence and levels of criminality. In contrast, this study focuses on levels of use of mind-altering substances, and various psychological factors associated with reductions in severity of dependence and substance use. Only the adult treatment programme is evaluated.

Chapter Two offers relevant background information of the Centre together with a description of the adult treatment programme and explains the programme theory of the Centre. Chapter Three includes a review of the social science literature pertaining to the Centre's programme theory as well as specific aims and hypotheses. Chapter Four covers methods used while Chapter Five reports results. The study ends with a discussion and recommendations in Chapter Six.

CHAPTER TWO

Cape Town Drug Counselling Centre

Background

This Centre is situated in Observatory, a suburb of Cape Town. It is a community-based organization that provides financially accessible, intensive and comprehensive treatment, particularly for clients from disadvantaged, lower income and under-resourced areas in Cape Town and surrounds. A variety of services are offered, broadly including an out-patient treatment programme, a youth outreach programme, a training programme, a family workshop programme, referrals to in-patient treatment facilities and alternative treatment therapies, with a view to achieving and maintaining abstinence in clients through a series of processes (see Figure 1).

Interviews with the clinical manager and the Centre's trainer and reference to the Cape Town Drug Counselling Centre's Annual Report (2010) elicited the following information: By the early 1980's an increasingly high prevalence of illicit drug abuse in the Western Cape was cause for considerable concern. Western Cape hospitals found themselves ill-equipped, with neither the resources nor the expertise available to adequately assist large numbers of patients presenting with symptoms of addiction. This situation instigated the formation of a Drug Action Committee by Adele Searl, a concerned parent, and Dr Rabinowitz, the psychiatrist in charge of out-patients at Groote Schuur Hospital, to explore alternative treatment options. Evidence of the degree to which this substance abuse problem had become a matter of concern was the representation on the committee of the Red Cross Society of South Africa, Groote Schuur Hospital and the Department of Social Development. The aim of the Drug Action Committee was to provide a service including assessment, treatment of suitable cases, supportive counselling and education relating to drug abuse to those suffering the effects of drug abuse in the greater Cape Town community.

Through the efforts of this committee, the Centre was opened in Observatory in 1985. The choice of location was motivated by its close proximity to Groote Schuur Hospital and expected future cooperation in terms of referrals and treatment. Although initially privately funded, by 1986 it was receiving partial subsidization from government. The Centre opened with two professional staff and initially offered only individual, family and group counselling.

Figure 1: Logic Model of Drug Counselling Centre

Inputs	Activities	Outputs	Proximal Outcomes (on Completion of Programme)	Intermediate Outcomes (90 Days after Programme Completion)	Distal Outcomes
Executive Committee. Permanent staff: clinical director, clinical manager, counsellors, training coordinator, administrative staff Sessional Staff: GP, psychiatry interns. Training materials. Funding: Lotto, government, donations.	Six week programme provides individual counselling, group therapy, psycho-educational lectures and discussions, drug testing and family sessions to substance abusers.	Number of admission assessments, individual counselling sessions, group therapy sessions aftercare sessions, psycho-educational lectures and drug tests facilitated per month.	Abstinence Knowledgeable about consequences and effects of substance abuse. Motivational and self-efficacy levels improve. Attend NA/AA meetings.	Abstinence. Readmission to programme on relapse. Attend NA/AA Meetings.	Sustained changes in behaviour: Abstinence maintained. Attend AA/NA meetings. Readmission to programme on relapse.
Clients referred by family, welfare agencies, health professionals, friends, employers, schools and self-referred to participate in treatment programme. Marketing, pamphlets.	Programme provides family workshops to families of substance abusers.	Number of family workshops and family sessions per month.	Families' attitudes, knowledge and behaviour changes. Families attend Naranon/Alanon meetings. Families support treatment intervention style.	Families' health improves.	Reduced harm caused by substance use in people's lives.

In 1993, after investigation of its merits, the Centre adopted the counselling style of motivational interviewing. By that year a small training department had emerged in response to community demand for substance abuse prevention-related skills. This is now run by a full-time training coordinator. During the same period, acupuncture was offered as a voluntary alternative therapy in the out-patient programme, with aromatherapy and art therapy incorporated on the same basis in the late 1990's. The youth prevention programme was also introduced at around this time. Nine years ago a psycho-educational element was incorporated into the treatment programme.

By 1996, increased demand for services resulted in the Centre moving to larger premises in Observatory. Ten years later, with the help of government funding, another service site opened in Mitchell's Plain. This was motivated by Mitchell's Plain being the area most highly represented by clients at the Observatory branch at that time and the difficulties inherent in accessing the Observatory-based Centre, which is a considerable distance from Mitchell's Plain and not easily accessible by public transport.

Mission Statement

The mission statement of the Centre is as follows:

> Our mission is to provide effective, accessible and innovative treatment, prevention and training services that enable South Africans to respond appropriately to the challenges of substance abuse. As a non-profit organization in the Western Cape, we aim to lead by promoting an awareness and understanding of substance abuse as an issue that affects us all (Cape Town Drug Counselling Centre, 2010).

Goals and Objectives

Goals and objectives of the Centre include

- to assist people to make informed choices and to take appropriate responsibility regarding the use of mood altering substances,
- to provide an environment conducive to healing,
- to reduce the harm caused by mood altering substances and limit the increase of substance abuse and behaviour,
- to provide accessible and affordable treatment, particularly to lower income groups,
- to be accountable to clients,
- to recruit and develop high calibre staff,
- to be flexible with regard to challenges and demands,

- to approach treatment, prevention and training innovatively,
- to evaluate the success of these approaches through research and
- to maintain economic and financial self-sustainability.

A desired outcome of the Centre is for clients to achieve and maintain abstinence as soon as possible after admission into the treatment programme.

Target Population

The target population of the Centre's treatment programme is any South African challenged by substance abuse with a particular emphasis on attracting those from lower income groups. This is especially in the light of the high prevalence of methamphetamine abuse and the increasing use of heroin in poorer communities. Affordability and accessibility are considered barriers to treatment in lower socio-economic groups (Myers & Parry, 2005) therefore payment for treatment services at the Observatory location is calculated on a family income-linked sliding scale in an attempt to overcome possible financial obstacles to treatment access.

Statistics from the Centre from 2011 (Cape Town Drug Counselling Centre, 2012) indicate that the highest proportion of clients emanate from historically under-resourced, lower-income and disadvantaged communities. Target population groups are reached at high levels: In order of frequency, the areas most highly represented are: Athlone, Manenberg, Hanover Park, Woodstock, Cape Town, Observatory, Salt River and Mitchell's Plain. Demand from the Mitchell's Plain area resulted in the service site at that location opening in 2006. The aim was to improve accessibility to a highly represented population in need. Currently all treatment is offered free of charge from that site.

Clients access the Treatment Centre through a variety of ways which include: Referrals from health professionals in private and public settings, recommendations by social workers, response to outreach programmes, referrals from employers, response to Centre marketing tools such as pamphlets, referrals through the legal system and word of mouth recommendations.

Organizational Structure

An executive committee comprising of five members appoints a director and clinical manager. The entire staff at the Centre apart from the financial administrator, the training coordinator and a cleaner/telephonist who are directly answerable to the director, report to the clinical manager who in turn reports to the director. Permanent staff include two senior social workers, three registered counsellors, intern counsellors and a receptionist. Sessional staff

consists of a medical doctor, an acupuncturist, an aroma-therapist, an art therapist and two psychiatric registrars.

Staff.

Eight of the eleven permanent staff at the Centre are professionally qualified. These include the director, the clinical manager, five counselling staff and the training coordinator. Non-professional staff consist of a receptionist, a general worker and a financial administrator. All counsellors are in possession of either a social work or a psychology degree and must be registered with either the Health Professionals Council of South Africa as Registered Counsellors or with the South African Council of Social Service Professionals as Social Workers. Sessional staff comprise of a doctor and a psychiatric registrar who respectively consult for two 1-hour and two 2-hour sessions per week. In addition the acupuncturist gives two 45 minute 3- hour sessions weekly and the aroma-therapist three 45 minute 3-hour sessions weekly. The art therapist runs a one-and-a-half-hour art therapy session with a maximum of 15 clients participating per session.

Staff training.

New counsellors undergo a two week in-house training course prior to being allocated to clients of their own. This comprises comprehensive training on motivational interviewing as based on Miller and Rollnick's 1991 publication, *Motivational Interviewing: Preparing People to Change Addictive Behaviour*, viewing of training videos and observation of group sessions and assessments run by experienced staff. Trainees do not sit in on individual counselling sessions. New counsellors observe for four weeks before first co-facilitating groups and then facilitating groups alone. For at least the first month experienced staff sit in with new counsellors during intakes. During the training period new counsellors receive intensive feedback on their performance. During supervision sessions supervisors check whether supervisees are adhering to motivational interviewing principles as well as sit in on sessions at random times for the same reason. During some clinical meetings the importance of adhering to motivational interviewing principles is reviewed and underscored to guard against delivery drift.

Centre staff frequently review programme material. Staff members share successful working methods with the clinical team who may elect to follow suit. Staff training is on-going for both new and experienced staff. Staff attend outside courses and workshops and internal staff training opportunities are identified.

Staff development.

A weekly clinical meeting is held to discuss relevant Centre issues during which one hour is allocated to knowledge building. Guest speakers are invited to address staff. Doctors, other addiction agency staff and the Centre's own staff members may present talks related to the field of addiction. The clinical team performs a self-evaluative SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis every six months with management follow-up. A general staff meeting is held every week which all staff members attend and discuss Centre-relevant topics of a general nature, unrelated to clinical issues. Staff also sit in on colleagues' assessments to observe and learn from each other's individual style.

Each clinical staff member meets weekly with an allocated supervisor, where supervisees may seek advice on both personal and professional issues. These sessions are considered important to prevent burn-out. In this regard an unfilled aromatherapy slot may be offered for the benefit of staff members.

Funding

Major current funders include government (Department of Social Development) who contribute approximately 50% of the Centre's annual running costs and the Lotto that contributes between 15% and 20% of running costs per annum. The difference is made up by donations from individuals, corporations, foundations and other health services. Other programme resources include DVDs, educational materials and appropriately qualified staff.

Stakeholders in the Evaluation

Increasing the possibility of findings being used for "learning, decision-making, and taking action" (p.6) is a primary focus of evaluation planning, and obtaining stakeholders insights, perspectives and experiences are an essential part of establishing and directing that focus (Preskill & Jones, 2009). The expertise and knowledge of the evaluation sponsor, the clinical manager of the programme, in the general arena of substance abuse and relevant treatment protocols was particularly valuable. So too was her strong position of influence both in relation to the Executive Committee as well as to programme staff (both also stakeholders), particularly in respect of possible lobbying for improvements to the programme depending on evaluation findings.

The diverse perspectives of the programme staff, all considered stakeholders, were also highly valued and regularly sought, both on possible evaluation questions and on an on-going basis throughout the process. This collaboration was important to ensure smooth access of accurate information and to encourage maximum utility of evaluation findings.

Members of the executive committee were identified as stakeholders due to their position as policy-makers and their accountability to the community and funders. Funders are stakeholders in this programme too as outcomes may determine future funding strategies. Everyone involved in the programme would be affected by the outcomes of this evaluation in some way. The Centre's administrative staff were identified as stakeholders, not only as they were in a position to smooth access to files and information, but because results of the evaluation may impact on funding and commensurate salary adjustments.

Regular meetings with staff took place to derive theory rationale and to obtain feedback and consensus of opinion regarding the accuracy of the description of the Centre's programme and causal theory as well as to discuss measuring instruments and offer interim feedback.

Overview of Other Services Offered by the Cape Town Drug Counselling Centre

Only the adult out-patient treatment programme was under evaluation, which is dealt with separately in Chapter 3, but below are brief descriptions of services offered apart from the adult treatment programme under review.

Adolescent treatment programme

The adolescent treatment programme, offered to school-going clients, is run along similar lines to that of the adult programme. It is compulsory to attend group therapy sessions, mini-lectures, individual counselling and art therapy sessions.

Youth outreach programme

Prevention programmes are run in schools and tertiary institutions and mainly focus on 13 to 18 year olds across urban and rural communities. Primary prevention programmes include on-going training and support for parents, teachers and schools while secondary prevention is in the form of intervention workshops for adolescents experimenting with mood-altering substances. At-risk adolescents are encouraged to seek help through the tertiary prevention method of the Centre's treatment programme.

Training programme

The Centre offers accredited training to psychologists and social workers for Continuous Professional Development points. A number of different courses targeting parents, youth workers, community workers, students, and health-care practitioners are designed to equip participants with the knowledge and skills required to impact appropriately on issues of substance abuse in their respective environments.

Adult Out-Patient Treatment Programme Description

Meetings with the designated trainer of the Centre took place to obtain appropriate programme information. A report based on this discussion was submitted to the clinical manager for comment then discussed with staff at a clinical meeting.

Compulsory Programme Components

The components described below take place over a six week period with clients attending six lectures, six individual sessions and six group sessions.

Assessment.

Clients first make an appointment to attend an assessment clinic held every Tuesday and Thursday morning. Pregnant women enjoy priority service at intake - i.e., pregnant women are accommodated at the following intake regardless of current bookings. Women clients are referred to a female therapist unless a male therapist is specifically requested. Changing to a female therapist is permitted at any stage.

Clients are asked to bring with them a non-using family member or loved one and both complete different questionnaires relating to the client's history and substance-using behaviour. Both watch the same orientation DVD about the Centre's programme. A counsellor assesses written responses to questions relating to the client's past and present drug use, family history and relationships, legal or criminal history and mental status. Clients are asked to rate their perception of their own readiness to change their substance abusing behaviour on a scale of 1 to 10 to offer some indication of current motivational levels for treatment. The counsellor spends 45 minutes with the client unless the client has used after midnight that morning. If that is so, the interview time is reduced to 20 minutes due to presumed diminished concentration levels. All of the assessment instruments were developed by the Centre and none is standardized.

At the time of the assessment the counsellor recommends either an in-patient or out-patient treatment programme. Recommendations may also be made for in-treatment at any time during the period of a client's programme. Reasons may include the use of heroin (statistics show that these clients do better on an in-patient basis), no home support or lack of expected progress in the out-patient programme. For withdrawal medication or evaluation of more serious psychiatric symptoms, medical and/or psychiatric consultations are available.

Once accepted into the programme clients are asked to commit to completing the programme by attending all sessions. This includes attending one 45-minute individual counselling session per week (excluding the assessment session), one 90-minute group

session a week, one 90-minute presentation comprising a lecture and discussion per week and at least two family sessions during the programme duration. Family members are asked to commit to attending the family workshop and family sessions.

Individual counselling.

Motivational interviewing is a core component of the adult treatment programme and based on Miller and Rollnick's 1991 publication, *Motivational Interviewing: Preparing People to Change Addictive Behaviour.* It is a counselling style developed on the premise that the way clients are spoken to regarding their substance use problems impacts on substance use levels (Rollnick, 2001). MI is described as "both a treatment philosophy and a set of methods employed to help people increase motivation by exploring and resolving ambivalence about behavioral change" (Lundahl & Burke, 2009, p. 1232).

Clients are encouraged to understand that ambivalence around stopping substance use is normal. By developing and amplifying discrepancy in empathic ways clients are assisted to explore and resolve their own ambivalence in relation to their substance abusing behaviour. Clients are guided in evaluating their own drinking or drugging associated risks rather than being educated or confronted by their counsellor in an authoritarian manner. Counsellors adapt their approach depending on the stage of readiness to change of their clients.

Clients receive feedback data from a drink or drugs severity questionnaire developed by the Centre and are assisted to evaluate their own levels of substance use in comparison with societal norms. To clarify terminology used in this study, this feedback process with pure MI may also be termed motivational enhancement therapy (MET) (Burke et al., 2003; Cloud et al., 2006; Hettema, Steele, & Miller, 2005). Apart from using the MET counselling method as the core treatment tool, the Centre also uses referral to Alcoholics Anonymous or Narcotic Anonymous groups, drug testing, group therapy, psycho-educational lectures, family counselling sessions, and family workshops as additional treatment resources.

Alcoholics Anonymous and Narcotics Anonymous affiliation.

Throughout the programme duration clients are strongly recommended to attend Narcotics Anonymous (NA) or Alcoholics Anonymous (AA) meetings regularly. Counsellors verbally establish attendance consistency. All clients leave their first session with an AA or NA meeting schedule.

Drug testing.

Heroin users must test negative before beginning therapy. At the first session the counsellor may sell the client several test kits and retain them for use by the client as required. Drug tests are administered on a random basis during the client's treatment.

Group therapy.

In accordance with the MI counselling style, counsellors look for opportunities to affirm helpful behaviour as well as highlight, explore and amplify damage caused by clients' drug use. Groups are often run on a co-therapy basis to allow for counsellors to talk to each other in order to steer groups in desired directions. A member of NA addresses the groups once every month. Men's and women's groups are run separately with the exclusively women's group including only women clients and only women counsellors as facilitators.

Psycho-educational lectures and discussion groups.

Once a week clients must attend a session in the interactive format of a lecture interspersed with discussion. Each lecture is prefaced by acknowledging the benefit of relevant knowledge in aiding recovery. After each session clients receive a worksheet related to the topic and specific areas covered which they complete in time for discussion at their next individual counselling session. Topics include:

- Understanding Addiction, which deals with the concept of addiction as a disease and covers aspects relating to its primary, progressive, chronic and potentially terminal nature. Characteristics of addiction are discussed, namely: ambivalence, tolerance, shame, loss of control, preoccupation with drugs, continued use despite damages, lying and manipulation,
- Denial, which focuses on this and other defence mechanisms including bargaining, minimization, intellectualization and blaming. The concept of a sense of entitlement is also covered,
- Powerlessness, which reinforces the need for clients to acknowledge that they need help in overcoming their addiction and that they cannot use substances in a controlled manner. It is emphasized that powerlessness is not synonymous with weakness,
- Personal Loss, where the emphasis is on amplifying losses experienced in the areas of finances, relationships/emotional, career/school/studies, self-esteem and spirituality and recognizing the courage and honesty required in acknowledging their loss. An important element is the reinforcement of the

need for clients to acknowledge what has not yet been lost but could be if drugging continues,

- Relapse, which deals with individuals' recognition of potential relapse triggers and underscores the inclusion of drugging behaviour as an indication of imminent relapse. Clients are encouraged to identify differences in behaviour between active addiction and recovery in the spheres of feelings, behaviour, dreams and hopes, physicality, work/studies, relationships and spirituality and
- HIV/AIDS and addiction, where clients have an opportunity to acknowledge their risky sexual behaviour related to their addiction. Clients are given statistics relating to prevalence of HIV and AIDS. Transmission methods and high-risk behaviours are also discussed as well as clients' feelings around those issues. The issue of shame is covered as a related theme.

Family counselling sessions.

Affected family members join clients and their counsellors for a facilitated discussion of family related issues, with the focus on clients' behaviour. At least two family sessions which range in time from 45 minutes to two hours must be attended during the treatment period. These are in addition to individual counselling sessions. Family sessions are often run on a co-therapy basis if families are large or considered challenging to engage. Cultural differences between counsellors and clients may be addressed by including a second counsellor of a similar cultural background to the family in the session.

Family workshops.

It is compulsory for families of clients to attend at least one of the monthly family workshops. Families are educated about addiction and the effects and they are offered the opportunity to share their experiences. Participants must be clear of substance abuse themselves for at least two years to qualify for participation. Family members are advised to join Nar-Anon or Al-Anon. Nar-Anon is an organization affiliated with NA but for the benefit of family and friends of substance abusers. Al-Anon operates identically in relation to AA but is orientated around families of alcoholics. At every family workshop half an hour is allocated for a Nar-Anon member to address the group about benefits associated with the organizations.

Optional additional services.

A number of voluntary additional services are offered:

Referrals.

At assessment or at any stage, with clients' consent, clients may be referred to an in-patient treatment centre or another facility better suited to their needs. The Centre refers clients to various state run institutions including De Novo in Kraaifontein, the Kensington Treatment Centre in Maitland and the Western Cape Youth Rehabilitation Centre in Eerste River (adolescents only). Requirements for admission to these institutions include a referral from a social worker and both a medical and psychiatric evaluation. Heroin patients may be directed to Stikland as an in-patient to detox. Alternatively they may be advised to detox as an out-patient on medication under medical supervision.

Aftercare programme.

All clients have the option to stay on in an aftercare programme after completion of the six week treatment programme. Attendance of an aftercare programme is contingent on clients attending NA or AA meetings. Although proof of this activity is through self-report, counsellors are confident of distinguishing attendees from those not attending meetings. The aftercare programme consists of a combination of group therapy sessions if requested by the client and individual counselling sessions, or just individual counselling sessions. Clients may also make use of sessional services in aftercare. The exact permutation is tailored towards individual needs and length of time of attendance is decided equally individually.

HIV/AIDS service.

HIV/AIDS information and advice is available free of charge and offered throughout the programme due to perceived high risk behaviour prevalent amongst substance abusers. Voluntary counselling and drug testing is available to all drug users regardless of whether they are in the Centre's treatment programme. All counsellors are also trained as Voluntary Counselling and Testing counsellors so may administer pre- and post-test counselling. HIV testing is done at the Centre through the medical doctor**.**

Medical and/or psychiatric consultations.

Clients have access to the services of a medical doctor and psychiatrist for withdrawal medication and for evaluation of more serious psychiatric symptoms.

Art therapy.

In art therapy, the art therapist interprets and discusses clients' paintings and underlying emotions in a supportive group setting.

Aromatherapy massage.

The aroma-therapist massages the body to encourage relaxation.

Acupuncture.

Acupuncture is offered to assist in reducing withdrawal symptoms and to re-energize the body.

Intake of relapsed clients.

Relapsed clients undergo the same process as at their first admission and are re-evaluated in the same spheres as at the first assessment. Returning clients are allocated the same counsellor if possible and follow the full programme again.

Programme Rationale and Causal Theory behind the Compulsory Components of the Adult Treatment Programme

Although a formal needs assessment was not undertaken, this treatment programme was initiated as a direct response to an explicit need for treatment services in lower socio-economic communities. This was manifested at the time by persistent presentation in medical settings of substance abuse in patients with little or no resources.

Selections of interventions are based on a variety of factors: From inception of the programme the counselling style was client-based; the then-prevailing preferred counselling style in treatment settings. The shift to motivational interviewing was driven by evidence of this counselling style's utility. The concept of involvement of families in substance abuse treatment contexts was accepted at the time of inclusion as a desirable, scientifically based component in substance use programmes. The psycho-educational element was introduced in keeping with accepted social science theory relating to the use of knowledge building as a tool to change attitudes and increase motivation to change substance abusing behaviour.

Causal Theory

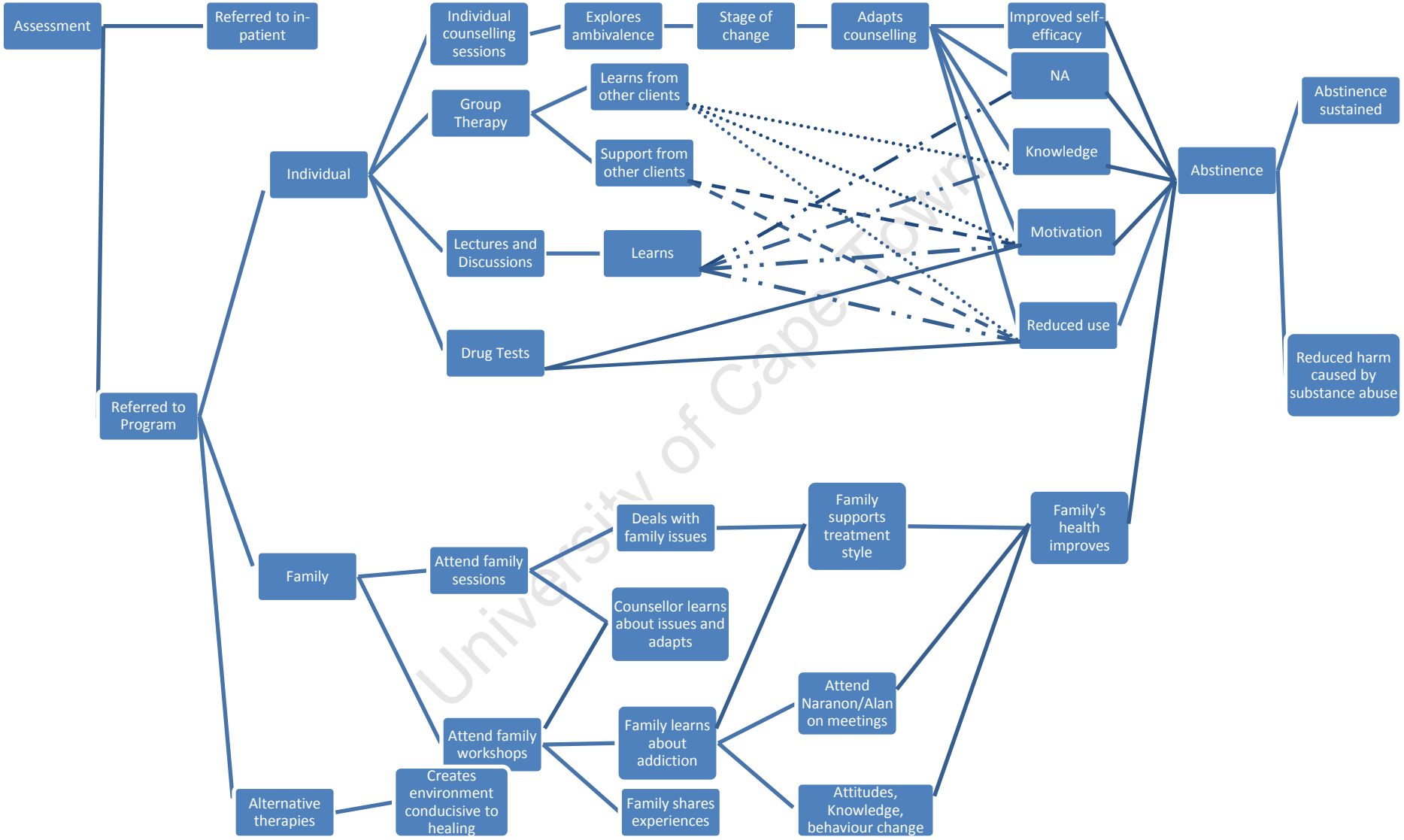
Although programme theory emphasises the responses of participants to programme activities, Weis (1998) suggests that underpinning every social programme is a theory of implementation. This focuses on the delivery of programme services rather than the mediating processes between programme services and the achievement of programme goals. Programme theory and the theory of implementation evolve in an integrated way and combined, form a programme theory of change (Weis, 1998). In this study, establishing the Centre's programme causal theory is in compliance with the premise of theory-based evaluations that programme theory is explicated by detailing the expected relationships between elements in the causal chain mechanism before analysing their contributions to outcomes (Shadish et al., 2002). To this end the causal theory rationale of the Centre's programme was derived from the clinical manager and counselling staff at three meetings

over six weeks. These meetings were an important part of the planning process to obtain feedback and consensus of opinion regarding the accuracy of the description of the Centre's programme and causal theory which were adjusted and confirmed with programme staff to be representative of a combination of their underlying assumptions.

The causal theory of the treatment programme is grounded in the assumption that participation of substance abusers and their families in the combination of the compulsory activities offered by the programme will provide the intermediate outcomes of knowledge, attitude and behaviour changes necessary to result in the desired longer term outcome of clients' sustained abstinence from any mind-altering substances (see Figure 2).

The interactions between the programme's operations and the target participants are all considered to contribute towards improved self-efficacy and increased motivation levels which are characteristics theorized as associated with sustained abstinence. Attendance at NA or AA meetings is also expected to contribute towards continued abstinence.

Figure 2: Chain of causal mechanisms



Proximal outcomes for families include support of the treatment intervention, attitude, knowledge and behaviour changes as well as attendance at Nar-Anon or Al-Anon meetings. It is proposed that the combination of these intermediate outcomes leads to improved family health which in turn creates an environment conducive to clients' recovery. Detailed postulated interactions between target participants and the programme follow.

Individual counselling.

An adapted version of motivational interviewing, motivational enhancement therapy (MET), using the key techniques of exploring ambivalence and awareness of stage of change in clients is considered by Centre staff to be associated with reduced drugging or drinking.

Counsellors tailor their approach depending on the stage of change prevalent in their clients. This is designed to lead to early changes in motivational levels with a view to increasing the probability of clients' return to the Centre. Goals are set to elicit sufficient motivational levels for clients to wish to change their own substance abusing behaviour. Application of the MET techniques of exploring ambivalence through expressing empathy, developing discrepancy, avoiding arguments, rolling with resistance (working with, instead of confronting resistance) and supporting self-efficacy is postulated to result in healthier behaviours and attendant abstinence. Self-efficacy is a self-belief reflecting levels of self-perceived judgement of one's personal capability of behaving in a certain way in a specific situation (Bandura, 1977).

Group therapy.

The MI component in the group therapy context at the Centre is intended to support individual counselling methods and effects. Programme theory includes that benefits of group therapy include learning from peers at different stages of recovery as well as receiving group encouragement and feedback. Both are expected to increase levels of motivation to change behaviour. Observation of others' struggles but yet continued abstinence is thought to offer clients' hope and the courage to change their own behaviours and in turn considered to contribute towards feelings of self-efficacy. Separate-sex groups are expected to result in more honest sharing and a concomitant reduction of shame and stigma associated with anti-social or self-perceived shameful behaviours.

NA or AA attendance.

NA or AA attendance is strongly encouraged throughout the programme and beyond as it is postulated that more successful outcomes are associated with more attendance at NA and AA meetings. In addition, having a sponsor and undertaking step work, which is working within

the associations' particular framework of 12 steps to recovery, are considered to increase the possibility of sustained abstinence.

Psycho-education.

The psycho-educational component of lectures and discussions on relevant topics is considered to equip clients with appropriate knowledge on mind-altering substances and their effects together with the consequences of substance abuse. This knowledge is theorized to support the content of all other programme components by offering informative and objective insight into pertinent issues. The format of the psycho-educational discussions is designed to remove psychological blocks and denial issues relating to substance abuse.

Drug tests.

Drug testing is considered to act as a motivating factor not to use due to unpleasant consequences relating to positive results. It also allows counsellors to verify clients' progress and direct individual counselling sessions accordingly.

Family involvement.

Assessment.

The programme theory postulates that successful outcomes are associated with the level of healthy support for the client outside the programme and that a system supporting enabling behaviours towards the substance abuser feeds addiction. Enabling behaviour in this context is any behaviour which relieves substance abusers from the natural consequences of their own actions. Identifying and amplifying collateral damage is considered a motivational factor on the path to abstention. This is best achieved through the presence of a loved one at assessment. This is expected to reduce the possibility of fact-manipulation by the client as well as to prevent clients from minimizing damage caused by their substance abuse. This is thought to offer a clearer clinical picture and provides information for future use in a counselling context.

Family workshops.

The family workshop is a vehicle expected to parallel improvement of the health of families with that of their substance abusing family members. This is in turn expected to alter clients' domestic environments in such a way as to be less conducive towards substance abuse. Highlighting enabling behaviour is expected to result in the formation of appropriate boundaries offering fewer manipulation opportunities to the substance abuser. Feelings of shame and guilt experienced by families of drug abusers are expected to diminish through exposure in a forum designed for sharing experiences and identifying with others in similar

situations. This is expected to contribute towards overall family health. The MI counselling style is consistently applied in all interactions between counselling staff and clients as well as their families. The expectation is that exploration and resolution of ambivalence relating to denial and acceptance of family members' behaviours will increase awareness and promote proactive family environments.

Family members are also exposed to a psycho-educational component on the premise that through this knowledge they will alter their behaviour and attitude towards the addict in constructive ways conducive towards abstinence. A member of Nar-Anon addresses each family workshop with the aim of encouraging family members to join the organization and introduces them to a continuous support mechanism outside the treatment environment. This is expected to assist in maintaining inter-personal family boundaries and perpetuating a home environment less conducive towards substance abuse.

Family sessions.

Counsellors facilitate discussion around the experience of family life with a substance abuser while learning more about clients' backgrounds. This knowledge may inform their responses to clients in individual counselling settings. In family sessions the family articulates more collateral damage of the substance abuse in the presence of clients, as it is postulated that these expressions of harm will further motivate clients to change their behaviours, as will affirming change and highlighting areas requiring change. Again MI counselling techniques are used to maximize the benefit of these sessions and by rolling with resistance, affirming self-efficacy, reflective listening and highlighting discrepancies and ambivalence in a family context, counsellors expect that both clients and families should improve on behaviours previously supporting a substance-abusing lifestyle. Both family sessions and family workshops are expected to result in family support of the treatment intervention style, as well as improved family health, and are considered contributory factors in achieving and maintaining abstinence.

Conclusion

This is a stable and mature programme with the separate programme components run along particular and explicit written guidelines. Programme staff clearly share an implicit conceptualization of the change processes initiated by the programme as well as the resultant desired and expected proximal, intermediate and longer term outcomes in programme participants. This programme theory will be tested against the prevailing social science literature in the following chapter.

CHAPTER THREE

Approach to the Evaluation

Review of relevant social science literature

In keeping with Rossi and Lipsey's (2004) directive to evaluators to conduct an independent analysis of the assumptions and expectations upon which programmes under evaluation are founded, a search on the relevant current social science literature was conducted. It was concluded that the Centre's programme theory, of all compulsory components of individual counselling, group therapy, psycho-education, NA/AA attendance, drug testing and family involvement, was well-supported by prevailing social science theories. This support for each component of the programme is addressed below.

Motivational interviewing.

The programme description and causal theory of the Centre's MET counselling component offers evidence of fidelity to the principles of MET for which there is considerable support in the literature related to its effectiveness in a substance abuse environment. As the Centre's programme incorporates the add-on component of MET to standard MI both MET and MI literature is relevant to this study. MET is the most widely used adaptation of motivational interviewing in a substance abuse treatment context (Burke, Arkowitz, & Menchola, 2003; Holleran & Steiker, 2009). Structured feedback data are used to compare clients' substance use and behavioural health with accepted norms and so increase awareness and discrepancy in clients (Miller & Rollnick, 1991) which is positively associated with change talk (Vader et al., 2010). This is expected to lead to greater feelings of self-efficacy and self-motivation to change behaviour (Read, Kahler, & Stevenson, 2001), and hence, to behavioural change.

A meta-analysis of 119 empirical studies viewed MET and MI as one intervention and reports equal effects to strong comparison groups utilizing specific interventions, viz. Cognitive Behavioural Therapy (CBT) or 12-Step facilitation groups. However, in a moderator analysis using MET as a potential moderating variable to contrast basic MI with MET against weak comparison groups (treatment as usual, waitlist control or written materials) findings reflect that MET is significantly more likely than MI to produce positive change in behaviour (Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010) and significantly more effective than MI as a stand-alone treatment (Burke et al., 2003; Lundahl & Burke, 2009). Findings from Project MATCH indicate that MET is as successful as CBT or a 12-Step facilitation programme when administered on an individual basis to clients without

psychopathology (Hettema et al., 2005): Project Match was a large statistically powerful trial conducted in the U.S. to establish how alcoholics with different characteristics responded to various types of therapeutic interventions (Del Boca & Brown, 1996). Another meta-analysis compares the results of 30 controlled clinical trials with meta-analytic comparative data of psychotherapeutic treatment in general. Findings include that the percentage of people who showed noticeable improvement or abstinence in drinking and drugging (51%) after MET interventions was significantly greater than the 37% who improved with treatment as usual (Burke et al. 2003).

Rates at which people retain the effects of treatment are good: Lundahl et al. (2010) report that MI is durable at 2-years after treatment and possibly beyond whereas Lundahl & Burke (2009) conclude that outcomes may be durable for up to 1 year after treatment. The effects of MET do not weaken significantly over time compared with other comparison groups (Burke et al., 2003). In the Project MATCH study MET outperformed CBT and 12-Step facilitation therapy on1-year and 3-year follow-ups in drinkers with high baseline anger (Project Match, 1997). This is particularly notable as during that study MET treatment was restricted to four sessions whereas the other two approaches delivered 12 sessions each (Project MATCH, 1997). Due to the relative brevity of MET treatment, its cost effectiveness is probably better than competing strong comparison treatments (Lundahl & Burke, 2009).

Therefore, as this extensive body of evidence informs us that MET is considered at least as effective as CBT and 12-Step programmes, similar in terms of durability and considerably shorter (and therefore cheaper) than other competing therapies, the MET counselling style is a sensible and appropriate therapeutic choice for this Centre due to budgetary and time constraints.

Group sessions.

The Centre's causal theory of group therapy is supported by the relevant literature: Group therapy provides peer support paralleling the individual counselling experience. In this setting, personal self-examination may be more in-depth due to emotions evoked and insight obtained from other group members. As members of the group are at different stages of recovery, new and ambivalent members are exposed to others longer in recovery and who endorse abstinence. This peer role-modelling provides motivation and hope to those in early recovery or those who are struggling to achieve or maintain healthy behaviours (Martin et al., 2007).

Group work also has the advantage of preparing individuals for participation in self-help groups, viz. NA or AA and is extremely cost-effective (Mueser & Pierce, 2007). Group therapy is described as a healing process through interconnectedness with others experiencing similar challenges. It assists in reducing levels of self-absorption and co-dependence and improves emotion regulation while increasing self-esteem and improving behaviours, especially self-care (Khantzian, Golden-Schulman, & McAuliffe, 2004). Topics of child abuse and domestic violence, of particular sensitivity to women, are best addressed in single sex groups (Lafave, Desportes and McBride, 2009). Salience of these issues in a substance use treatment environment is underscored by findings of a study investigating levels of abuse and violence in a methamphetamine treatment programme, which stated that 58% of the women reported a history of sexual abuse and violence (Cohen et al., 2010).

As individual counselling is required to engage clients on a personal level, group therapy should not substitute individual counselling but rather augment the individual treatment process (Ghodse, 1995). As group therapy is offered in addition to individual counselling at the Centre and its delivery and aims are supported by accepted social science theories, it can be considered an appropriate and evidence-based component of the treatment programme.

NA/AA affiliation.

The assumptions of the Centre's programme theory that NA/AA affiliation leads to reduced substance use is consistent with the literature. NA and AA-related coping skills are reported as predictive of reduced substance abuse, with involvement in the AA having independent positive effects on substance use disorders as well as with positive changes in social network support (Laffay, McKellar, Ilgen, & Moos, 2008). Read et al. (2001) encourage clinicians to refer clients to programmes such as AA as they found that 12-Step approaches are an effective source of help particularly in an alcohol use context.

There is evidence of a causal connection between NA/AA affiliation and increased self-efficacy (Laffay, McKellar, Ilgen, & Moos, 2008) and NA/AA affiliation predicts high levels of self-efficacy at follow-up as well as being significantly associated with other change process constructs, viz. commitment to abstain, cognitive coping, behavioural coping and primary appraisal of harm (Morgenstern, Labouvie, McCrady, Kahler, & Frey, 1997). Reading 12-Step literature, providing service and being a sponsor in an AA context is associated with better alcohol-related outcomes (Timko, De Benedetti, & Billow, 2006).

NA/AA affiliation is associated with sustained motivation, predicts sustained levels of commitment to abstinence at follow-up and independently predicts better short-term outcomes (Morgenstern et al., 1997) and greater AA-related coping predicts more improvement in substance abuse problems at 4-years follow-up (Laffay, McKellar, Ilgen, & Moos, 2008). Rates of abstinence compared at 2 years follow up in participants attending either a cognitive behavioural programme or attending 12-Step self-help groups reflected substantially better abstinence rates achieved by the 12-Step group (49.5%) than that of the cognitive behavioural group (37.5%) (Humphreys & Moos (2007). Cook (1988) comments on the effectiveness of the AA in the context of the extreme attitude changes experienced by some patients as simulating a religious conversion. A study looking at spiritual transcendence as a predictor of psychosocial outcomes from a substance abuse programme found that involvement in a spiritually-grounded programme such as that of the AA may be predictive of recovery (Morgenstern et al., 1997; Piedmont, 2004).

Psycho-education.

The Centre's programme theory in relation to psycho-education is also well supported by social science literature: Psycho-education through the use of informational materials, discussion and teaching is used in a structured group format to inform addicts about the medical, behavioural and psychological consequences of their addictions. Raising awareness of these consequences is intended to educate addicts and lay a foundation of knowledge within which contexts further intervention treatments are delivered (Khantzian et al., 2004). Leshner (1997) advises incorporating an HIV prevention intervention in treatment facilities while a study exploring links between HIV and alcohol indicates the importance of HIV related services: In particular, the inclusion of knowledge-building and personnel trained in HIV-related counselling into substance abuse treatment programmes should reduce high-risk behaviour (Morojele et al., 2010).

Family involvement.

The programme theory relating to family involvement is consistent with the literature: The negative impact of family members' substance abuse has far-reaching effects on family systems (Velleman & Templeton, 2003). As the family is a fairly stable system, its inherent resistance to change makes it a necessity for family members to become involved in seeking their own health, which better improves the likelihood of their family members' successful treatment outcomes (Ghodse, 1995). This involvement is associated with success ranging from persuading the abuser to enter into treatment to long term beneficial outcomes for

substance abusers and their families. Family involvement from the initial stages of treatment leads to a clearer clinical assessment of the frequency and amount of substance abuse as well as its impact on those around them (Steinglass & Kutch, 2004).

Therapy should be based around the behaviour of the substance abuser and developing a plan to change interactional patterns of the families and substance abusers (Steinglass & Kutch, 2004). It enables identification of unhelpful family behaviours and their roles in the perpetuation of substance abuse. Understanding family members' experiences and developing interventions for them may result in a beneficial impact on the abuser. Some of these adjustments may be achieved by teaching family members strategies to reduce protection of substance abusers from the consequences of their own actions, communicate about the topic of substance abuse, increase coping skills, and eliminate reinforcers of substance abusing behaviours (Copello, Velleman, & Templeton, 2005; Steinglass & Kutch, 2004).

Family therapy has been proven as superior to control conditions at post-treatment substance-use follow-up (Copello et al., 2005). Multiple-family therapy where different families are exposed to each other's experiences is particularly beneficial as members may recognize similar negative behavioural patterns in their own families and be motivated to alter them accordingly (Ghodse, 1995).

In the light of the diversity of cultures within South Africa, findings from cross-cultural international studies have particular relevance for the Centre's family workshop programme. These indicate that families from an assortment of cultural backgrounds report extremely similarly on their experiences of living with substance abusing family members, indicating shared understandings of relevant issues (Copello,et al., 2005; Velleman & Templeton, 2003).

Lack of involvement may undermine the treatment programme of the substance abuser, as through ignorance family members may unconsciously contribute towards maintenance of the substance-abusing behaviour (Ghodse, 1995). Some of these behaviours include protecting the addict from the consequences of substance abuse, collusion in denial of the substance use problem or keeping the problem a secret. However, family members who are able to recognize and understand the process of addiction and the importance of maintaining a pragmatic perspective of the problem can assist addicts considerably by adjusting their own behaviour to reduce accommodation of substance abuse (Martin, Weinberg, & Bealer, 2007).

With appropriate involvement, families may become resources for substance abusers to increase healthy changed behaviours. To this end membership of Naranon or Alanon is advocated, on the basis that these self-help groups give support to families of addicts by promoting raised self-esteem in family members and offering self-care tools with a view to the obtainment and maintenance of levels of emotional independence from their substance abusing family members (Steinglass & Kutch, 2004).

All of these findings support the Centre's programme theory, which is therefore compatible with prevailing social science theory. Programme implementation is in harmony with programme theory: What is delivered to clients in terms of the programme description is in alignment with the programme theory. Social science theory also supports the Centre's choice of programme components integrated to comprise the full programme. It can therefore be concluded that the programme impact theory is plausible and well-founded.

CHAPTER FOUR

Method

Specific Aims and Hypotheses

Levels of substance use and severity of dependence were assessed as indicators of outcomes success. Due to the lack of a control group, and in keeping with the theory-based evaluation approach to explicate and measure expected relationships in the causal chain (Shadish et al., 2002), an attempt was made to investigate whether certain measurable elements in the Centre's chain of causal mechanisms changed over time, consistent with programme causal theory and also whether the change in those elements impacted on levels of substance use in any significant way.

It was decided to assess the efficacy of the adult treatment programme from three perspectives over the three time periods of admission, 6 weeks post-admission and 10 weeks post-admission. The first was to determine whether substance misuse decreased while in treatment. Secondly, it was decided to establish whether any changes of client functioning in the domains of self-efficacy and NA/AA affiliation levels, levels of substance use and motivational levels took place over these times. Motivational levels were divided into three sub-categories comprising Recognition (of the substance use problem), Taking Steps (towards addressing the substance use problem) and Ambivalence (towards the substance use problem). Expectations were that self-efficacy, NA/AA affiliation and taking steps scores would increase from admission to 6 weeks post-admission and be at least sustained between 6 weeks post-admission and 10 weeks post-admission while substance use, dependence and ambivalence levels should decrease over the same time periods.

The third approach was to assess the factors associated with the abstention rate and reduction in substance use rate of programme clients at 6 weeks post-admission and 10 weeks post-admission and to determine the extent to which the postulated relationships actually occurred. Hypotheses in this regard were formulated on the basis of prevailing social science theory: That NA/AA affiliation at end of treatment would be inversely associated with abstinence or lower levels of substance use and substance dependence at both follow-up time points and that self-efficacy levels at 6 weeks post-admission would be associated with abstinence or lower levels of substance use at 10 weeks post-admission.

Taking steps scores at admission were expected to be predictive of abstinence or lower levels of substance use at both follow-up time points while recognition scores on admission were expected to be positively associated with higher levels of substance use at the

same times (Miller, & Tonigan, 1996). From a potential treatment-tool perspective, the Recognition sub-scale could be a useful instrument with which to determine problem severity. As taking steps scores are predictive of successful change, counsellors may gauge motivation levels of clients before and during the treatment process.

The hypothesis was added that an inverse association of previous clean time to reduced substance use or abstinence after treatment exists after this was postulated by Centre staff during preparatory meetings. The literature makes no predictive claims relating to the sub-scale of Ambivalence and comments only on its efficacy at gauging those levels as a treatment tool. However, Centre staff expressed interest in the relationship between levels of ambivalence on admission and substance use outcomes, hypothesizing a positive relationship between the two which was why this was added to the hypotheses.

Clinical staff were also interested in ascertaining clients' perceptions of the treatment programme and their levels of satisfaction with their experience of aspects of the Centre's treatment process. Perceptions of staff sensitivity, turn-around time of service-delivery and perception of programme efficacy were targeted for feedback.

Design and Setting

Rossi, Lipsey and Freeman (2004) refer to a randomized field experiment as the "gold standard" (p. 237) for optimal results in research designed to assess programme intervention effects due to its inherent control of threats to internal validity. Design options, however, were somewhat limited, as core characteristics of the randomized control design model precluded its use in this evaluation project. Initial enquiry into the possibility of utilizing a waiting list control group was met by the response that incorporation of that method was impossible due to the Centre's treatment-on-demand facility with no waiting list component. Without this control or any other method of creating a control group which would not be considered by the Centre's management as impinging on treatment quality, a randomized control design was impossible. In an attempt to ascertain whether any changes occurring in the areas of interest under study were due to programme effect, the alternative approach of a theory-driven, pre-post experiment with a second follow-up was decided upon. This was to allow an assessment of the theoretical basis of the programme to ascertain whether changes occurred as predicted by theory and whether the impact of the intervention was maintained over time.

To increase the possibility of causal inference, multiple measures were obtained at admission, 6 weeks post-admission and 10 weeks post-admission. A major feature of the

randomized control trial is that history and maturation effects are controlled for, leaving room only for chance differences (Shadish et al., 2002). Although a randomized control experiment could not be conducted in this study, the possibility of maturation effects in the form of spontaneous remission confounding results was not a major source of concern, as spontaneous remission from drugs usually occurs gradually over a long time period (Price, Risk, & Spitznagel, 2001). Due to the out-patient nature of the programme and potential external factors of influence confounding treatment results, participants who received alternative treatment for their substance use during the ten weeks after admission were excluded from the study to control for history effects. There was very little risk of statistical regression towards the mean confounding results as participants were not selected based on extremely high or extremely low scores. Selection bias itself was not of concern as all clients agreeing to participate in this study were interviewed.

Other threats to internal validity were contained by measuring the same respondents at pre- and post-treatment times. This controlled for age, gender and various life circumstances effects such as changes in domestic and financial situation which were not likely to change much over the treatment and follow-up period. The main researcher has no vested interest in the Cape Town Drug Counselling Centre and experimenter effects were contained by interviews only being administered by her throughout the period of the study, with the occasional assistance of one Master's level researcher trained by her.

Attempts were made, therefore, to control for threats to internal validity and in addition to measuring participants' responses over three time periods, the theory-based component of the evaluation further strengthened the possibility of increasing causal inference.

The programme length is six weeks with core compulsory programme elements of attendance of six lectures, six individual sessions and six group sessions (18 sessions in all). Three weeks into the study it was clear that attendance of participants of compulsory sessions ranged from "no sessions attended" to "all possible sessions attended". A meta-analysis studying comparative data of psychotherapeutic treatment in general, reports a significant positive relationship between higher treatment doses and better study outcomes (Burke et al., 2003). In the light of these findings a dosage variable was incorporated into the design of the study to gauge the relationship between the number of sessions attended and substance use over time, and to establish whether this amount of exposure was associated with changes in variables of interest. This was in an attempt to assess whether it was the programme that made the difference (if any) in substance use and severity of dependence scores, on the basis

that, if the programme did make a difference, clients who received more of the programme should have experienced the greatest reductions in substance use and levels of severity of dependence.

Statistical power.

The number of cases necessary for credible testing of correlation was calculated as follows: $N \geq 50 + 8m$ where m is the number of independent variables: Hence, 50 + (8 x 6) = 98. However, as these predictors were all intended to be individually tested too, a second formula, $98 + m + m$ applied. Therefore at the time of the design of this study, 110 was the minimum number of cases required to ensure statistical power and generous allowance was made for attrition or alternative treatment referrals. These calculations were in compliance with Tabachnik and Fidell's (1996) directive relating to statistical testing involving multiple regressions. The timeframe of this study was dictated by the prerequisite of 110 participants derived in the planning stage through calculations assessing potential statistical power.

Measures

Meetings with clinical staff provided opportunities to discuss expectations around the research project, as well as what postulated behaviour changes within the components of the programme the staff themselves would consider useful to measure. Motivation levels, self-efficacy, affiliation with Alcoholics or Narcotics Anonymous and levels of drinking or substance use were agreed upon as domains of interest. The results of research of possible measurement tools both relevant to the aspects of the programme identified as indicators of success, and of appropriate length to comply with an agreed restriction of 20 minutes interview time per participant, were presented and discussed with the clinical manager and counselling staff. Upon approval for use by these staff members the following instruments were translated into Afrikaans and those translations checked by back-translation into English.

The Alcoholics Anonymous Affiliation Scale.

With seven questions relating to affiliation with the AA/NA scale, this questionnaire is intended as a short and reliable assessment of participants' levels of affiliation with AA (see Appendix A). 'Yes' and 'no' answers to these questions score respectively one or zero and are added together for a composite affiliation figure. Validity and reliability of the scale was tested on a sample of 927 alcohol treatment-seeking individuals from American public, private and health maintenance organizations (Humphreys, Kaskutas, & Weisner 1998).

Internal consistency of the scale was found to be high across every relevant population (Cronbach's $\alpha = 0.85$ in the treated sample and 0.84 in the untreated sample).

Question 5 relates to a "spiritual awakening or conversion experience" which may possibly be construed as culture-specific. However, the preamble of AA includes a statement to the effect that AA does not affiliate itself with any "sect or denomination" and no particular spiritual entity is prescribed (Edwards et al., 1997, p. 274).

Due to the treatment programme endorsing the importance of the principles of the AA and strongly encouraging attendance, this scale was chosen to indicate the level of affiliation with the AA of participants and that level's association with abstinence or reduced substance use.

Alcohol, Smoking and Substance Involvement Screening Test (WHO ASSIST V3.0).

Designed by the World Health Organization to identify substance abuse problems worldwide, the Alcohol, Smoking and Substance Involvement Screening Test V3.0 (ASSIST) consists of a 10-minute 8-section self-administered pencil and paper questionnaire (see Appendix B). Respondents are assessed for risk related to tobacco, alcohol, cannabis, cocaine, amphetamine–type stimulants, inhalants, sedatives, hallucinogens, opiates and 'other drugs' (WHO, 2008) by responses to questions relating to substances used as well as personal problems encountered through their use. An additional category of Methaqualone (Mandrax) was added to the ASSIST questionnaire in this study in recognition of its perceived popularity, particularly in the Western Cape.

The ASSIST is a standardized instrument which has successfully undergone testing for significance of feasibility, validity, reliability, flexibility, comprehensiveness, cross-cultural relevance and its application in brief interventions. High validity findings include significant correlations between ASSIST scores and scores of other well-established similar measuring instruments. The ASSIST questionnaire was found to be a valid measure of severity of dependence for the substances deemed most problematic by the participant. Scores on the instrument measure whether respondents are at low, moderate or high risk of experiencing problems related to substance abuse. Significant correlations indicate that ASSIST's low, moderate and high risk categories are good predictors of, respectively, substance use, substance abuse and substance dependence (Newcombe, Humeniuk, & Ali, 2005) and may be referred to as such in this study.

The ASSIST is considered a valid screening test for the identification of multiple substance use (Humeniuk et al., 2008). This incorporation of a broad range of drugs listed

separately to comprehensively gauge levels of poly-substance use contributed to its choice as a measuring tool. Scores in response to question 2 for each substance: 'in the past (applicable time period inserted), how often have you used the substance you mentioned?" were totalled and utilized as an indication of levels of drug use and abstinence. Categories of frequency of use are; Never, Once or Twice, Monthly, Weekly and Daily/Almost Daily. In addition to calculating severity of use of individual drugs a global ASSIST score was used to calculate the severity of dependence score in keeping with the use for which this questionnaire was originally intended. This was calculated by adding the total of all scores relating to drug problem severity (questions two to seven) for each drug but excluded responses to all questions relating to tobacco use. Questions relating to problem severity refer to urges to use, impact on health, social, legal and financial problems, failure to function 'normally', concern of others over use and success of previous attempts to cut down or stop using substances. This global ASSIST score was that used in all analyses except those specifically referring to scores of substance use only. All tests which were run with the global ASSIST score were duplicated using question 2 (substance use only) scores and obtained results similar in magnitude and direction.

Although the Addiction Severity Index (ASI) Questionnaire is also an appropriate and comprehensive measurement tool, the interview time constraints discussed with the clinical manager dictated a need for a briefer instrument. Even the ASI-Lite was too long for the purposes of this study. However, Humeniuk et al. (2008) note significant correlations between ASI-Lite and ASSIST validity (r = 0.76-0.88) as well as finding significant correlations between ASSIST scores and measures of risk factors leading to the development of drug and alcohol problems (r = 0.48-0.76). The CAGE questionnaire, attractive for its brevity (four questions), does not measure use of different substances and is too comparatively abstract to allow for measurement of change as sensitive as the ASSIST.

The instrument was tested for cross-cultural relevance (WHO, 2008) and has already been successfully utilized in a South African study involving substance abuse among South African primary care clinic patients (Ward et al., 2008), and in another exploring the extent and influence of recreational drugs in South Africa (Njuho & Davids, 2010).

Due to budgetary constraints preventing toxicological screenings as confirmation of participants' claims of abstention, reliance on self-report from participants was necessary. Confirmatory evidence of respondent reliability was discovered in a large sample of US Project MATCH, where it was found that participants' self-reported drug use was highly

consistent with the results of urine drug screens (Project MATCH Research Group, 1997). Self-reported drug use was therefore considered acceptable in this study context.

Socrates Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES).

The SOCRATES Stages of Change Readiness and Treatment Eagerness Scale developed by Miller and Tonigan (1996) was designed as a tool to assess levels of motivation for change in substance users in the three sub-scales of Problem Recognition, Ambivalence and Taking Steps Towards Change (see Appendix C). The scales were tested on sample populations already in treatment (Miller & Tonigan, 1996).

The instrument consists of 19 items rated on a 5-point Likert-like scale divided into three sub-scales with relatively little overlap. The Recognition sub-scale assesses respondents' self-perceptions of drinking problems. Recognition scores are positively associated with problem severity and high scores indicate acknowledgement of problems related to excessive drinking or drug use, while low scores reflect little or no desire for change.

The Ambivalence sub-scale assesses a "weighing up" attitude towards change. A high score points towards uncertainty or ambivalence and openness to reflection about drinking or drug use. Low scores can either indicate that respondents think that they do not have a drinking/drug problem or "know" that their use of alcohol or drugs is a problem. Tonnigan and Miller (1996) warn against the possibility of ambiguous results on the Ambivalence scale for this reason. Interviewers are advised that low ambivalence scores with concurrent high recognition scores should be interpreted as high ambivalence levels. The ambivalence variable of each participant was therefore restructured in an attempt to remove this ambiguity and recoded as follows: If the ambivalence score was equal to 1 and the recognition score was either 4 or 5 then the ambivalence score was altered to 5. If the ambivalence score was equal to 2 and the recognition score was either 4 or 5 then the ambivalence score was changed to 4.

The Taking Steps sub-scale assesses the level of action being taken by respondents to make positive changes to their drinking or drug use. High scores may predict successful change and the taking of active steps toward change.

Instrument validity has been found to be strong in previous studies, as it makes use of two large data sources, namely from Project MATCH and the Project MATCH Reliability Study, both of which include a range of demographic and drinking variables that permit assessments of instrument validity. The SOCRATES scale demonstrates test-retest reliability

coefficients on all sub-scales based on these data sources. Cronbach's α test-retest reliability for Ambivalence was .88 and .87 respectively; Recognition, .95 and .95 and Taking Steps, .95 and .96 (Miller & Tonigan, 1996). Due to the treatment programme's underscoring of the importance of the stage of change of the client, this instrument was chosen as the best measure to ascertain participants' motivational levels at the different time points.

Drug-Taking Confidence Questionnaire-8 (DTCQ-8).

Designed by Sklar and Turner (1999), this is a brief assessment of levels of coping self-efficacy in substance abusers to gauge their belief that they are able to resist the temptation to drink or use drugs (see Appendix D). It is appropriate for use before, throughout and after treatment. It is derived from a 50-item questionnaire of the same name and is based on the premise that self-efficacy beliefs in relation to coping in this context are situation-specific and identifies relapse precipitants. These fall into the categories of unpleasant emotions, physical discomfort, pleasant emotions, testing personal control, urges and temptations to use, conflict with others, social pressure to use and pleasant times with others. Validity and reliability of the instrument is good, and compared against the 50 item drug-taking confidence questionnaire, evaluates global self-efficacy with 95% accuracy. It is reported as a particularly appropriate tool in telephone follow-ups (Sklar & Turner, 1999). This, combined with an aim of MI counselling to improve levels of self-efficacy, makes it a suitable measuring instrument for this study's purposes.

Client Satisfaction Questionnaire.

This questionnaire comprises seven close-ended questions and one open-ended question devised by the clinical manager and director of the Centre (see Appendix E). The number of items was limited due to time and budgetary constraints. Questions relate to clients' assessment of staff sensitivity, turn-around time of service-delivery and perception of programme efficacy. The final question asks for ideas for improvement of the programme. These results are tabulated and retained in this study for Centre management information only as the instrument is not standardized and has not been tested for validity or reliability.

Sample and Participant Selection

Permission was sought and given to obtain access to participants' client records for the purposes of the project. A convenience sample was used due to the restrictive design parameters of this study. As the proportion of clients who arrive for their first appointments varies and some clients may arrive without prior appointment, participants were recruited at

their point of admission into the Centre's treatment programme and were interviewed prior to their intake assessment interview with Centre counsellors.

Inclusion and exclusion criteria.

Inclusion criteria were a minimum age of 18 years with no upper age limit, as well as alcohol or substance abuse or dependence and active substance use or drinking during at least the three months before initial intake. Alcohol and drug abuse levels were determined by the ASSIST scale. An exclusion criterion was being considered a danger to self or others by Centre staff, although no one fell into this category. Any participant referred to in-patient treatment at any stage of the study was excluded, as the Centre's treatment effects would be obfuscated by the effects of the in-treatment facility.

Procedure

Agreement was reached with clinical management that interviews should, as far as possible, be restricted to a maximum of 20 minutes in length and appropriate procedures relating to recruitment and participation were discussed and agreed upon. On each of the twice-weekly morning admission clinics, clients were approached by a staff member, informed of the research project underway and asked whether they would be interested in participating in the study. No incentives were offered to participants. If in agreement, they were introduced to the researcher who explained the project and described the interviewing and follow-up process in more detail. Both the researcher and participant then reviewed the consent form together to ensure understanding of the content (see Appendix F). The elements of voluntary participation and freedom to refuse to participate without impact on their treatment programme were emphasized to participants at all times. All participants were informed that a research report would be available at the Centre for perusal in 2013, an arrangement approved of by the Centre's clinical manager. All of the above information is clearly stated in the consent form, which provides contact details for further information or complaints about circumstances pertinent to this study. Identifying information on the consent form and data collection forms were kept in separate locked cupboards in the home of the researcher and not made available to anyone other than the researcher and her assistant. Data was stored on two separate flash drives and when not in use, kept with the data collection forms under lock and key. No study participants are identifiable in this report and the entire study was conducted within strict parameters of confidentiality and anonymity.

On admission, all questionnaires described in this report were administered in a standardized format in the order of SOCRATES, DTCQ-8, ASSIST and NA/AA Affiliation

with a few exceptions: After nine interviews and comments from three clients indicating surprise at their high levels of substance use after completion of the ASSIST questionnaire, which initially headed the order of administration, SOCRATES was moved to first position. This was to obviate the possibility of the ASSIST questionnaire acting as an independent motivational mechanism, similar to the feedback process in motivational enhancement therapy, and increasing awareness and discrepancy as described by Miller & Rollnick (1991). This could also possibly compromise admission data on the SOCRATES sub-scales of Recognition and Ambivalence. Due to time management concerns of Treatment Centre staff the first 13 clients were interviewed only after completion of their initial assessment session with their allocated counsellors. This procedure was revised to ensure participants were interviewed prior to their assessment due to the same concerns relating to compromised responses to the SOCRATES questionnaire. All SOCRATES data pertaining to the first 13 participants were therefore treated as missing but other information was retained. Questionnaires were telephonically re-administered at six weeks after admission and ten weeks after admission.

Sample

A total of 261 participants completed admission interviews during the period 24 May 2011 until 3 April 2012. Of these, 56 were assessed but did not enter treatment and were therefore excluded from this study. During the course of this study, 47 participants were referred by the Centre to in-patient facilities, seven entered alternative treatment under their own arrangements, four spent more than three days in a psychiatric facility, while five were imprisoned during the follow-up period making the total number of clients eligible for study 198 (see Table 2). No data relating to these participants from already completed follow-up interviews were retained and no interviews performed if the alternative treatment was undergone at any time during the designated 10-week follow-up period.

Table 2

Sample Distribution

Category	Analysis	Frequency	Percent
Included in study:			
Entered treatment programme	Included	142	54.41
Assessment only	Baseline only	56	21.46
Subtotal		198	
Not included in study:			
Referred by Centre to in-patient facility	Excluded	47	18.01
Self-referred to in-patient facility	Excluded	7	2.68
More than 3 days in psychiatric ward	Excluded	4	1.53
Imprisoned during follow-up period	Excluded	5	1.92
Subtotal		63	
Total		261	100

Follow-up

A minimum of six telephone calls was made to each participant on different days and at different times of the day within a window period of 14 days after each follow-up date, until they were either reached and interviewed, or it was determined that they could not be contacted by telephone. These calls were made to clients' personal mobile telephones and home telephones as well as to significant others designated by clients as allowable contacts. Communication details of elusive clients were double-checked at the Centre. Some clients were homeless and consequently incommunicado due to having dropped out of the treatment programme, or did not own their own mobile telephones and were dependent on others' good offices in conveying messages or arranging to speak at certain times. Still others had referred themselves to in-patient treatment facilities. Only one participant refused to complete questionnaires once contacted.

Seven clients refused to participate in the project and another six were excluded before an admission interview due to symptoms of psychosis impacting on comprehension levels. One client, obviously and self-admittedly under the influence of a mind-altering substance during the interview, was also excluded.

A total of 245 interviews were conducted at 6 weeks post-admission and 10 weeks post-admission with 88 participants completing interviews at all three time points and 10 participants completing interviews at admission and 10 weeks post-admission only, making 98 participants in all who completed questionnaires at admission and ten weeks after admission (see Table 3).

Table 3

Follow-Ups for In-Treatment Group

Category	Freq.		Percent	
Admission only, no follow-up interviews	27		19%	
Admission and 6 weeks interviews only	17		12%	
Admission and 10 weeks interviews only	9	98*	6%	69%*
Admission, 6 and 10 weeks interviews only	89		63%	
Total	142		100%	

**Note*. Interviewed at Admission and 10 Weeks Post-Admission

Data Analyses

Full in-treatment sample analysis (*N*=142)

Three analyses were performed on the in-treatment sample. The first, on the full in-treatment sample (*N*=142), compared measures at admission and 10 weeks post-admission, with admission values imputed for missing data at 10 weeks post-admission, following an intent-to-treat approach to analysis (Shadish et al., 2002). Although Digiusto et al. (2006) conclude in their study relating to follow-up difficulty in a heroin abusing population that imputing baseline data for missing outcomes data may be too conservative, this procedure was followed for various reasons. As there is a perception that drug abusers drop out of a programme due to a return to drug abuse (Shadish et al., 2002), the use of some of the common alternative imputation procedures could potentially yield results perceived to be biased towards favourable outcomes. Therefore the imputation procedure of mean substitution, where every missing value is replaced by the mean value of the relevant variable, was precluded. For the same reason regression substitution, where missing values are replaced by the predicted value of that variable from a regression analysis using cases with no missing data (Rosenthal & Rosnow, 2008), was rejected in favour of imputing baseline data.

Analysis on data collected at two time points of admission and 10 weeks post-admission (*n*=98)

Another analysis was performed on data obtained from the next largest group of participants (*n*=98), who were interviewed on admission and at 10 weeks post-admission and who comprised 69% of the full in-treatment sample. A comprehensive study with a sample size of

654 participants examines the effects of different follow-up rates on estimates of substance treatment outcome and relative predicative models. Findings include that outcome estimates of the easiest participants to locate (within 10 days), amounted to 60% of study participants and differed only minimally to those of the additional 30% of the sample who were located within the full three month window follow-up period (Hansten, Downey, Rosengren, & Donovan, 2000). Another study argues that a 70% follow-up rate is an appropriate level of response at which the possibility of error in generalizing findings to the remainder of the sample is markedly reduced (Digiusto, Panjari, Gibson, & Rea, 2006; Hubbard, Craddock, Flynn, Anderson, & Etheridge, 1997) with Digiusto et al. claiming a less than 5% error rate in the same context. A feasibility study of low-budget telephonic follow-up interviews in a substance abuse outcomes monitoring context, reports even the 53% response rate achieved on that sample as modest yet acceptable (Oudejans, Schippers, Merkx, Schramade, Koeter, & Brink, 2009).

Clearly there is disagreement regarding follow-up rates sufficiently feasible to generalize findings to the remainder of the sample in the context of substance use. However, the percentage follow-up rate of 69% at 10 weeks post-admission in this study falls only marginally short of the most conservative parameter of a 70% follow-up rate requirement by Digiusto et al. (2006) and Hubbard et al. (1997), and well within the >60% follow-up rate prerequisite for inference by Hansten et al. (2000). Further findings of this study include that if the difficult-to-track participants had been treated as lost subjects and baseline data inserted at the follow-up point, substantially greater errors would have occurred than those produced in estimates based on actual reported values of the 60% followed up group.

It therefore seemed appropriate, with this high follow-up rate of 69%, to analyze the data for the 98 participants; this would enable an analysis without imputed data for participants who both received the programme and were contacted at follow-up, as a comparison to the intention-to-treat analysis.

Analysis on data collected at the three time points of admission, 6-weeks post-admission and 10-weeks post-admission (*n*=89)

Although 10 week post-admission follow-up information was considered a better barometer of success than 6 week post-admission data alone, the trajectory of levels of substance use during and after treatment and the interaction effects of the other variables under study at both follow-up times were of interest. A third analysis was therefore performed on the 89 participants who completed all three interviews (admission, 6 week post-admission and 10 week post-admission). This analysis was restricted to ascertaining whether time-related

trends in this study context exist due to the lower follow-up rate of 63% for all three time points and the consequently weaker inference potential of the analysis. The only other test run on this sample was to check for an association between global ASSIST scores at 10 weeks post-admission and self-efficacy scores at 6 weeks post-admission, in keeping with claims by Sklar and Turner (1999) that a strong negative inverse relationship exists between self-efficacy at end of treatment and reduced substance use.

All variables were slightly skewed. Given the repeated measures and the requirement of the inclusion of covariates, non-parametric methods of assessment were precluded. However, to ensure that potentially significant results obtained from parametric tests were not misleading, measurement data was replaced by its numerical rank from highest to lowest, and regressions were re-run on ranked values of each variable with robust results.

CHAPTER FIVE

Results

Baseline Characteristics

Clients of the Centre who enrolled in the study ultimately fell into two groups (see Table 4): Participants who only attended the assessment (*n*=56), and another which comprised participants who attended any treatment sessions (*n*=142). These groups were treated separately in some analyses.

Males were by far in the majority in both In-Treatment and Assessment-Only groups (75%; 86%). Only 18% of females were lost after assessment compared to 31% of males although this difference was not found to be significant. Although representation of Black participants was low in both groups (In-Treatment: 14%, Assessment-Only: 9%), retention rates were comparatively good, with 20% lost after assessment in that group compared to 32% of Coloured participants and 24% of Whites, none of which compared differences were significant. Coloured participants comprised by far the majority in both In-Treatment (61%) and Assessment-Only (71%) groups. Mean age was 30.23 (SD=9.71) for In-Treatment and 27.95 (SD=7.63) for Assessment-Only groups. NA/AA affiliation was low with a median of 0.

Comparative baseline drug use.

Differences between drug use in groups at baseline were significant in the High-Risk Opioid category with 13% of In-Treatment participants' heroin use falling into that category but 34% of Assessment-Only participants in the same (χ^2(df=1)=11.938, p=0.001) (see Table 5). Methamphetamine high risk use was conversely significantly different at baseline with 39% of In-Treatment participants falling into the High-Risk category but only 23% of Assessment-Only participants reporting the same (χ^2(df=1)=4.289, p=0.027). There were no significant differences comparing use of the other drugs at high-risk levels between the two groups at baseline. Low-risk levels of alcohol use were reported in high proportions for both In-Treatment and Assessment-Only groups at 38% and 50% respectively. Use of cannabis and mandrax in both groups at medium-risk levels were reported in relatively high proportions: In-Treatment participants reported 39% cannabis and 17% mandrax use at this level and Assessment-Only participants reported 46% cannabis and 27% mandrax at the same level.

Cocaine use in both baseline groups was fairly high with 8% of In-Treatment participants and 11% of Assessment-Only participants reporting use in the High-Risk category. Both groups showed extremely low use of sedatives, hallucinogens, inhalants and 'other' drugs.

Sixty percent of In-Treatment participants and 57% of Assessment -Only participants reported use of only one drug in the High-Risk category but both groups reflect considerable polysubstance use (see Table 6). The Assessment-Only group was markedly higher in use of three or more substances in the Medium-Risk category (27%) than that of the In-Treatment group (15%). This difference approached significance at the 5% level (χ^2(df=1)=3.371, p=0.066). The Assessment-Only group also reflected more participants using substances in at least two Medium-Risk categories and one in a High-Risk category (32%) than those in the In-Treatment group (25%), although this difference was not significant. Similarly, the Assessment-Only group also reflected more participants using substances in at least two High-Risk categories (20%) than those in the In-Treatment group (18%), but not at significantly different levels.

Attendance

Clients were spread across the attendance continuum from "attended all compulsory lectures and group and individual sessions" to "attended no lecture or group or individual session after the first assessment". Due to attendance of voluntary sessions after completion of the programme, 8% of clients attended more than 100% of the required sessions (See Table 7). Fifteen percent of participants attended from 50% to 75% of all sessions and 20% attended from 76% to 100% of all sessions (see Appendix G for separate tables of individual, group and lecture sessions attended).

Table 4

Characteristics of Participants at Baseline

	In-Treatment			Assessment-Only			Proportional
Demographics	Mean (SD)	N	%	Mean (SD)	N	%	Loss
Total number participants		142	100		56	100	
Female		36	25		8	14	18%
Male		106	75		48	86	31%
Age	30.23 (9.71)			27.95 (7.63)			
Race							
Coloured		86	61		40	71	32%
Black		20	14		5	9	20%
White		34	24		11	20	24%
Unknown		2	1		0	0	0%
Peer Programme: NA/AA							
Median (Range) NA/AA Affiliation	0 (0-7)			0 (0-6)			
Median (Range) number of meetings monthly	0 (0-90)			0 (0-50)			
Median (Range) number of meetings for the past 12 months	0 (0-210)			0 (0-144)			

Table 5

Substance Use History for all Participants at Admission

	In-Treatment Risk Category of Use (n = 142)								Assessment-Only Risk Category of Use (n = 56)								Grand Total
	None	%	Low	%	Medium	%	High	%	None	%	Low	%	Medium	%	High	%	
Methamphetamines	50	35%	3	2%	34	24%	55	39%	24	43%	2	4%	17	30%	13	23%	198
Opioids	114	80%	2	1%	8	6%	18	13%	30	54%	0	0%	7	13%	19	34%	198
Alcohol	39	27%	54	38%	22	15%	27	19%	14	25%	28	50%	7	13%	7	13%	198
Cannabis	53	37%	14	10%	50	35%	25	18%	16	29%	4	7%	26	46%	10	18%	198
Cocaine	104	73%	8	6%	19	13%	11	8%	37	66%	2	4%	11	20%	6	11%	198
Mandrax	105	74%	6	4%	24	17%	7	5%	33	59%	2	4%	15	27%	6	11%	198
Sedatives	124	87%	3	2%	8	6%	7	5%	48	86%	1	2%	6	11%	1	2%	198
Other	138	97%	1	1%	1	1%	2	1%	54	96%	1	2%	1	2%	0	0%	198
Inhalants	138	97%	2	1%	2	1%	0	0%	50	89%	4	7%	1	2%	1	2%	198
Hallucinogens	128	90%	2	1%	12	8%	0	0%	48	86%	2	4%	6	11%	0	0%	198

Table 6

Substance Use at Admission by Risk Category

		In-Treatment (n=142)		Assessment-Only (n=56)	
Category	Value	Frequency	%	Frequency	%
High-Risk	At least two or more substances in high-risk categories	26	18%	11	20%
	One substance in a high-risk category	85	60%	32	57%
	No substance in a high-risk category	31	22%	13	23%
Medium-Risk	At least three or more substances in medium-risk categories	22	15%	15	27%
	Two substances in a medium-risk category	29	20%	10	18%
	One substance in a medium-risk category	37	26%	17	30%
	No substance in a medium-risk category	54	38%	14	25%
Mixed	At least two medium-risk categories and one in a high-risk category	35	25%	18	32%
	No substance in medium- or high-risk categories	1	1%	0	0%

Table 7

Total Sessions Attended for Those in Treatment

Treatment dosage as % (of the 18 treatment components)	Freq.	Percentage	Cumulative Percentage
<25%	50	35%	35%
26-50%	30	21%	56%
51-75%	22	15%	72%
76-100%	29	20%	92%
>100%	11	8%	100%
Total	142	100%	

Full In-Treatment Sample Analyses (*N*=142)

On this sample of all participants retained for treatment baseline data per case for all missing values was imputed, and a mixed effect simple regression analysis was performed (see Table 8) to ascertain the impact of time on the global ASSIST score which was significant. The global ASSIST score decreased by 29 units on average from admission to 10-weeks post-admission.

Table 8

Regression Results for Imputed Data Analyses (n=142): Global ASSIST vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	56.89	2.80	141.00	20.29	.000	51.35	62.44
Time	-29.07	3.80	279.88	-7.64	.000	-36.56	-21.58

Mixed effect simple regressions were run on each variable in turn to observe independent changes over time as displayed in Tables 9 to 13. Self-efficacy scores and SOCRATES Taking Steps increased significantly from admission to 10 weeks post-admission. SOCRATES Ambivalence scores decreased significantly over the same period. There was no significant effect of time on either AA affiliation or SOCRATES Recognition scores.

Table 9

Regression Results for Imputed Data Analyses (N=142): Self-Efficacy vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	348.18	12.84	141.00	27.11	.000	322.79	373.57
Time	112.07	21.76	258.25	5.15	.000	69.22	154.92

Table 10

Regression Results for Imputed Data Analyses (N=142): NA/AA Affiliation vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	1.13	.15	141.00	7.29	.000	.82	1.43
Time	.25	.23	277.81	1.09	.278	-.21	.71

Table 11

Regression Results for Imputed Data Analyses (N=142): SOCRATES Recognition vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	32.04	0.38	136.00	84.24	.000	31.28	32.79
Time	-1.15	0.61	257.88	-1.86	.063	-2.36	0.06

Table 12

Regression Results for Imputed Data Analyses (N=142): SOCRATES Taking Steps vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	35.30	0.42	136.00	83.99	.000	34.47	36.13
Time	1.45	0.56	268.70	2.56	.011	0.34	2.56

Table 13

Regression Results for Imputed Data Analyses (N=142): SOCRATES Ambivalence vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	83.18	0.83	136.00	100.55	.000	81.55	84.82
Time	-23.65	3.49	152.09	-6.77	.000	-30.55	-16.75

Mixed effect multiple regression analyses were also conducted to determine the impact of the different covariates on the global ASSIST score in conjunction with time (see Appendix H, Tables H1-H7). Dosage (i.e. the amount of treatment to which the participant had been exposed to) had a significant impact on the global ASSIST score which decreased by 16 units on average when the dosage increased by 1%. Similarly, the average decrease in the global ASSIST score of 0.06 units when the self-efficacy score increased by 1 unit is significant, although there was no significant interaction between self-efficacy scores and time: i.e. the inverse relationship between self-efficacy and global ASSIST scores did not change from admission to 10 weeks post-admission and the effect of self-efficacy on the global ASSIST score did not depend on the level of time and vice versa.

The SOCRATES Taking Steps score had a significant effect on the global ASSIST score which decreased by 1.55 units on average when the SOCRATES Taking Steps score increased by 1 unit. Similarly, the SOCRATES Recognition score had a significant effect on the global ASSIST score which increased by 1.01 units on average when SOCRATES Recognition increased by 1 unit. The SOCRATES Ambivalence score had a significant effect on the global ASSIST score which decreased by 0.44 units when the SOCRATES Ambivalence score increased by 1 unit. There was no significant interaction for any of the SOCRATES sub-scales by time.

As previous clean time had no impact on the global ASSIST score over time, nor NA/AA affiliation; only dosage, self-efficacy, SOCRATES Taking Steps, SOCRATES Recognition and SOCRATES Ambivalence scores were included in a final model for global ASSIST (together with time). This was to establish the relative impact of variables already shown to significantly influence the global ASSIST score over time without the potentially confounding addition of variables of no significance in the analysis.

The multiple mixed effects regression (see Table 14) which controls for potential confounders and calculates the relative contribution of each independent variable of each of the significant variables revealed the following: Time had a significant impact on the global ASSIST score which decreased by 33 units on average when comparing 10 weeks post-admission to admission. The impact of dosage was significant: The global ASSIST score decreased by 10.2 units on average when the dosage increased by 1%. Self- efficacy had a significant impact on the global ASSIST score which decreased by 0.03 units on average when self-efficacy increased by 1 unit. SOCRATES Taking Steps had a significant impact on the global ASSIST score which decreased by 0.75 units on average when SOCRATES Taking Steps increased by 1 unit. SOCRATES Recognition also had a significant impact on the global ASSIST score which increased by 1.47 units on average when SOCRATES Recognition increased by 1 unit. Lastly, SOCRATES Ambivalence had a significant impact on the global ASSIST score which decreased by 0.37 units on average when SOCRATES Ambivalence increased by 1 unit.

Finally, to ascertain any association between changes in global ASSIST scores at 10 weeks post-admission against admission scores of relevant variables, a Spearman correlation test was conducted. No significant impact was found by self-efficacy levels, SOCRATES Taking Steps, SOCRATES Ambivalence and SOCRATES Recognition on the 10 week global ASSIST score.

Table 14

Regression Results for Imputed Data Analyses (n=142): Predicting substance misuse

		Std.				95% Confidence Interval	
Parameter	Estimate	Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	81.49	13.47	229.40	6.05	.000	54.94	108.04
Time	-32.70	3.79	261.71	-8.63	.000	-40.16	-25.24
Dosage	-10.20	4.22	230.83	-2.42	.016	-18.52	-1.89
Self-efficacy	-0.03	0.01	190.47	-3.38	.001	-0.04	-0.01
SOCRATES Taking Steps	-0.75	0.38	252.22	-1.97	.050	-1.51	0.00
SOCRATES Recognition	1.47	0.31	197.57	4.77	.000	0.86	2.08
SOCRATES Ambivalence	-0.37	0.05	144.59	-7.27	.000	-0.47	-0.27

Analyses on Data Collected at Two Time Points of Admission and 10 Weeks Post-Admission (n=98)

A mixed effect simple regression analysis was performed to ascertain the impact of time on the global ASSIST score which was significant and decreased by 42.12 units on average when comparing 10 weeks post-admission to admission (see Table 15).

Table 15

Regression Results for Non-Imputed Data Analyses (n=98): Global ASSIST vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	56.33	3.52	97	16	0	49.34	63.31
Time	-42.12	4	148.7	-10.54	0	-50.02	-34.23

Mixed effect simple regressions were run on each variable in turn to observe independent changes over time as shown in Tables 16 to 20. Self-efficacy scores increased significantly from admission to 10 weeks post-admission as did SOCRATES Taking Steps while SOCRATES Recognition scores decreased significantly over the same time period.

Table 16

Regression Results for Non-Imputed Data Analyses (n=98): Self-Efficacy vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	352.15	15.99	97.00	22.02	.000	320.41	383.90
Time	162.39	26.77	179.34	6.07	.000	109.57	215.21

Table 17

Regression Results for Non-Imputed Data Analyses (n=98): AA Affiliation vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	1.15	.19	97.00	6.06	.000	.78	1.53
Time	.37	.29	189.37	1.25	.212	-.21	.95

Table 18

Regression Results for Non-Imputed Data Analyses (n=98): SOCRATES Recognition vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	32.24	0.48	96.00	67.13	.000	31.28	33.19
Time	-1.62	0.80	178.43	-2.03	.044	-3.19	-0.04

Table 19

Regression Results for Non-Imputed Data Analyses (n=98): SOCRATES Taking Steps vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	35.55	0.49	96.00	72.60	.000	34.57	36.52
Time	2.04	0.62	181.30	3.29	.001	0.82	3.27

Table 20

Regression Results for Non-Imputed Data Analyses (n=98): SOCRATES Ambivalence vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	83.58	1.03	96.00	80.90	.000	81.53	85.63
Time	0.51	1.62	185.37	0.31	.756	-2.70	3.71

Mixed effect multiple regression analyses were also conducted to determine the impact of different covariates on the global ASSIST score, in conjunction with time (see Appendix I, Tables I1-I7). Dosage had a significant impact on the global ASSIST score which decreased by 9.52 units on average when the dosage increased by 1%. The average decrease in the global ASSIST score of 0.03 units when the self -efficacy score increased by 1 unit was also significant. There was no significant interaction between self-efficacy scores and time. The

SOCRATES Taking Steps score had a significant effect on the global ASSIST score which decreased by 0.94 units on average when SOCRATES Taking Steps increased by 1 unit. The SOCRATES Recognition score had a significant effect on the global ASSIST score which increased by 0.57 units on average when SOCRATES Recognition increased by 1 unit. There was no significant interaction between SOCRATES Recognition or taking steps scores and time. As neither previous clean time, NA/AA affiliation nor SOCRATES Ambivalence had a significant impact on the global ASSIST score over time, only the variables of dosage, self-efficacy, SOCRATES Taking Steps and SOCRATES Recognition were included in a final model for global ASSIST (together with time).

A multiple mixed effects regression looking at the adjusted effect of each of the significant variables revealed the following (see Table 21): Time had a significant impact on the global ASSIST score which decreased by 34.55 units on average when comparing 10 weeks post-admission to admission. Dosage approached significance at the 5% level (t= -1.811, p=0.072): The global ASSIST score decreased by 7.44 units on average when the dosage increased by 1%. Self-efficacy had a significant impact on the global ASSIST score which decreased by 0.02 units on average when self-efficacy increased by 1 unit. SOCRATES Taking Steps had a significant impact on the global ASSIST score which decreased by 1.37 units on average when SOCRATES Taking Steps increased by 1 unit. Lastly, SOCRATES Recognition also had a significant impact on the global ASSIST score which increased by 1 unit on average when SOCRATES Recognition increased by 1 unit. To establish whether an association existed between changes in global ASSIST scores at 10 weeks post-admission against admission scores of relevant variables, a Spearman correlation test was conducted. No significant impact was found by self-efficacy, SOCRATES Taking Steps, SOCRATES Ambivalence, SOCRATES Recognition or NA/AA affiliation on the 10 week post-admission global ASSIST score. However, the impact of previous clean time at admission on the 10 week post-admission global ASSIST score (rho= -0.1933, p=0.0711) approached significance at the 5% level.

Table 21

Regression Results for Non-Imputed Data Analyses (n=98): Predicting substance misuse

Parameter	Estimate	Std. Error	*df*	*t*	*p*	95% Confidence Interval Lower Bound	Upper Bound
Intercept	84.19	14.48	161.97	5.81	.000	55.60	112.79
Time	-34.55	4.18	157.59	-8.27	.000	-42.80	-26.30
Dosage	-7.44	4.11	140.26	-1.81	.072	-15.56	0.68
Self-efficacy	-0.02	0.01	113.50	-2.57	.011	-0.04	0.00
SOCRATES Taking Steps	-1.37	0.47	174.49	-2.94	.004	-2.30	-0.45
SOCRATES Recognition	1.00	0.30	134.07	3.30	.001	0.40	1.60

Substance use levels.

Of the 98 participants interviewed at 10 weeks post-admission, 46 reported complete abstinence. Changes in substance use (see Table 22) revealed large percentage reductions across most substances: Notably,mandrax with a 95% reduction in use, then heroin with an 89% reduction in use and methamphetamine use reduced by 73%. Use of cannabis reduced by 68% while alcohol reduced by the lowest percentage: 41%.

Table 22

Changes in Substance Use per Substance

Substance	Using Number Admission	Using Number 10 Weeks	% Change
Alcohol	68	40	41%
Cannabis	56	18	68%
Cocaine	19	3	84%
Amphetamines	55	15	73%
Inhalants	2	0	100%
Sedatives	13	2	85%
Hallucinogens	7	1	86%
Opioids	18	2	89%
Other	1	0	100%
Mandrax	21	1	95%

Comparative frequency of use of all substances between admission and 10 weeks post-admission (see Table 23) was checked. Most values decreased in all the frequency of use

categories and increased in the abstinence (Never) category. The Daily/Almost Daily category reflects large percentage decreases across all substances with 100% reduction in use of cocaine, sedatives, opioids and other drugs. Notably, however, alcohol use in the Once/Twice category of the ASSIST measuring instrument increased by 50%.

After excluding the 46 abstinent participants at 10 weeks post-admission it was established that the remaining 52 non-abstinent participants reduced their substance use significantly but the anomaly of increased occasional alcohol use in the Once/Twice category warranted further investigation. Of these 52 non-abstinent participants at 10 weeks post-admission, thirteen participants had reported use of only alcohol once or twice at 10 weeks follow-up with no other substance use reported (see Appendix J, Table J1). Of these, eight had reported use of at least methamphetamine at admission, and five had reported use of at least cannabis at admission. These results instigated similar enquiry in the Weekly Use category for only alcohol use, into which six more participants fell (see Appendix J, Table J2), with three reporting at least methamphetamine use at admission and four at least cannabis use at the same time.

For the sake of clarity, three overall levels of substance use at 10 weeks post-admission were calculated. The first included only the 46 participants who reported complete abstinence from any substance at all (47%). Secondly, the 13% of participants, who had drunk alcohol once or twice over the four weeks prior to the 10 week follow-up interview, were added to the 46 abstinent participants. This created a group comprising 60% of all participants: Either Abstinent or Used Alcohol Once or Twice. Then the 6% of participants who reported weekly use of alcohol were added to that group and a new group was formed: Abstinence and Alcohol Use Weekly or Less, which totalled 66% of all participants.

A Wilcoxon signed-rank test for the remaining 33 participants was performed which established that reduction use in this group was significant. A check of frequency of use (see Table 24) revealed a reduction of harm trend in that methamphetamine use was less frequent than at admission with a 73% reduction of use in the Daily/Almost Daily category, 25% reduction in the Weekly Use category and an increase of 200% in the Once or Twice category. Similarly, cannabis showed a daily use reduction of 58% while weekly use increased by 100%. The two participants who reported use of heroin only used the substance once or twice in the period before follow-up.

Table 23

Changes in Substance Use Frequencies for all 98 Participants

	Never			Once/Twice			Weekly			Daily/Almost Daily		
	Number		%	Number		%	Number		%	Number		%
Substance	Admission	10 Weeks	Change	Admission	10 Weeks	Change	Admission	10 Weeks	Change	Admission	10 Weeks	Change
Alcohol	30	58	93%	16	24	50%	24	12	-50%	18	4	-78%
Cannabis	42	80	90%	13	9	-31%	11	4	-64%	25	5	-80%
Cocaine	79	95	20%	9	2	-78%	5	1	-80%	2	0	-100%
Amphetamines	43	83	93%	10	9	-10%	12	3	-75%	26	3	-88%
Inhalants	96	98	2%	2	0	-100%	NA	NA	NA	NA	NA	NA
Sedatives	85	96	13%	5	2	-60%	4	0	-100%	2	0	-100%
Hallucinogens	91	97	7%	6	1	-83%	2	0	NA	NA	NA	NA
Opioids	80	96	20%	2	2	0%	NA	NA	-100%	14	0	-100%
Other	97	98	1%	NA	NA	NA	NA	NA	NA	1	0	-100%
Mandrax	77	97	26%	6	0	-100%	5	0	-100%	7	1	-86%

Table 24

Changes in Substance Use Frequencies for 33 Remaining Participants

	Never			Once/Twice			Weekly			Daily/Almost Daily		
	Number		%	Number		%	Number		%	Number		%
Substance	Admission	10 Weeks	Change	Admission	10 Weeks	Change	Admission	10 Weeks	Change	Admission	10 Weeks	Change
Alcohol	8	12	50%	7	11	57%	9	6	-33%	2	4	100%
Cannabis	7	15	114%	7	9	29%	2	4	100%	12	5	-58%
Cocaine	23	30	30%	4	2	50%	4	1	-75%	NA	NA	NA
Amphetamines	14	18	29%	3	9	200%	4	3	-25%	11	3	-73%
Inhalants	31	33	6%	2	0	-100%	NA	NA	NA	NA	NA	NA
Sedatives	28	31	11%	2	2	0%	1	0	-100%	2	0	-100%
Hallucinogens	30	32	7%	3	1	-67%	NA	NA	NA	NA	NA	NA
Opioids	26	31	19%	1	2	100%	2	0	-100%	4	0	-100%
Other	33	33	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mandrax	20	32	60%	5	0	-100%	4	0	-100%	2	1	-50%

Of the 33 participants not accounted for in the abstinence and alcohol use groups, 52% reported a 51%-99% reduction in their substance use (see Table 25). Reporting between 26% and 50% reduction in substance use were 27% of respondents. Two participants showed no change in their substance use while two increased their frequency of substance use by 1%-20%.

Table 25

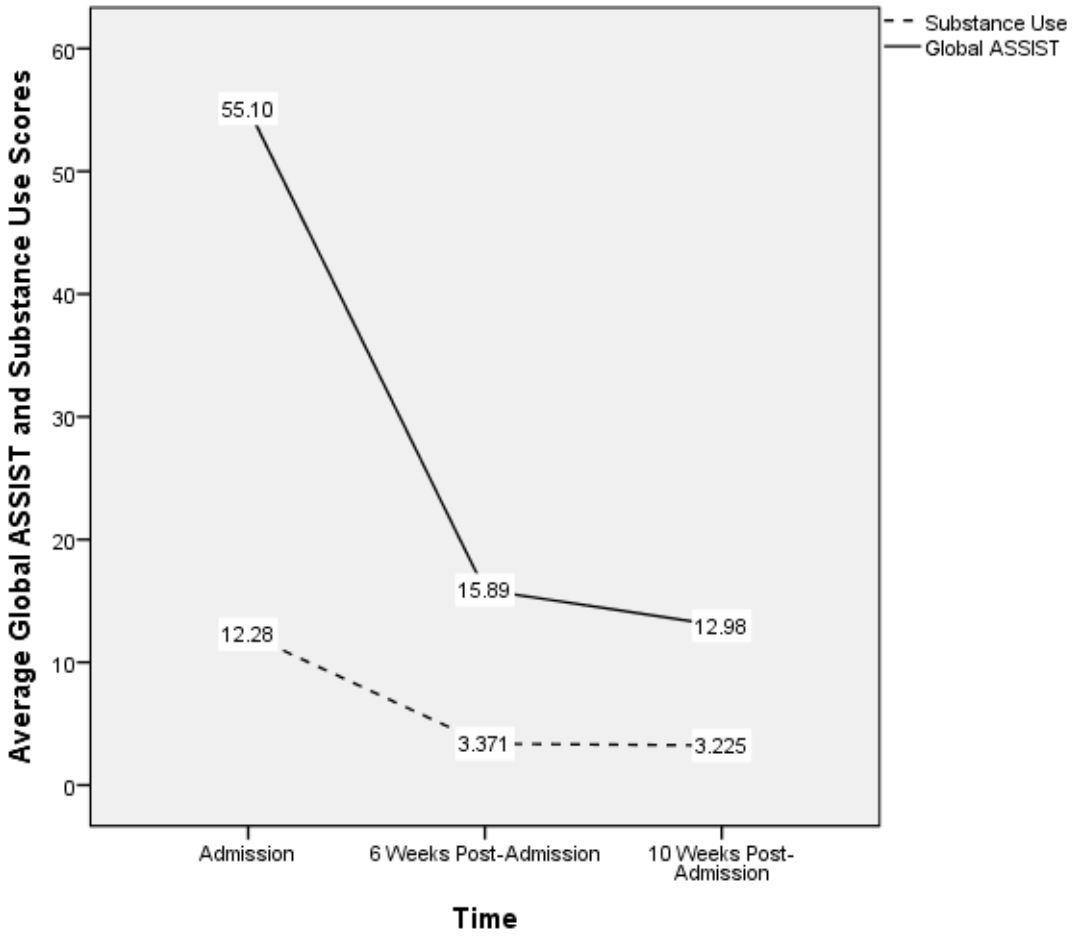
Percentage Change in Substance Use from Admission to 10 Weeks Post Admission (n=33)

% Change category	Freq.	Percent	Cum.
No change	2	6.06	6.06
1%-20% Increase	2	6.06	12.12
0%-25% Decrease	3	9.09	21.21
26%-50% Decrease	9	27.27	48.48
51%-75% Decrease	15	45.45	93.94
76%-99% Decrease	2	6.06	100
Total	33	100	

Analyses on Data Collected at the Three Time points of Admission, 6-Weeks Post-Admission and 10-Weeks Post-Admission (*n*=89)

This was the smaller section of the sample comprising participants who were contacted at all three time points. The trajectory of global ASSIST and substance use scores are displayed in figure 3. A mixed effect simple regression analysis was performed to ascertain the impact of time on the global ASSIST score and the substance use score at all three time points. The global ASSIST score significantly decreased between 10 weeks post-admission to admission by 42.12 units on average and significantly decreased by 39.21 units on average when comparing 6 weeks post-admission to admission. No significant difference was found between global ASSIST scores at 6 and 10 weeks post-admission (see Appendix K, Table K1 and Table K2). The substance use score significantly decreased between 10 weeks post-admission to admission by 9.06 units on average and also significantly decreased by 8.91 units on average when comparing 6 weeks post-admission to admission. Again, no significant difference was found between substance use scores at 6 and 10 weeks post-admission (see Appendix K, Table K3 and Table K4).

Figure 3: Average Global ASSIST and Substance Use Scores



Mixed effect multiple regression analyses were then conducted to determine the impact of covariates on the global ASSIST score, in conjunction with time (see Appendix K, Tables K5-K11). Dosage had a significant impact on the global ASSIST score which decreased by 12.83 units on average when the dosage increased by 1%. The average decrease in the global ASSIST score of 0.03 units when the self-efficacy score increased by 1 unit was significant. The SOCRATES Taking Steps score had a significant effect on the global ASSIST score which decreased by 1.02 units on average when SOCRATES Taking Steps increased by 1 unit. The SOCRATES Recognition score had a significant effect on the global ASSIST score which increased by 0.44 units on average when SOCRATES Recognition increased by 1 unit. Although all of these variables reflect change over time there were no significant interaction effects between these variables and time. As previous clean time had no impact on the global ASSIST score over time nor NA/AA affiliation, nor SOCRATES Ambivalence; only dosage,

self-efficacy, SOCRATES Taking Steps and SOCRATES Recognition were included in a final model for global ASSIST (together with time).

A multiple mixed effects regression looking at the adjusted effect of each of the significant variables was performed (see Table 26). Findings include that Time had a significant impact on the global ASSIST score: The global ASSIST score decreased significantly by 35.41 units on average when comparing 10 weeks post-admission to admission and by 34.08 units on average when comparing 6 weeks post-admission to admission. However, between 6 weeks post-admission and 10 weeks post-admission there was no significant change in global ASSIST scores.

Dosage was significant: The global ASSIST score decreased by 10.27 units on average when the dosage increased by 1%. Self-efficacy had a significant impact on the global ASSIST score which decreased by 0.02 units on average when self-efficacy increased by 1 unit. SOCRATES Taking Steps had a significant impact on the global ASSIST score which decreased by 1.28 units on average when SOCRATES Taking Steps increased by 1 unit. Lastly, SOCRATES Recognition also had a significant impact on the global ASSIST score which increased by 0.79 units on average when the SOCRATES Recognition score increased by 1 unit.

Table 26

Regression Results for Non-Imputed Data Analyses (n=89): Predicting substance misuse

Parameter	Estimate	Std. Error	*df*	*t*	*p*	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Intercept	52.82	10.94	221.87	4.83	.000	31.25	74.38
6 Weeks Post-Admission	-1.33	2.22	166.83	-0.60	.551	-5.71	3.06
10 Weeks Post-Admission	34.08	4.05	134.91	8.41	.000	26.07	42.10
Dosage	-10.27	2.84	198.81	-3.62	.000	-15.87	-4.67
Self-Efficacy	-0.02	0.01	131.86	-2.78	.006	-0.03	0.00
SOCRATES Taking Steps	-1.28	0.33	232.93	-3.86	.000	-1.94	-0.63
SOCRATES Recognition	0.79	0.17	190.01	4.59	.000	0.45	1.12

Mixed effect simple regressions were run on each variable in turn to observe independent changes at each of the follow-up time points of 6 weeks post-admission and 10 weeks post-admission as displayed in Figure 4 (self-efficacy scores were divided by 10 in order to plot them on the same scale as other variables). AA affiliation, SOCRATES Recognition and

SOCRATES Ambivalence did not change significantly at any time point. Self-efficacy scores increased significantly from admission to 6 weeks post-admission and significantly from admission to 10 weeks post-admission and SOCRATES Taking Steps scores did the same. Scores of both these variables did not change significantly from 6 weeks post-admission to 10 weeks post-admission (see Tables 27-31). The effects of all covariates on the global ASSIST score maintained the same magnitude and direction found in the analysis of the sample of 98 participants.

Figure 4: Average Variables Scores

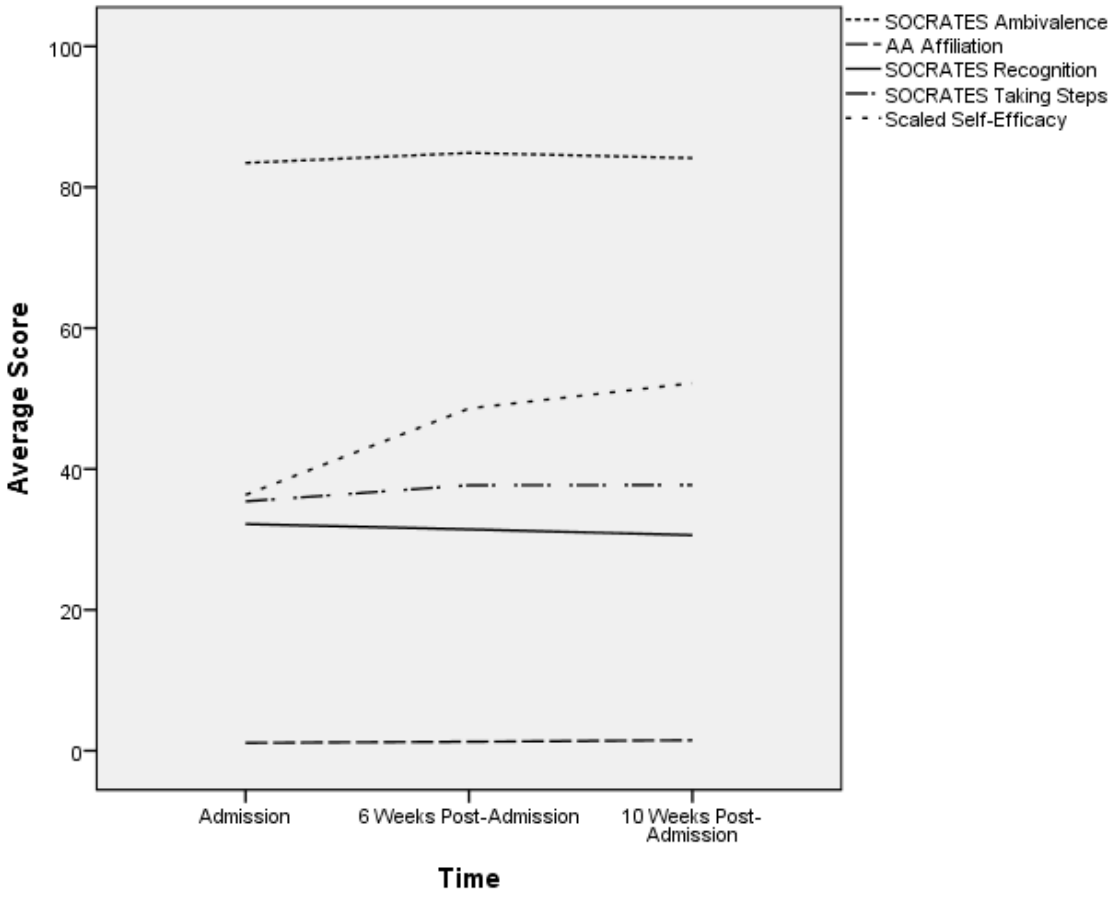


Table 27

Regression Results for Non-Imputed Data Analyses (n=89): Self-Efficacy vs. Time

Parameter	Estimate	Std. Error	*df*	*t*	*p*	95% Confidence Interval Lower Bound	Upper Bound
Intercept	486.04	12.32	88.00	39.46	.000	461.57	510.52
6 Weeks Post-Admission	35.81	25.84	135.63	1.39	.168	-15.30	86.91
10 Weeks Post-Admission	-122.78	20.77	161.77	-5.91	.000	-163.79	-81.76

Table 28

Regression Results for Non-Imputed Data Analyses (n=89): AA Affiliation vs. Time

Parameter	Estimate	Std. Error	*df*	*t*	*p*	95% Confidence Interval Lower Bound	Upper Bound
Intercept	1.28	.32	88.00	4.05	.000	.65	1.91
6 Weeks Post-Admission	.21	.39	162.23	.54	.588	-.56	.99
10 Weeks Post-Admission	-.16	.37	147.85	-.42	.674	-.90	.58

Table 29

Regression Results for Non-Imputed Data Analyses (n=89): SOCRATES Recognition vs. Time

Parameter	Estimate	Std. Error	*df*	*t*	*p*	95% Confidence Interval Lower Bound	Upper Bound
Intercept	31.40	0.87	87.00	35.89	.000	29.66	33.14
6 Weeks Post-Admission	-0.82	1.11	164.07	-0.74	.461	-3.01	1.37
10 Weeks Post-Admission	0.74	1.02	140.87	0.73	.468	-1.27	2.75

Table 30

Regression Results for Non-Imputed Data Analyses (n=89): SOCRATES Taking Steps vs. Time

Parameter	Estimate	Std. Error	*df*	*t*	*p*	95% Confidence Interval Lower Bound	Upper Bound
Intercept	37.67	0.40	87.00	94.62	.000	36.88	38.46
6 Weeks Post-Admission	0.02	0.55	173.49	0.04	.967	-1.06	1.11
10 Weeks Post-Admission	-2.26	0.66	161.35	-3.41	.001	-3.57	-0.95

Table 31

Regression Results for Non-Imputed Data Analyses (n=89): SOCRATES Ambivalence vs. Time

Parameter	Estimate	Std. Error	*df*	*t*	*p*	95% Confidence Interval Lower Bound	Upper Bound
Intercept	84.81	1.43	87.00	59.38	.000	81.97	87.65
6 Weeks Post-Admission	-0.72	1.94	172.72	-0.37	.712	-4.54	3.11
10 Weeks Post-Admission	-1.42	1.81	163.71	-0.79	.433	-4.99	2.15

To establish any association between global ASSIST scores at 10 weeks post-admission against self-efficacy scores at 6 weeks post-admission a Spearman correlation test was conducted. A significant negative impact was found by self-efficacy levels at 6 weeks post-admission on the 10 week global ASSIST score (rho= -0.343, p=0.001).

Treatment Services Assessment

The majority of all participants strongly agreed with all statements put to them from the Treatment Services Assessment Questionnaire (see Table 32). The most mixed response was to question 6 relating to HIV risk-reduction with 56.12% of participants strongly agreeing and 10.2% disagreeing with the statement. Question 1 regarding waiting-time for services had relatively fewer responses in the Strongly Agree category (67.35%) as did question 4 concerning adequate time spent with participants by Centre staff (71.43%). The highest number of responses in the Strongly Agree category was to question 7, which pertains to recommendation of the Centre to others, at 85.71%. Respondent levels in the Disagree category were generally low (below 7% - bar Question 6) as were levels in the Somewhat Agree categories for all questions.

Table 32

Response to Treatment Services Assessment (n=98)

Question Number	Question	N/A	Disagree	Somewhat Agree	Agree	Strongly Agree	Missing	Mean (Std Dev.)
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
1	The amount of time I had to wait to get services was acceptable to me.	1 (1.02)	1 (1.02)	2 (2.04)	27 (27.55)	66 (67.35)	1 (1.02)	3.61 (0.05)
2	The staff treated me with respect.	1 (1.02)	0 (0)	1 (1.02)	17 (17.35)	78 (79.59)	1 (1.02)	3.76 (0.04)
3	The staff were sensitive to my background.	1 (1.02)	2 (2.04)	1 (1.02)	16 (16.33)	77 (78.57)	1 (1.02)	3.71 (0.05)
4	The staff spent enough time with me.	1 (1.02)	3 (3.06)	2 (2.04)	21 (21.43)	70 (71.43)	1 (1.02)	3.61 (0.06)
5	I had access to all the services I needed for my recovery.	1 (1.02)	6 (6.12)	3 (3.06)	14 (14.29)	73 (74.49)	1 (1.02)	3.57 (0.06)
6	This Centre helped me reduce my HIV Risk.	3 (3.06)	10 (10.2)	6 (6.12)	23 (23.47)	55 (56.12)	1 (1.02)	3.21 (0.08)
7	I would recommend this service to others.	1 (1.02)	4 (4.08)	1 (1.02)	7 (7.14)	84 (85.71)	1 (1.02)	3.74 (0.05)

Responses to Question 8 (see Table 32) asking for programme improvement suggestions were extremely positive with 79.53% of participants expressing satisfaction with the programme as it is. The most frequent suggestion was to extend the time of individual counselling sessions or to make more of them available (7.14%). In a similar vein, 4.08% of participants suggested that the programme length be extended. The same amount wanted the format of group sessions to be addressed, e.g. to ask each person in turn for input, and 3.06% suggested the employment of addicts in recovery as counsellors.

Table 33

Answers to Question 8 by Percentage: How in your opinion could this programme be improved?

Response	(%)
No improvement necessary with unsolicited praise for the entire programme (wonderful, excellent, superb, good)	68.31
No improvement necessary	11.22
Would like to see more advertising or marketing of the Centre	7.14
Would like more time in individual sessions or more individual sessions available	7.14
Would like more outlets in more locations	6.12
Would like the programme length to be extended	4.08
Would like attention to be paid to the format of group sessions	4.08
Would like some addicts in recovery as counsellors at the Centre	3.06
Would like more sensitivity in reception staff	1.02
Would like sensitivity levels of counsellors to be addressed	1.02

Note. Comments not relating to the improvement of the programme itself but were general suggestions (e.g. Marketing, advertising, more locations) were listed in this table as well as recorded as a 'no improvement necessary' response).

CHAPTER SIX

Discussion

Baseline Characteristics

Substances of choice.

Popular drug choices of participants followed established treatment admission trends, with methamphetamine use of 39% in the High-Risk category far exceeding use of any other drug in the In-Treatment category: Western Cape treatment intake statistics reflect an average of 37% of clients who reported methamphetamine as their primary drug of choice during 2011 (Dada et al., 2011). Heroin use at High-Risk (34%) in the Assessment-Only category far exceeded that of the next most used drug, methamphetamine, at 23%. No literature relating to this scenario was found, but in general, in-treatment retention rates for heroin are notoriously low. Davoli, Perucci, Pasqualini and Bargagli (1998) report retention rates for heroin users in a drug-free programme of 15% at one year follow-up while another study found that most of the 60% of heroin users who relapsed in their study did so soon after treatment (Gosssop, Stewart, Browne, & Marsden, 2002).

Poly-substance use at admission was high with 35% of participants using two or more substances in the Medium-Risk category and 18% using two or more substances in High-Risk categories. Again these figures reflect a Western Cape trend displaying high levels of poly-substance use with 43% of patients on intake reporting abuse of more than one substance in 2010 (Plüddemann et al., 2010).

Demographics.

An overview of baseline characteristics of In-Treatment and Assessment-Only groups yielded interesting results: Low representation of Black participants compared to Coloured and White participants reflected a similar trend to treatment intake demographics of the Centre. A study based on a national survey of 15, 846 participants found a significant difference between White and Coloured males' actual illicit drugs usage compared to Black males, with White and Coloured males both more than twice as likely to use as their Black counterparts (Njuho & Davids, 2010). Trends in admissions across the country in 2011 reflect a lower proportion of Black/African patients in treatment than would be expected by underlying demographics (Dada et al., 2012), while another study found a very low prevalence of hazardous use of substances among Black women (Ward et al., 2008). However, even taking these factors into

account, Black clients are under-represented at this centre. This is in line with Myers and Parry's (2005) findings which reflect an under-utilization of clinical treatment services by Black South Africans. That study lists barriers to treatment as, lack of treatment personnel with similar cultural and language backgrounds; the stigma associated with seeking treatment; and service and transportation costs. However, the comparatively high rates of retention in treatment of Black clients (20%) compared to other population groups in our study (Coloured; 32%: White; 24%) may be indicative of focused efforts by the Centre to accommodate Black South Africans: Black, Xhosa-speaking applicants for jobs at the Centre are strongly favoured with one Black, Xhosa-speaking counsellor currently employed at the Centre. This counsellor and another Black, Xhosa-speaking counsellor from the Mitchell's Plain location are currently undertaking a community survey and an awareness initiative in historically Black, Xhosa-speaking communities.

As the literature indicates that treatment retention rates are similar for men and women (Hser, Evans, & Huang, 2005; Greenfield et al., 2007) the lower proportional loss of women (18%) to men (31%) after assessment may also be suggestive of the success of measures already taken at the centre reflecting particular sensitivity towards women: Women clients are referred to a female therapist unless a male therapist is specifically requested (change to a female therapist is permitted at any stage); a specific women's programme is offered, in particular an exclusive women's group, which includes only women clients and only women counsellors as facilitators; and pregnant women receive priority service at intake - i.e., pregnant women are accommodated at the next intake regardless of current bookings. It may also be possible that the counselling style of MI holds a particular appeal for women, as a United Nations report (2004) relating to substance abuse treatment for women specifically advocates for implementation of a programme which includes motivational enhancement counselling.

Gender distribution was uneven with 3 males for every female in the In-Treatment group. These figures are indicative of gender admission trends at the centre and reflect findings of a study investigating correlates of substance use which show a higher prevalence for substance use in men (Ward et al., 2008). In addition, the lower numbers of women admitted in our study are in keeping with findings of a study investigating gender differences in barriers to substance use treatment (Myers, Louw, & Pasche, 2011). These include that women share a core set of predictors with their male counterparts in relation to barriers to treatment utilization but are more vulnerable to barrier effects and therefore less likely to seek treatment. Both genders, for example, consider financial accessibility a barrier to treatment,

but women are more cognizant of other competing financial needs. Although there is no special rate at the Centre for women, all clients have the option of applying for a fee discount or free service by completing a financial assessment form. The same study identified a stronger association in women than men of treatment facilities awareness with treatment utilization (Myers et al., 2007), so a suggestion for target interventions emanating from that study's findings could possibly be to use community-based outreach workers to increase women's awareness, in particular, of the Centre.

Summary of Findings

Analyses performed on the sample of all 142 In-Treatment clients with inserted baseline data replacing missing data reflected a significant reduction in substance use and substance dependence. It was found that dosage, self-efficacy, SOCRATES Taking Steps and SOCRATES Ambivalence were significantly associated with global ASSIST scores in a negative direction, meaning that substance dependence decreased when these variables' scores increased. SOCRATES Recognition scores were significantly positively associated with substance dependence which increased when SOCRATES Recognition levels decreased. These findings were generally in line with those of tests run on data collected at two time points, without imputed data, for the 98 participants who both received the programme and who were contacted at follow-up. This alignment in findings suggests that there are positive outcomes for participants who choose to be exposed to the treatment programme as the association is so strong that even 'diluted' by inserted baseline data it remains significant. The only exceptions were that SOCRATES Ambivalence was significantly negatively associated with global ASSIST scores in the inserted baseline data sample but not in the 98 participant two time-point group. The fact that dosage was significantly negatively associated with global ASSIST scores in both the 142 and 89 participant groups, and approached significance in the 98 participant group, was particularly encouraging.

Analyses of the three time-point follow-up sample (n=89) revealed similar results to that of the larger (n=98) sample in that in both, the effects of all covariates on the global ASSIST score maintained the same magnitude and direction. Differences in variable scores at significant levels between the time points of 6 weeks post-admission and 10 weeks post-admission were found in self-efficacy scores as well as in global ASSIST scores. Substance dependence dropped significantly at 6 weeks post-admission and that decrease was maintained at the 10-week post admission follow-up, indicating both that participants reduced substance dependence soon after admission into the programme and maintained that

reduction through to at least 10 weeks post-admission. The significant negative association of self-efficacy scores at 6 weeks after admission with substance use levels at 10 weeks post-admission was an extremely relevant finding from a possible treatment tool perspective. As the results of all three analysed groups followed the same trend, and, as the feasibility of generalizing the two time-point group's (*n*=98) results to the remainder of the sample has already been established, only the results of this group (*n*=98) are addressed in any depth in this discussion.

The 46% complete abstinence and significant reduction of substance use together with significant increases in self-efficacy and SOCRATES Taking Steps from admission to 10 weeks post-admission were encouraging. So too were the results of the adjusted effects regression indicating that these same variables were significantly and positively associated with reduced substance dependence scores. Also encouraging was the association of dosage on substance dependence, which approached significance at 0.72%. This relationship, especially in the context of dosage's significant association with substance dependence levels in the other two analyses performed, offers tentative evidence of a positive association between amount of exposure to the treatment programme and levels of substance dependence and tentatively suggests that it is possible that it is the programme that is making the difference in clients' substance dependence levels. The SOCRATES Taking Steps association with reduced substance levels was also a finding of particular interest in terms of that measure's possible future use as a treatment tool to predict successful change in clients' substance use.

Outcomes

Substance use.

No other treatment outcome study relating to our study's follow-up intervals, treatment components, counselling style and length of treatment programme in an out-patient context was found with which to directly compare these results. However, meta-analytic data resulting from investigations of the efficacy of motivational interviewing, and analysed by Burke et al. (2003), gives some idea of expectations of substance use outcomes relating to motivational enhancement interviewing techniques. Although abstinence is the most stringent criterion for treatment outcome (Gossop et al., 2002), abstinence and noticeable improvement in substance use were frequently conflated categorically across the seven studies incorporated in that meta-analysis, and included follow-ups from four weeks to four years post-treatment in a (Burke at al., 2003). Our study's results of 47% abstinence, 13% once or twice alcohol

use over the follow-up period, and significant reduction of substance use of the remainder of the participants, compared extremely favourably to Burke and colleague's findings that 54% of participants receiving stand-alone adapted motivational interviewing interventions experienced overall improvement in alcohol and drug use. Even the remaining 53% of participants in our study, who did not report abstinence at the 10-week follow-up period, had significantly reduced their substance use, offering further evidence of outcomes favourably comparable to Burke and colleagues' (2003) findings.

All participants stopped using heroin on a daily or almost daily basis, and the 89% proportion of participants who abstained completely from heroin is an excellent outcome and an indication of the effectiveness of the programme. However, it is practical to exercise caution before extrapolating these results to long-term expectations as the literature reveals high rates of relapse over time in relation to this drug. One study found that, post-treatment, abstinence from heroin was consistently significantly lower at up to 1 year follow-up than for any other drug. However, more than half of heroin users who relapsed after residential treatment did so within the first three days after discharge and 75% within one week (Gossop, Stewart, Browne, & Marsden, 2002). Our study's last follow-up time-point was at least four weeks after completion of treatment so the outcome results of this centre considerably exceed those of Gossop and colleagues' (2002) study. A United States national treatment outcome research study, which included residential programmes, found that 28.6% of its participants were abstinent at the 1-year mark (Gossop, Marsden, Stewart, & Kidd, 2003).

Methamphetamine-related abstinence was good with a 73% abstinence rate at 10 weeks post-admission: Daily or Almost Daily use reduced by 88% and weekly use by 75%. Participants using methamphetamines on an irregular basis appear to have continued to do so with only a 10% change reflected in the Once/Twice category. These results compare favourably with outcomes of participants in an intensive 16 week out-patient programme, where findings include that 58.8% of methamphetamine users used both drugs and alcohol during treatment (Rawson, Gonzales, Obert, McCann, & Brethren, 2005). Our findings, therefore, reflect well on the Centre in that this achievement easily falls within abstinence rates achieved by out-patient programmes elsewhere. Considering the prevailing concerns relating to methamphetamine use and its social and health implications discussed earlier, these results are particularly encouraging.

High abstinence levels were also reported for cocaine with an improvement of 84% in abstinence and sedatives with an 85% increase in abstinence. Interestingly, alcohol use in the Once or Twice category actually increased by 50%, although there were substantial declines

in use in the Daily/Almost Daily (78%) and Weekly (50%) categories for alcohol. It seems logical to assume that some participants replaced their illicit drug-of-choice with alcohol on occasion. However much this reduced drinking pattern may be considered to fall within socially normative parameters - the guideline for "moderate" drinking limits by the United States National Institute on Alcoholism and Alcohol Abuse is ≤1 standard drink per day for adult women and for anyone over age 65, and ≤2 standard drinks per day for adult men (Whitlock et al., 2004) - the substance use and abuse history of participants flags this as a matter of concern. Also, longer-term follow-up would be necessary to reveal whether this pattern of drinking was sustained. This drinking behaviour seems analogous to drug substitution, a practice advocated in some harm reduction therapies, where more harmful substances are replaced with either other perceived less harmful substitutes which may be considered acceptable or more moderate use of the drug of choice (Reiman, 2009).

Dosage.

The significant association of programme dose with the global ASSIST score both in the group of 89 participants who were interviewed at all three time points and in the full in-treatment sample of 142 participants, makes the finding of the association of dosage with the global ASSIST score approaching significance in the group of 98 participants particularly encouraging. This tentatively suggests that the more exposure clients have to the treatment programme, the more their substance dependence is reduced. An average period of time in an out-patient drug treatment programme is recommended to be of no less than 6 months with a minimum of attendance of three sessions per week (Simpson et al., 1997). As this is consistent with findings that more time in treatment is associated with better outcomes (Simpson et al 1997) and that a significant positive relationship between higher treatment doses and better study outcomes exists (Burke et al. 2003), it is important that the Centre continues to focus on retention of clients in the programme.

Self-efficacy.

The significant increase of self-efficacy scores from admission to 10 weeks post-admission and the significant association of self-efficacy scores over time with the reduction of global ASSIST scores imply successful application of programme theory by Centre staff. The significant association found by self-efficacy levels at 6 weeks post- admission with 10 week post-admission substance use scores (Question 2) support findings of Goldbeck, Myatt and Aitchison (1997) that end of treatment efficacy levels are predictive of reduced substance use levels at 12-week follow-up (marginally longer than in this study). Similarly, these results

support findings that higher levels of abstinence self-efficacy are associated with better short-term substance abuse outcomes, while lower levels are linked to higher risks of short-term relapse (Moos & Moos, 2007) and higher levels of self-efficacy are associated with less frequent substance use at both 1 and 6 months follow-up after end-of-treatment (Morgenstern et al., 1997). In a sample of 2, 967 substance abusing males, high self-efficacy levels at end-of-treatment were the strongest predictor of abstinence at 1-year post treatment with 100% self-efficacy showing the greatest association with abstinence for the same time period (Ilgen, McKellar, & Tiet, 2005). These authors comment on the usefulness of assessing self-efficacy levels in order to identify participants who will be less or more likely to experience positive outcomes after treatment, underscoring the possible utility of this questionnaire as a tool to assess the need for clients to participate in the Centre's aftercare programme.

SOCRATES sub-scales.

Recognition.

Levels of SOCRATES Recognition are not expected to increase over time as these levels are positively associated with problem severity and problem severity is expected to decrease. Therefore the significant positive relationship between SOCRATES Recognition scores and global ASSIST scores is in keeping with Miller and Tonigan's (1996) assertions that higher levels of recognition of a drinking or drugging problem imply greater problem severity. This relationship remained stable over time, indicating that the Recognition sub-scale could be a useful additional treatment tool for counsellors to determine problem severity, as well as to address clients' levels of recognition of their problem.

Taking Steps.

The fact that the Taking Steps score increased significantly between admission and 10 weeks after admission tentatively implies again the successful application of programme theory as levels of this sub-scale of motivational levels increased in clients. The significant inverted relationship between SOCRATES Taking Steps and reduced drinking or drugging over time is also in keeping with Miller and Tonigan's (1996) findings that high Taking Steps scores are predictive of successful change and this again offers counsellors the opportunity to gauge motivation levels of clients before and during their treatment process to assess progress.

Ambivalence.

The intention of the SOCRATES motivation for change assessment is to be of practical use in a clinical setting as well as in a research context and could reflect the impact of the intervention in all three of the SOCRATES sub-scales (Miller & Tonigan, 1996). These

authors make no predictive claims relating to their Ambivalence measurement and advise only that Ambivalence scores indicate levels of openness to reflection. Ambivalence is regarded as a core concept in the treatment programme at the Centre, being as it is a core concept of MI, and regarded as the primary barrier to change in a substance use context (Cloud, 2006). The MI counselling style focuses on resolving ambivalence which, therefore, makes the standardized measurement of this construct a useful tool for Centre staff to assess the levels of ambivalence presenting in their clients at admission and at any stage throughout the treatment programme. In keeping with claims of Cloud et al. (2006), these levels should change as ambivalence is resolved. However, another possible explanation postulated by programme theory and supported by Cloud et al. (2006) is that ambivalence is a constantly fluctuating state and consequently is not expected to follow a linear path to resolution. Other explanations for this lack of significant change could pertain to the ambiguity of the ambivalence-related questions acknowledged by Miller and Tonigan (1996) and the possibility that the en masse restructure of the ambivalence variable did not accurately reflect levels of ambivalence.

Previous clean time.

The negative association between previous clean time at admission and the 10 week post-admission global ASSIST score marginally above the 5% level of significance tentatively suggests that the Centre staffs' hypothesis was well-founded. There was a dearth of literature on the association of previous clean time and treatment outcomes. However, it does make intuitive sense that longer clean time should be predictive of treatment success. Centre staff expressed their expectations of this association based on observations of successful outcomes of clients in treatment with previous clean time. Some insight into previous clean time and its relationship with reduced substance use or abstinence can be inferred by studies relating to relapse: A comprehensive study into the trajectory of recovery for participants abusing cocaine reports the path of a cocaine abuser as a sequence of transitions. These transitions may include establishing abstinence, lapse and relapse or any permutation of these. In that study, 81% of participants (not on the incentive programme) relapsed and 17% re-established abstinence but only after either relapsing or experiencing a lapse (Milby et al., 2004). Conversely then, those substance users who successfully eventually established abstinence in that study, had experienced periods of clean time before. This offers some support to Centre staffs' theory that clients are more likely to have successful substance use outcomes after experiencing previous clean time.

NA/AA affiliation.

Our findings of no significant change of NA/AA affiliation over all time points, and no significant effect of NA/AA affiliation scores on the global ASSIST scores, raises some questions. The most important of these is why were clients so laggardly in attending meetings and pursuing affiliations with AA/NA both during and after treatment? A review of the literature by Cloud et al. (2006), relating to 12-Step compliance after treatment, indicates that most subjects drop out of, or sporadically attend 12-Step programmes after end-of-treatment. In the light of all the positive associations found in the literature between NA/AA affiliation and; sustained motivation (Morgenstern, Labouvie, Mcrady, Kahler, & Frey, 1997); increased self-efficacy, changes in social network support and improvement in substance abuse problems (Laffay, McKellar, Ilgen, & Moos, 2008); extreme attitude changes (Cook, 1988); and good recovery outcomes (Piedmont, 2004), further investigation into possible reasons for this lack of change seemed warranted.

A study comparing the efficacy of a directional approach against a motivational interviewing approach to facilitating involvement in AA in the context of a skills-building treatment programme, yielded results possibly pertinent to our study. Findings include that exposure to the directional approach resulted in more active involvement with AA and more days of abstinence at the 12 month follow-up than in participants exposed to the motivational enhancement approach. The motivational enhancement approach had no impact on AA-related variables. Possible reasons cited were that there was less direct exposure to AA-related concepts in the motivational enhancement condition, compared to the directional approach, and the percentage of AA-related material offered in the directional condition was almost twice as much as that offered in the motivational enhancement approach. The directional counselling condition was also more successful than the treatment-as-usual condition in maintaining AA attendance, and participants in the directional approach condition reported more days abstinent than the treatment-as-usual group (Walitzer, Dermen, & Barrick, 2008). Another study compared outcomes of patients from 'intensive referral' and 'standard referral' treatment conditions (Timko et al., 2006). In the first condition both client and counsellor were actively involved in initiating contact with 12-Step self-help groups, which included arranging to attend meetings, arranging initial sponsors and working through a journal kept by clients of concerns and experiences within the group. This was in addition to receiving support offered under standard referral conditions, which included descriptions of self-help meetings, schedules of self-help meetings, and encouragement to attend 12-Step self-help meetings. The intensive referral group reported significantly more 12-Step

involvement and more improvement in alcohol and drug use at 6 months after treatment than the standard referral group.

Considering that NA/AA meetings are free of charge (apart from voluntary contributions) and the target populations of the Centre are those living in low socio-economic areas with limited financial capacity, it is extremely important that clients be introduced to the benefits of NA/AA affiliation before end of treatment. Read et al. (2001) advise referring clients to 12-Step programmes as part of a substance abuse treatment programme for the combined reasons of affordability and effectiveness, while Humphreys & Moos (2007) suggest that attending 12-Step self-help groups not only improves post-treatment outcomes but reduces the cost of continuing care to government.

Based on interim findings of this report, the Centre has already instituted procedures relating to following up clients' attendance at NA /AA, and plans are well underway for the Centre to host NA/AA meetings on its premises. Attendance of these meetings will be compulsory and incorporated as another treatment component into the programme. These NA/AA meetings may strengthen both the likelihood of achieving abstinence, but particularly the likelihood of clients' maintaining that abstinence and should address issues around the reduction of levels of abstinence in the Alcohol category.

Treatment services assessment.

The overwhelmingly positive responses to the Treatment Services Assessment questionnaire were indicative of clients' personal satisfaction at levels of service received in all categories addressed. The majority of all participants strongly agreed with all statements put to them. Disagree responses from clients relating to not having enough time spent with them were in fact positive from the perspective that respondents generally wanted the programme expanded to incorporate more or longer individual sessions. The highest number of responses in the Strongly Agree category was to Question 7, which pertains to recommendation of the Centre to others (85.71%), while respondent levels in the Disagree category were generally low (below 7%). The mixed response relating to the HIV risk-reduction questionnaire may have been due to embarrassment at perceived admission of promiscuity to the interviewer. Suggestions for improvement were generally related to marketing issues and not programme problems per se. Eighty percent of participants interviewed felt that the programme works well as it is and that no improvement was necessary.

Limitations

This was not an experimental study, i.e. no equivalent randomized control group without exposure to treatment was used. As causal relations cannot be firmly inferred by data from a non-experimental study, our findings remain tentative. However, as almost all findings were in line with both programme and social science theory, it is likely that the programme was responsible for the changes found.

These findings are limited to the Cape Town Drug Counselling Centre Adult Treatment Programme and therefore are not generalizable to any other treatment population. The short duration of follow-up is also a limitation of this study as it is possible that findings may have differed after a longer period of time had elapsed.

Due to budgetary constraints preventing toxicological screenings as confirmation of participants' claims of abstention, reliance on self-report from participants was a necessity. Simpson (1993) mentions a methodological vulnerability of the longitudinal Drug Abuse Reporting Programme established in the 1970's as use of self-report data from unreliable sources, namely drug addicts. This is a problem raised in other studies as a methodological limitation (Bodin et al.,2006; Winters et al., 2000). However, Del Boca & Brown (1996) found that in the context of addicts' or alcoholics' reputed unreliability and questionable credibility, considerations of, for example, the participants' level of sobriety should enable the interviewer to structure the assessment process to maximize reliability and validity of the instruments of measurement. Confirmatory evidence of respondent reliability was found in a large sample of US Project MATCH, where participants' self-reported drug use was highly consistent with the results of urine drug screens. In addition it was found that discrepancies were often due to negative screening results which contradicted participants reported drug or alcohol use rather than the reverse (Project MATCH Research Group, 1997a). Although only self-report data was used, the measuring instruments utilized in this study were standardized and have already demonstrated validity and reliability in other studies, as well as being widely used in the field of substance use.

Despite these limitations this study provides evidence of significant positive outcomes, both in the reduction of substance use and substance dependence, and in the significant change of motivational levels and self-efficacy in expected directions. Of particular interest too, is evidence of support of programme and social science theory, which postulates relationships between levels of different psychological variables and substance use outcomes.

Recommendations

Outcomes of this Centre's programme were good in most of the areas under evaluation. The programme appears to be having an effect and suggestions put forward are offered only to possibly strengthen the existing programme. Based on this study's interim findings, low levels of involvement in NA/AA affiliation have already been constructively addressed by the Centre, as detailed above.

The Centre may find measures of recognition of problem severity and taking steps towards change useful treatment tools. However, the SOCRATES measurement of ambivalence should only be used to individually assess clients and is not recommended for any contribution towards composite scores of multiple clients. The Drug Confidence questionnaire measuring levels of self-efficacy may be of considerable use to the Centre in assessing the potential of clients to maintain their outcomes success after treatment, and consequently, the appropriateness of encouraging their participation in after-care treatment. These tools may also be useful clinically, by identifying areas that may need additional input.

In keeping with the advice of Myers and colleagues (2007), community-based outreach programmes already put in place by the Centre could be augmented with the aim of particularly increasing women's awareness of treatment options available to them.

Although the Centre uses a substance use feedback form to raise discrepancy in clients presenting for treatment, this consists of questions developed by the Centre for this purpose. A standardized measuring instrument such as the ASSIST questionnaire, used in this study, may be of additional therapeutic benefit. This questionnaire incorporates a broad range of drugs listed separately to comprehensively gauge levels of poly-substance use, which could optimize the opportunity for counsellors to raise discrepancy in their clients by illustrating to them the prevalence and consequences of their behaviour.

Conclusion

The data indicate significant changes in participants' self-report over time, and these changes suggest that the programme's work has been valuable. Individual substance use reduction was high and the 47% abstinence achieved, in combination with the significant reduction of substance use of the remaining participants, compared extremely favourably with outcomes of other motivational interviewing outcomes studies. It can be tentatively suggested then that there appears to be a treatment programme effect, which is illustrated by the combination of successful and reduced substance use outcomes, and severity of dependence, positively linked to the amount of exposure to treatment. In addition, the expected changes, predicted by

programme and social science theory, in elements of the causal chain mechanism, namely self-efficacy and levels of motivation, and their associations with reduction in substance use and substance dependence offer further evidence of programme efficacy. Although NA/AA affiliation did not increase as expected this shortcoming made us more confident that changes found were due to the treatment programme and not any other competing recovery mechanism. All of these programme effects are particularly encouraging in the context of the relative cost-effectiveness and short duration of the treatment programme as well as the high levels of satisfaction of participants with the treatment programme.

References

Bodin, M. C., & Romelsjo, A. (2006). Predictors of abstinence and non-problem drinking after 12 step treatment in Sweden. *Journal of Studies on Alcohol*, *67*, 139-147.

Burke, B. L., Arkowitz, H., & Menchola, M. (2003). The efficacy of motivational interviewing: A meta-analysis of controlled clinical trials. *Journal of Consulting and Clinical Psychology, 71,* 843-861.

Cape Town Drug Counselling Centre. (2010). *25th Anniversary: Annual Report* [Brochure]. Cape Town, South Africa: Author.

Cape Town Drug Counselling Centre.(2012). *Annual Report* [Brochure]. Cape Town, South Africa: Author.

Cloud, R. N., Besel, K., Bledscoe, L., Golder, S., McKiernan, P., Patterson, D., & Ziegler, C. H. (2006). Adapting motivational interviewing strategies to increase posttreatment 12-step meeting attendance. *Alcoholism Treatment Quarterly, 24,* 31-53.

Cohen, J. B., Dickow, A., Horner, K., Zweben, J. E., Balabis, J., Vandersloot, D., & Reiber, C. 2003). Abuse and Violence History of Men and Women in Treatment for Methamphetamine Dependence. *The American Journal on Addictions, 12,* 377-385.

Cook, C. C.H. (1988). The Minnesota Model in the management of drug and alcohol dependency: Miracle, method or myth? Part 1. The philosophy and the programme. *British Journal of Addiction, 83*, 625-634.

Copello, A. G. ,Velleman, R. D. B., & Templeton, L. J. (2005). Family interventions in the treatment of alcohol and drug problems. *Drug and Alcohol Review, 24,* 369-385.

Dada, S., Plüddemann, A., Parry, C., Bhana, A., Vawda, M., Perreira, T., Nel, E., (…) Weimann, R. (2011). Monitoring alcohol and drug abuse trends in South Africa. *SACENDU.* Retrieved from *http://www.sahealthinfo.org/admodule/sacendu/SACENDUBriefDec.pdf.*

Dada, S., Plüddemann, A., Parry, C., Bhana, A., Vawda, M., & Fourie, D. (2012). Alcohol and drug abuse trends: July-December 2011. *South African Community Epidemiology Network on Drug Use (SACENDU). Update (June 2012).*

Davoli, M., Perucci, C. A., Pasqualini, F., & Bargagli, A. M. (1998) Retention in treatment of heroin users in Italy: the role of treatment type and of methadone maintenance dosage. *Drug and Alcohol Dependence, 52,* 167-171.

Del Boca, F. K.., & Brown, J.M. (1996). Issues in the development of reliable measures in addiction research: Introduction to project MATCH assessment strategies.

Preview. Psychology of Addictive Behaviors, 10, 67-74.

Department of Social Development. South Africa. (2005). National Drug Master Plan 2006-2011. Government Publication.

Digiusto, E., Panjari, M., Gibson, A., & Rea, F. (2005). Follow-up difficulty: Correlates and relationship with outcome in heroin dependence treatment in the NEPOD study. *Addictive Behaviours, 31,* 1201-1210.

Edwards, G., Marshall, E. J., & Cook, C. C. (1997). *The treatment of drinking problems: A guide for the helping professions.* New York: Cambridge University Press.

Ghodse, H. (1995). *Drugs and addictive behaviour: A guide to treatment (*(2nd ed.). Oxford, England: Blackwell Science Limited.

Goldbeck, R., Myatt, P., & Aitchison, T. (1995). End-of-treatment self-efficacy: a predictor of abstinence. *Addiction, 92,* 313-324.

Gossop, M., Marsden, J., Stewart, D., Browne, N., & Marsden, J. (2002). Factors associated with abstinence, lapse or relapse to heroin use after residential treatment: protective effect of coping responses. *Addiction, 97,* 1259-1267.

Gossop, M., Marsden, J., Stewart, D., & Kidd, Tara. (2003). The national treatment outcome research study (NTORS): 4-5 year follow-up results. *Society for the Study of Addiction to Alcohol and Other Drugs, 98,* 291-303.

Greenfield, S.F., Brooks, A. J., Gordon, S. M., Green, C. A., Kropp, F, McHugh, R. K., Lincoln, M. (…) Miele, G. M. (2007). Substance abuse treatment entry, retention, and outcome in women: A review of the literature. *Drug and Alcohol Dependence, 81*, 1-21.

Hansten, M. L., Downey, L., Rosengren, D. B., & Donovan, D. M. (2000). Relationship between follow-up rates and treatment outcomes in substance abuse research: more is better but when is "enough" enough? *Addiction, 95,* 1403-1416.

Harker, N., Kader, R., Myers, B., Fakier, N., Parry, C., Flisher, A.J., Peltzer, K., Ramlagan, S., & Davids, A. (2008) Substance abuse trends in the Western Cape: a review of studies conducted since 2000. (Report No 5132). Pretoria: Human Sciences Research Council.

Hettema, J., Steele, J., & Miller, W. R. (2005). Motivational interviewing. *Annual Review Clinical Psychology, 1,* 91-111.

Hubbard, R. L., Craddock, S. G., Flynn, P. M., Anderson, J., & Etheridge, R. M. (1997).

Overview of 1-year follow-up outcomes in the drug abuse treatment outcome study (DATOS). Psychology of Addictive Behaviors, *11, 261-278.*

Humphreys, K., Kaskutas, L. A., & Weisner, C. (1998). The Alcoholics Anonymous Affiliation Scale: Development, reliability, and norms for diverse treated and untreated populations. *Alcoholism: Clinical and Experimental Research, 22*, 974-978.

Humphreys, K., & Moos, R. H. (2007). Encouraging post-treatment self-help group involvement to reduce demand for continuing care services: Two year clinical and utilization outcomes. *Alcoholism: Clinical and Experimental Research, 31,* 64-68.

Holleran-Steiker, L.K., (2009). Motivational interviewing and addiction: An interview with Melinda Hohman. *Journal of Social Work Practice in the Addictions, 9*, 236-239.

Hser, Y., Evans, E., & Huang, Y. (2005). Treatment outcomes among women and men methamphetamine abusers in California. *Journal of Substance Abuse Treatment, 28,* 77-85.

Ilgen, M., McKellar, J., & Tiet, Q. (2005).*Abstinence self-efficacy and abstinence 1 year after substance use disorder treatment, 73,* 1175-1180.

Khantzian, E. J., Golden-Schulman, S. J., & McAuliffe, W. E. (2004).Group Therapy. In M. Galanter,, & H. D. Kleber (Eds.) *The American psychiatric publishing textbook of substance abuse treatment (pp. 405-415).* Washington DC: American Psychiatric Publishing Inc.

Lafaye, L., Desportes, L., & McBride, C. (2009). Treatment outcomes and perceived benefits: A qualitative and quantitative assessment of a women's substance abuse treatment program. *Women & Therapy, 32*, 51-68.

Laffaye, C., McKellar, J. D., Ilgen, M. A., & Moos, R. H. (2008). Predictors of 4-year outcome of community residential treatment for patients with substance use disorders. *Addiction, 103,* 671-680.

Leschner, A. I. (1997). Introduction to the special issue: The National Institute on Drug Abuse's (NIDA's) drug abuse treatment outcome study (DATOS). *Psychology of Addictive Behaviors, 11,* 211-215.

Louw, J. (2000). Improving practice through evaluation. In D. Donald, A. Dawes & J. Louw (Eds.), *Addressing childhood adversity* (pp.60-71). Cape Town, S.A.: David Phillips.

Lundahl, B., & Burke, B. L. (2009). The effectiveness and applicability of motivational interviewing: A practice-friendly review of four meta-analyses. *Journal of Clinical*

Psychology: In Session, 65, 1232-1245.

Lundahl, B., Kunz, C., Brownell, C., Tollefson, D., & Burke, B. (2010). A meta-analysis of motivational interviewing: Twenty five years of empirical studies. *Research on Social Work Practise, 20,* 137-160.

Martin, P. R., Bennett, A. W., Bealer, B. K. (2007). Healing addiction: An integrated pharmaco-psychosocial approach to treatment. New Jersey, USA: John Wiley & Sons.

Marais, S., Sukhai, A., & Donson, H. (2004). Monitoring alcohol and other substance use in South Africa: The alcohol and drug injury nexus. In S. Suffla, & A. Van Niekerk (Eds.), Crime, violence and injury prevention in South Africa: Development and challenges (pp. 128-140). Pretoria, South Africa: University of South Africa.

Mathews, S., Abrahams, N., Martin, L. J., Vetten, L., Van der Merwe, L., & Jewkes, R. (2004). *A National Study of Female Homicide in South Africa.* (MRC Policy Brief no 5). Retrieved from Centre of the Study of Violence and Reconciliation website: http://www.csvr.org.za/wits/papers/papsixhr.pdf, 22 November 2012.

Milby, J. B., Schumaker, J. E., Vuchinich, R. E., Wallace, D., Plant, M. A., Freedman, M. J., (…) Ward, C. L. (2004). Transitions during effective treatment for cocaine-abusing homeless persons: Establishing abstinence, lapse, and relapse, and reestablishing abstinence. *Psychology of Addictive Behaviors, 18,* 250-256.

Miller, W. R., & Rollnick, S. (1991). *Motivational Interviewing.* New York: The Guilford Press.

Miller, W. R., & Rose, G. S. (2009). Toward a theory of motivational interviewing. *American Psychological Association, 64*, 527-537.

Miller, W. R., & Tonnigan, J. S. (1996). Assessing drinkers' motivation for change. The stages of change readiness and treatment scale (SOCRATES). *Psychology of Addictive Behaviours, 10,* 81-89.

Moos, R. H., & Moos, B. S. (2007). Protective resources and long term recovery from alcohol-use disorders. *Drug and Alcohol Dependence, 86*, 46-54.

Morgenstern**,** J., Labouvie, E., McCrady, B., Kahler, C. W., & Frey, R. M. (1998). Affiliation with Alcoholics Anonymous after treatment: A study of its therapeutic effects and mechanisms of action. *Journal of Consulting and Clinical Psychology, 65,* 768-777.

Morojele, N, K., Pithey, A. L., Kekwaletswe, C, T., Joubert-Wallis, M., Pule, M. I., &

Parry, C. H. (2010). South African health care providers' recognition of the links between alcohol and HIV in their daily practice: A pilot study. *African Journal of Drug & Alcohol Studies, 9*, 1-12.

Mueser, K. T., & Pierce, S. C. (2007). Group interventions for co-existing mental health and drug and alcohol problems. In A. Baker, & R. Velleman (Eds.), *Mental health and drug and alcohol problems* (96-113). Hove, England: Routledge.

Myers, B., & Parry, C. (2003). Report on audit of substance abuse treatment facilities in Cape Town. *Government Publication*.

Myers, B., & Parry, C. (2005). Access to substance abuse treatment services for black South Africans: findings from audits of specialist treatment facilities in Cape Town and Gauteng. *South Africa Psychiatry Review, 8*, 15-19.

Myers, B., Louw, J., & Pasche, S. (2011). Gender differences in barriers to alcohol and other drug treatment in Cape Town, South Africa. *African Journal of Psychiatry, 14,* 146-153.

Myers, B., Burnhams, N. H., & Fakier, N. (2010). Monitoring and evaluation of substance abuse services in South Africa: Implications for policy and practice. *International Journal of Mental Health Addiction, 8,* 557-565.

Newcombe, A. L., Humeniuk, R. E., & Ali, R. (2005). Validation of the World Health Organization Alcohol, Smoking and Substance Involvement Screening Test (ASSIST): Report of results from the Australian site. *Drug and Alcohol Review, 24*, 217-226.

Njuho, P., & Davids, A. (2010). Extent and influence of recreational drug use on men and women aged 15 years and older in South Africa. *African Journal of Drug & Alcohol Studies, 9,* 33-48.

Oudejans, S. C. C., Schippers, G. M., Merkx, M. J., Schramade, M. H., Koeter, M. W. J., & van den Brink, W. (2009). Feasibility and validity of low-budget telephonic follow-up interviews in routine outcome monitoring of substance abuse treatment. *Addiction, 104,* 1138-1146.

Parry, C. D. H., Plüddemann A., & Myers, B. J. (2005). Heroin treatment demand in South Africa: Trends from two large metropolitan sites (January 1997-December 2003). *Drug and Alcohol Review, 24*, 419-423.

Parry, C. D. H., Plüddemann A.,Louw, A., & Leggett, T. (2004). The 3-metros study of drugs

and crime in South Africa: Findings and policy implications. *The American Journal of Drug and Alcohol Abuse, 30,* 167-185.

Plüddemann, A., Myers, B., J., & Parry, C. D. (2008). Surge in treatment related to methamphetamine use in Cape Town, South Africa: implication for public health. *Drug and Alcohol Review, 27,* 185-189.

Plüddemann, A., Dada, S., Williams, Y., Bhana, A., Pereira, T., Carelsen, A., Kitleli, N., Gerber, W., Rosslee, C., Parry, C., & Fourie, D. (2008). Monitoring alcohol and drug abuse treatment admissions in South Africa (July to December 2008). *SACENDU.*

Plüddemann, A., Dada, S., Williams, Y., Bhana, A., Pereira, T., Nel, E., Mncwabe, T., Gerber, W., Aboagye, L., Parry, C., & Fourie, D. (2010). Monitoring alcohol and drug abuse treatment admissions in South Africa (July to December 2009). *SACENDU.*

Plüddemann, A.,Flisher, A. J., Mathews, C., Carney, T., & Lombard, C. (2008). Adolescent methamphetamine use and sexual risk behaviour in secondary school students in Cape Town, South Africa. *Drug and Alcohol Review, 27*, 687-692.

Plüddemann, A., Flisher, A. J., McKetin, R., Parry, C., & Lombard, C. (2010). Methamphetamine use, aggressive behaviour and other mental health issues among high-school students in Cape Town, South Africa. *Drug and Alcohol Dependence, 109,* 14-19.

Plüddemann, A., Dada, S., Parry, C., Bhana, A., Bachoo, S., Perreira,T., Nel, E., Mncwabe, T., Gerber, W., & Freytag, K. (2010). Monitoring alcohol & drug abuse trends in South Africa (July 1996 – June 2010) Phase 28. *SACENDU.*

Preskill, H., & Jones, N. (2009). *A practical guide for stakeholders in developing evaluation questions.* Princeton: Robert Wood Johnson Foundation. Retrieved from http://www.rwjf.org/content/rwjf/en/research-publications/find-rwjf-research/2011/06/focusing-on-what-matters-webinar.htm. May 2011.

Price, R. K., Risk, N. K., & Spitznagel, E. L. (2001). Remission from drug abuse over a 25-year period: patterns of remission and treatment use. *Am J Public Health, 91*, 1107-1113.

Project MATCH Research Group. (1997). Matching alcoholism treatments to clients heterogeneity: Project MATCH posttreatment drinking outcomes. *Journal of Studies on Alcohol, 58*, 7-29.

Piedmont, R. (2004). Spiritual transcendence as a predictor of psychosocial outcome

from an outpatient substance abuse program. *Psychology of Addictive Behaviors, 18,* 213-222.

Rawson, R. A., Gonzales, R., Obert, J. L., McCann, M. J., & Brethren, P. (2005). Methamphetamine use among treatment seeking adolescents in Southern California: Participant characteristics and treatment response. *Journal of Substance Abuse Treatment, 29,* 67-74.

Read, J. P., Kahler, C. W., & Stevenson. (2001). Bridging the gap between alcoholism treatment research and practice: Identifying what works and why. Professional Psychology. *Research and Practice, 32,* 227-238.

Reiman, A. (2009). Cannabis as a substitute for alcohol and other drugs. *Harm Reduction Journal, 6*, 1-6.

Rogers, P. J. (2007). Theory-based evaluation: Reflections ten years on. *New Directions for Evaluation*, 114, 63-67.

Rosenthal, R., & Rosnow, R. L. (1993). *Essentials of Behavioral Research*. Boston: McGraw-Hill.

Rossi, P. H., Lipsey, M. W., & Freeman, H. E. (2004). *Evaluation: A Systematic Approach*. London: Sage Publications.

Simpson, D.D. (1993). Drug treatment evaluation research in the United States. *Psychology of Addictive Behaviors*, *7*, 120-128.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and Quasi-Experimental Designs.* Boston: Houghton Mifflin Company.

Sklar, S. M. & Turner, N. E. (1999). A brief measure for the assessment of coping self-efficacy among alcohol and other drug users. *Addiction, 94,* 723-729.

Steinglass, P., & Kutch, S. (2004). Family therapy. In M. Galanter , & H. D. Kleber (Eds.) *The American psychiatric publishing textbook of substance abuse treatment (pp. 405-415).* Washington DC: American Psychiatric Publishing Inc.

Tabachnik, B. G. & Fidell, L. S. (1996). *Using multivariate statistics (3rd ed.).* New York, NY: Harper Collins.

Timko, C., DeBenedetti, A., & Billow, R. (2006). Intensive referral to 12-step self-help groups and 6-month substance use disorder outcomes. *Addiction, 101*, 678-688.

UNAIDS: Joint United Nations Programme on HIV/AIDS (2010). *2010 Report on the Global AIDS Epidemic.* Geneva: UNAIDS.

United Nations Office on Drugs and Crime (2004). Substance abuse treatment and care for

women. Retrieved from http://www.unodc.org/docs/treatment/04-58297_cu%20English%20short.pdf, 25 October 2012.

Vader, A. M., Walter, S. T., Prabhu, G. C., Houck, J. M., & Field, C. A. (2010). The language of motivational interviewing and feedback: Counselor language, client language, and client drinking outcomes. *Psychology of Addictive Behaviors, 24,* 190-197.

Velleman, R. (2005). The role of family in preventing and intervening with substance use and misuse: A comprehensive review of family interventions with a focus on young people. *Drug and Alcohol Review, 24,* 93-109.

Velleman, R., & Templeton, L. (2003). Alcohol, drugs and the family: Results from a long-running research programme within the UK. *European Addiction Research, 9,* 103-112.

Van Wormer, K. (2007). Principles of motivational interviewing geared to stages of change: A pedagogical challenge. *Journal of Teaching in Social Work, 27,* 21-34.

Walitzer, K. S., Derman, K. H., & Barrick, C. (2009). Facilitating involvement in Alcoholics Anonymous during out-patient treatment: a randomized clinical trial. *Addiction, 104*, 391-401.

Ward, C.L., Mertens, J. R., Flisher, A. J., Bresnick, G. F., Sterling, S. A., Little, F., & Weisner, C. M. (2008). Prevalence and correlates of substance use among South African primary care clinic patients. *Substance Use & Misuse, 43,* 1395-1410.

Weiss, C. L. (1998). *Evaluation: Methods for Studying Programs and Policies.* London: Prentice Hall.

Wechsberg, W. M., Luseno, W. K., Karg, R. S., Young, S., Rodman, N., Myers, B., & Parry, C. D. H. (2008). Alcohol, cannabis, and methamphetamine use and other risk behaviours among black and coloured South African women: A small randomized trial in the Western Cape. *International Journal of Drug Policy, 19*, 130-139.

Whitlock, E. P., Green, C. A., Polen, M. R., Berg, A. Klein, J., Siu, A., & Tracy, C. (2004). Behavioral counseling interventions in primary care to reduce risky/harmful alcohol use. *Agency for Healthcare Research and Quality*. Retrieved from http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0007774/#A45236. 15 November 2012

Winters, K. C., Stinchfield, R. D., Opland, E., Weller, C., & Latimer, W. W. (2000). The effectiveness of the Minnesota Model approach in the treatment of adolescent drug abusers. *Addiction*, *95*, 601-612.

Wong, F. Y., Thompson, E. E., Huang, J., Park, R. J., Di Gangi, J., & De Leon, J. M. (2007).

Alcohol, drugs, sex, and HIV risk behaviors among a community sample of Black and Coloured South Africans. Journal of Drug Issues, Spring, 489-502.

Appendix A

Alcoholics Anonymous Affiliation Questionnaire

NA/AA Affiliation:

Please Answer Yes or No /**Antwood asb Ja of Nee**

1 Have you ever considered yourself a member of NA/AA? **Het u ooit uself beskou as 'n lid van NA/AA?**
2 Have you ever called an NA/AA member for help? **Het u ooit 'n NA/AA lid geskakel vir hulp?**
3 Do you now have an NA/AA sponsor? **Het u tans 'n NA/AA Borg?**
4 Have you ever sponsored anyone in the NA/AA? **Het u al ooit iemand geborg in die NA/AA?**
5 Have you ever had a spiritual awakening or conversion experience through your involvement with NA/AA? **Het u al ooit 'n geestelike ontwaking of sukses ervaar deur middle van u betrokkenheid by NA/AA?**
6 In the past 12 months, have you read NA/AA literature? **Het u enige literatuur van die NA/AA gelees gedurende die laaste 12 maande?**
7 In the past 12 months have you done service, helped newcomers, or set up chairs, made coffee, cleaned up after a meeting etc? **Het u diens gedoen, gehelp met nuwelinge, stoele uitgesit, koffie gemaak, skoongemaak na 'n byeenkoms die laaste 12 maande?**
8 How many NA/AA meetings would you estimate that you have gone to during the past 3 months? **Volgens u berekeninge hoeveel NA/AA byeenkomste het u bygewoon die laaste 3 maande?**
9 How many NA/AA meetings have you gone to in the last 12 months? **Hoeveel NA/AA byeenkomste het u bygewoon die laaste 12 maande?**

Appendix B

Alcohol, Smoking and Substance Involvement Screening Test (WHO ASSIST V3.0) Questionnaire

ALCOHOL, SMOKING AND SUBSTANCE INVOLVEMENT SCREENING TEST ALKOHOL, ROOK EN DWELM MIDDEL BETROKKENHEID SIFTINGSTOETS

Question 1

In your life, which of the following substances have you ever used? (Non-medical use only) **Watter van die volgende dwelm middels het jy al ooit gebruik? (Nie-mediese gebruik alleenlik)**	**No/Nee**	**Yes/Ja**
a. Tobacco products (cigarettes, chewing tobacco, cigars etc.) **Tabak produkte (sigarette, kougom tabak, sigare ens)**	0	3
b. Alcoholic beverages (beer, wine, spirits etc.) **Alkoholiese drank (bier, wyn, spiritualieë, ens)**	0	3
c. Cannabis (marijuana, dagga, grass etc.) **Cannabis (marijuana, dagga, ens)**	0	3
d. Cocaine (coke, crack etc.) **Kokaine (coke, crack ens)**	0	3
e. Amphetamine -type stimulants (tik, speed, diet pills, ecstasy etc.) **Amfetamien tipe stimulante (tik, speed, dieet pille, ecstasy ens)**	0	3
f. Inhalants (nitrous, glue, petrol, paint thinners etc.) **Inasemingsdwelm (nitrous, gom petrol, verfverdunner ens)**	0	3
g. Sedatives or sleeping pills (Valium, Serepax, Rohypnol etc.) **Kalmeermiddels of slaappille (Valium, Serepax, Rohypnol, etc.)**	0	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K etc.) **Hallusinogene(LSD, acid, mushrooms, PCP, Special K, etc.)**	0	3
i. Opioids (heroin, morphine, methadone, codeine etc) **Opioids (Heroïen, morfien, methadone, codeine ens)**	0	3
j. Other- specify – **Ander – spesifiseer-**	0	3
k. Mandrax (Buttons, Whitepipe)	0	3

Appendix B

Question 2

In the past three months, how often have you used the substance you mentioned (First drug, Second drug etc)? **In die afgelope drie maande, hoe dikwels het jy gebruik gemaak van die dwelm middles wat u genoem het (eerste dwelm, tweede dwelm ens)**	Never/ **Nooit**	Once or Twice /**Een of twee keer**	Monthly /**Maandeliks**	Weekly/ **Weekliks**	Daily or Almost Daily/ **Daagliks of amper daagliks**
a. Tobacco products (cigarettes, chewing tobacco, cigars etc.) **Tabak produkte (sigarette, kougom tabak, sigare ens)**	0	3	4	5	6
b. Alcoholic beverages (beer, wine, spirits etc.) **Alkoholiese drank (bier, wyn, spiritualieë, ens)**	0	3	4	5	6
c. Cannabis (marijuana, dagga, grass etc.) **Cannabis (marijuana, dagga, ens)**	0	3	4	5	6
d. Cocaine (coke, crack etc.) **Kokaine (coke, crack ens)**	0	3	4	5	6
e. Amphetamine type stimulants (tik, speed, diet pills, ecstasy etc.) **Amfetamien tipe stimulante (tik, speed, dieet pille, ecstasy ens)**	0	3	4	5	6
f. Inhalants (nitrous, glue, petrol, paint thinners etc.) **Inasemingsdwelm (nitrous, gom petrol, verfverdunner ens)**	0	3	4	5	6
g. Sedatives or sleeping pills (Valium, Serepax, Rohypnol etc.) **Kalmeermiddels of slaappille (Valium, Serepax, Rohypnol, etc.)**	0	3	4	5	6
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K etc.) **Hallusinogene(LSD, acid, mushrooms, PCP, Special K, etc.)**	0	3	4	5	6
i. Opioids (heroin, morphine, methadone, codeine etc.) **Opioids (Heroïen, morfien, methadone, codeine ens)**	0	3	4	5	6
j. Other- specify **Ander – spesifiseer-**	0	3	4	5	6
k. Mandrax (Buttons, Whitepipe)	0	3	4	5	6

Appendix B

Question 3

In the past three months, how often have you had a strong desire or urge to use First drug, Second drug etc)? **In die afgelope 3 maande, hoe dikwels het jy 'n sterk begeerde of behoefte gehad om die eerste dwelm, tweede dwelm te gebruik?**	Never / **Nooit**	Once or Twice **Een of twee keer**	Monthly / **Maandeliks**	Weekly / **Weeksliks**	Daily or Almost Daily / **Daagliksof amper daagliks**
a. Tobacco products (cigarettes, chewing tobacco, cigars etc.) **Tabak produkte (sigarette, kougom tabak, sigare ens)**	0	3	4	5	6
b. Alcoholic beverages (beer, wine, spirits etc.) **Alkoholiese drank (bier, wyn, spiritualieë, ens)**	0	3	4	5	6
c. Cannabis (marijuana, dagga, grass etc.) **Cannabis (marijuana, dagga, ens)**	0	3	4	5	6
d. Cocaine (coke, crack etc.) **Kokaine (coke, crack ens)**	0	3	4	5	6
e. Amphetamine type stimulants (tik, speed, diet pills, ecstasy etc.) **Amfetamien tipe stimulante (tik, speed, dieet pille, ecstasy ens)**	0	3	4	5	6
f. Inhalants (nitrous, glue, petrol, paint thinners etc.) **Inasemingsdwelm (nitrous, gom petrol, verfverdunner ens)**	0	3	4	5	6
g. Sedatives or sleeping pills (Valium, Serepax, Rohypnol etc.) **Kalmeermiddels of slaappille (Valium, Serepax, Rohypnol, etc.)**	0	3	4	5	6
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K etc.) **Hallusinogene(LSD, acid, mushrooms, PCP, Special K, etc.)**	0	3	4	5	6
i. Opioids (heroin, morphine, methadone, codeine etc.) **Opioids (Heroïen, morfien, methadone, codeine ens)**	0	3	4	5	6
j. Other- specify **Ander – spesifiseer-**	0	3	4	5	6
k. Mandrax (Buttons, Whitepipe)	0	3	4	5	6

Appendix B

Question 4

In the past three months, how often has your use of (First drug, Second drug etc) led to health, social, legal or financial problems? **In die afgelope drie maande, hoe dikwels het jou gebruik van (Eerste dwelms, Tweede dwelms ens) gelei tot gesondheidsorg, sosiale, wetlike of finansiële probleme?**	Never/ **Nooit**	Once or Twice **/Een of twee keer**	Monthly/ **Maandeliks**	Weekly/ **Weeksliks**	Daily or Almost Daily/ **Daagliks of amper daagliks**
a. Tobacco products (cigarettes, chewing tobacco, cigars etc.) **Tabak produkte (sigarette, kougom tabak, sigare ens)**	0	4	5	6	7
b. Alcoholic beverages (beer, wine, spirits etc.) **Alkoholiese drank (bier, wyn, spiritualieë, ens)**	0	4	5	6	7
c. Cannabis (marijuana, dagga, grass etc.) **Cannabis (marijuana, dagga, ens)**	0	4	5	6	7
d. Cocaine (coke, crack, etc.) **Kokaine (coke, crack ens)**	0	4	5	6	7
e. Amphetamine type stimulants (tik, speed, diet pills, ecstasy etc.) **Amfetamien tipe stimulante (tik, speed, dieet pille, ecstasy ens)**	0	4	5	6	7
f. Inhalants (nitrous, glue, petrol, paint thinner etc) **Inasemingsdwelm (nitrous, gom petrol, verfverdunner ens)**	0	4	5	6	7
g. Sedatives or sleeping pills (Valium, Serepax, Rohypnol etc.) **Kalmeermiddels of slaappille (Valium, Serepax, Rohypnol, etc.)**	0	4	5	6	7
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K etc.) **Hallusinogene(LSD, acid, mushrooms, PCP, Special K, etc.)**	0	4	5	6	7
i. Opioids (heroin, morphine, methadone, codeine, etc.) **Opioids (Heroïen, morfien, methadone, codeine ens)**	0	4	5	6	7
j. Other- specify **Ander – spesifiseer-**	0	4	5	6	7
k. Mandrax (Buttons, Whitepipe)	0	4	5	6	7

Appendix B

Question 5

In the past three months, how often have you failed to do what was normally expected of you because of your use of (First drug, Second drug etc) **In die afgelope drie maande, hoe dikwels het u versuim om te doen wat normaalweg van jou verwag word as gevolg van jou gebruik van (Eerste dwelm, tweede dwelm, ens)**	Never/ **Nooit**	Once or Twice/ **Een of twee keer**	Monthly/ **Maandeliks**	Weekly/ **Weeksliks**	Daily or Almost Daily/ **Daagliks of amper daagliks**
a. Tobacco products (cigarettes, chewing tobacco, cigars etc.) **Tabak produkte (sigarette, kougom tabak, sigare ens)**	0	5	6	7	8
b. Alcoholic beverages (beer, wine, spirits etc.) **Alkoholiese drank (bier, wyn, spiritualieë, ens)**	0	5	6	7	8
c. Cannabis (marijuana, dagga, grass etc.) **Cannabis (marijuana, dagga, ens)**	0	5	6	7	8
d. Cocaine (coke, crack etc.) **Kokaine (coke, crack ens)**	0	5	6	7	8
e. Amphetamine type stimulants (tik, speed, diet pills, ecstasy etc.) **Amfetamien tipe stimulante (tik, speed, dieet pille, ecstasy ens)**	0	5	6	7	8
f. Inhalants (nitrous, glue, petrol, paint thinners etc.) **Inasemingsdwelm (nitrous, gom petrol, verfverdunner ens)**	0	5	6	7	8
g. Sedatives or sleeping pills (Valium, Serepax, Rohypnol etc.) **Kalmeermiddels of slaappille (Valium, Serepax, Rohypnol, etc.)**	0	5	6	7	8
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K etc.) **Hallusinogene(LSD, acid, mushrooms, PCP, Special K, etc.)**	0	5	6	7	8
i. Opioids (heroin, morphine, methadone, codeine etc.) **Opioids (Heroïen, morfien, methadone, codeine ens)**	0	5	6	7	8
j. Other- specify **Ander – spesifiseer-**	0	5	6	7	8
k. Mandrax (Buttons, Whitepipe)	0	5	6	7	8

Appendix B

Question 6

Has a friend or relative or anyone else ever expressed concern about your use of (First drug, Second drug etc) **Het 'n vriend of familielid of enigiemand anders ooit sy kommer uitgespreek oor jou gebruik van (Eerste dwelms, Tweede dwelms ens)**	Never **Nooit**	Yes, in the past 3 months	Yes, but not in the past three months
a. Tobacco products (cigarettes, chewing tobacco, cigars etc.) **Tabak produkte (sigarette, kougom tabak, sigare ens)**	0	6	3
b. Alcoholic beverages (beer, wine, spirits etc.) **Alkoholiese drank (bier, wyn, spiritualieë, ens)**	0	6	3
c. Cannabis (marijuana, dagga, grass etc.) **Cannabis (marijuana, dagga, ens)**	0	6	3
d. Cocaine (coke, crack etc.) **Kokaine (coke, crack ens)**	0	6	3
e. Amphetamine type stimulants (tik, speed, diet pills, ecstasy etc.) **Amfetamien tipe stimulante (tik, speed, dieet pille, ecstasy ens)**	0	6	3
f. Inhalants (nitrous, glue, petrol, paint thinners etc.) **Inasemingsdwelm (nitrous, gom petrol, verfverdunner ens)**	0	6	3
g. Sedatives or sleeping pills (Valium, Serepax, Rohypnol etc.) **Kalmeermiddels of slaappille (Valium, Serepax, Rohypnol, etc.)**	0	6	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K etc.) **Hallusinogene(LSD, acid, mushrooms, PCP, Special K, etc.)**	0	6	3
i. Opioids (heroin, morphine, methadone, codeine, etc.) **Opioids (Heroïen, morfien, methadone, codeine ens)**	0	6	3
j. Other- specify **Ander – spesifiseer-**	0	6	3
k. Mandrax (Buttons, Whitepipe)	0	6	3

Appendix B

Question 7

Have you ever tried and failed to control, cut down or stop using (First drug, Second drug etc.)? **Het jy al ooit probeer en gefaal om die gebruik te beheer, te verminder of te stop (Eerste dwelm, Tweede dwelm ens)**	Never **Nooit**	Yes, in the past 3 months	Yes, but not in the past three months
a. Tobacco products (cigarettes, chewing tobacco, cigars etc) **Tabak produkte (sigarette, kougom tabak, sigare ens)**	0	6	3
b. Alcoholic beverages (beer, wine, spirits, etc.) **Alkoholiese drank (bier, wyn, spiritualieë, ens)**	0	6	3
c. Cannabis (marijuana, dagga, grass etc.) **Cannabis (marijuana, dagga, ens)**	0	6	3
d. Cocaine (coke, crack etc.) **Kokaine (coke, crack ens)**	0	6	3
e. Amphetamine type stimulants (tik, speed, diet pills, ecstasy etc.) **Amfetamien tipe stimulante (tik, speed, dieet pille, ecstasy ens)**	0	6	3
f. Inhalants (nitrous, glue, petrol, paint thinners etc.) **Inasemingsdwelm (nitrous, gom petrol, verfverdunner ens)**	0	6	3
g. Sedatives or sleeping pills (Valium, Serepax, Rohypnol etc) **Kalmeermiddels of slaappille (Valium, Serepax, Rohypnol, etc.)**	0	6	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K etc.) **Hallusinogene(LSD, acid, mushrooms, PCP, Special K, etc.)**	0	6	3
i. Opioids (heroin, morphine, methadone, codeine etc.) **Opioids (Heroïen, morfien, methadone, codeine ens)**	0	6	3
j. Other- specify **Ander – spesifiseer-**	0	6	3
k. Mandrax (Buttons, Whitepipe)	0	6	3

Appendix C

SOCRATES: Personal Drug/Drink Use Questionnaire

SOCRATES QUESTIONNAIRE

For each statement circle **one** number from 1 to 5 to indicate how much you agree or disagree with it right now. Only circle one number for each statement.

(Vir elke stelling, omkring een nommer tussen 1 en 5 om te wys hoeveel jy met die stelling saamstem of nie. Omkring slegs een nommer vir elke stelling)

	NO! Strongly Disagree	No Disagree	? Undecided or unsure	Yes Agree	Yes! Strongly Agree
1. I really want to make changes in my use of drugs/alcohol. **Ek wil daadwerklike veranderinge maak in my drank/dwelm gewoontes.**	1	2	3	4	5
2. Sometimes I wonder if I am an addict/alcoholic. **Ek wonder soms of ek verslaaf is.**	1	2	3	4	5
3. If I don't change my drug/alcohol use soon, my problems are going to get worse. **As ek nie my drank/dwelm gebruik verander nie, gaan my probleme erger word.**	1	2	3	4	5
4. I have already started making some changes in my use of drugs/alcohol. **Ek het al klaar veranderinge in my drank / dwelm gebruik begin maak.**	1	2	3	4	5
5. I was using/drinking too much at one time, but I've managed to change that. **Ek het op 'n stadium te veel gedrink/dwelms gebruik, maar ek het dit verander.**	1	2	3	4	5
6. Sometimes I wonder if my drug/alcohol use is hurting other people. **Ek wonder partykeer of my drank/dwelm gebruik ander mense seermaak.**	1	2	3	4	5
7. I have a drug/alcohol problem. **Ek het 'n drank/dwelm problem.**	1	2	3	4	5
8. I'm not just thinking about changing my drug/alcohol use, I'm already doing something about it. **Ek dink nie net daaraan om my drank/dwelm gebruik te verander nie, ek doen alreeds iets daaraan.**	1	2	3	4	5
9. I have already changed my drug/alcohol use, and I am looking for ways to keep from slipping back to my old pattern. **Ek het alreeads veranderinge aan**	1	2	3	4	5

my drank/dwelm gebruik gemaak en soek maniere om nie weer daartoe terug te keer nie.					
10. I have serious problems with drugs/alcohol. **Ek het ernstige probleme met dwelms.**	1	2	3	4	5
11. Sometimes I wonder if I am in control of my drug/alcohol use. **Ek wonder partykeer of ek in beheer van my drank / dwelm gebruik is.**	1	2	3	4	5
12. My drug/alcohol use is causing a lot of harm. **My drank / dwelm gebruik veroorsaak baie problem.**	1	2	3	4	5
13. I am actively doing things now to cut down or stop my use of drugs/alcohol. **Ek is aktief besig om my drank/dwelm gebruik af te skaal of te stop.**	1	2	3	4	5
14. I want help to keep from going back to the drug/alcohol problems that I had before. **Ek benodig hulp om te keer dat ek terug gaan na drank/dwelm misbruik.**	1	2	3	4	5
15. I know that I have a drug/alcohol problem. **Ek weet ek het 'n drank/ dwelm problem.**	1	2	3	4	5
16. There are times when I wonder if I use drugs/alcohol too much. **Daar is tye wat ek wonder of ek te veel drink/ dwelms gebruik.**	1	2	3	4	5
17. I am a drug addict/alcoholic. **Ek is verslaaf aan drank/dwelms.**	1	2	3	4	5
18. I am working hard to change my drug/alcohol use. **Ek werk hard daaraan om veranderinge te maak aan my drank/dwelm gebruik.**	1	2	3	4	5
19. I have made some changes in my drug/alcohol use, and I want some help to keep from going back to the way I used/drank before. **Ek het al veranderinge gemaak aan my drank/dwelm gebruik en ek benodig hulp om te keer dat ek terug gaan na my misbruik daarvan.**	1	2	3	4	5

Appendix D

DTCQ-8: Self-Efficacy Questionnaire

SELF-EFFICACY QUESTIONNAIRE

I would resist the urge to drink heavily/use if:

Ek sal die behoefte weerhou om te veel te drink of dwelms te gebruik as:

	Response scale: 0 = not at all confident 100 = very confident
1. . . I were angry at the way things had turned out. **Ek was kwaad oor hoe dinge uitgedraai het.**	0…..20…..40…..60…..80…..100
2. . . I had trouble sleeping. **Ek sukkel om te slap.**	0…..20…..40…..60…..80…..100
3. . . I remembered something that had happened. **Ek het iets onthou wat gebeur het.**	0…..20…..40…..60…..80…..100
4. . . I wanted to find out whether I could drink/use occasionally without getting hooked. **Ek wou uitvind of ek nou en dan kon drink of dwelms gebruik sonder om verslaaf te raak.**	0…..20…..40…..60…..80…..100
5. . . I unexpectedly found some alcohol/drugs or happened to see something that reminded me of drinking/drugging. **Ek het onverwags drank/dwelms gevind of iets gesien wat my herineer het aan drink en dwelm misbruik.**	0…..20…..40…..60…..80…..100
6. . .Other people treated me unfairly or interfered with my plans. **Ander mense het my onregverdig behandel of ingemeng met my planne.**	0…..20…..40…..60…..80…..100
7. .. . I were out with friends and they kept suggesting we go somewhere and drink/use. **As ek saam met my vriende was en hulle stel voor dat ons moet drink en dwelm misbruik.**	0…..20…..40…..60…..80…..100
8. .. I wanted to celebrate with a friend. **Ek wil met a vriend gaan vier .**	0…..20…..40…..60…..80…..100

Appendix E

Treatment Services Assessment

	Disagree	Somewhat Agree	Agree	Strongly Agree	Does not Apply
1. The amount of time I had to wait to get services was acceptable to me.	1	2	3	4	0
2. The staff treated me with respect.	1	2	3	4	0
3. The staff at this treatment Centre are sensitive to my background.	1	2	3	4	0
4. The people I went to for treatment services spent enough time with me.	1	2	3	4	0
5. I have access to all the services I need in this treatment Centre for my recovery.	1	2	3	4	0
6. This treatment Centre helps me reduce my HIV risk.	1	2	3	4	0
7. I would recommend this service to others.	1	2	3	4	0
8. How in your opinion could this programme be improved?					

Appendix F

Consent Form

Consent to participate in a research study
Toestemming om aan 'n navorsings studie deel te neem

Dear Client, **Beste Klient**

Formal Title: **Formele Titel:**
Outcomes based evaluative research at a Cape Town substance abuse treatment centre
Uitkoms gebasseerde evaluerings studie by 'n Kaapstadse dwelm sentrum

Study Purpose Doel van Studie
You are being invited to participate in a research study being conducted by researchers from the University of Cape Town. The purpose of the study is to assist the particular treatment centre as well as its present and future community, by addressing problematic issues related to relapse and the premature termination of treatment, in addition to identifying those components of the treatment programme associated with its success.
U word genooi om deel te neem aan 'n studie wat uitgevoer word deur navorsers van die Universiteit van Kaapstad. Die doel van die studie is om die spesifieke sentrum asook hul huidige en toekomstige gemeenskap by te staan deur die problematiese kwessies aan te spreek wat verband hou met terugval van drank/ en –dwelm gebruikders asook vroegtydige terminasie van behandeling, en ook om die komponente van die behandelings program wat met die sukses daarvan te doen het, te identifiseer.

Study Procedures Studie Prosedures
If you decide to participate in this study, you will be asked to complete a set of questionnaires on admission to ascertain your previous levels of substance use and your perceptions of your own substance use. The entire process should take no longer than 20 minutes. Similar questionnaires will be administered on completion of the programme and again one month after completion of treatment and possibly at longer intervals thereafter. The follow- up questions may either be asked telephonically or administered as paper or pencil questionnaires at after care.
As u besluit om deel te neem aan hierdie studie, sal u gevra word om 'n stel vraelyste met u toelating te voltooi om vas te stel wat u vorige vlakke van drank/dwlem gebruik was asook om vas te stel wat u eie persepsie van u drank/dwelm gebruik is. Die hele proses behoort nie langer as 20 minute te duur nie. Dieselfde soort vraelyste sal uitgedeel word aan die einde van die program en weer na 'n maand aan die einde van die behandeling, en dalk ook in langer periods daarna. Die opvolg vrae sal dan óf telefonies óf op papier beantwoord word, of in potlood by die nasorg sessies.

Possible Risks Moontlike Risikos
There are no foreseen psychological risks.
Daar is geen voorsiene sielkundieg risikos nie.

Appendix F

Possible Benefits Moontlike voordele

There are no direct benefits to you in participating in this study but by agreeing to participate you are helping us understand effective substance abuse treatments better.
(Daar is geen direkte voordele vir u as u in hierdie studie deel neem nie, maar deur toe te stem om deel te neem help u vir ons om drank/dwelm misbruik beter te verstaan.)

Confidentiality Konfidensialiteit

The researcher will be the only person aware of your identity and you are assured that she will keep this confidential. Centre staff will have no access at any stage to any of the completed questionnaires. You are assured of complete confidentiality, with identifying information on this consent form and data collection forms being kept in separate locked cabinets and unavailable to anyone other than the researchers and certain university officials who may audit project files. Any reports about the study will not identify you or any other study participant. Your telephone numbers will also be kept at all times in a locked cabinet.
Die navorser is die enigste persoon wat sal weet wie u is en u kan verseker wees dat sy dit konfidentieel sal hou. Die personeel by die sentrum het geen toegang tot enige van die voltooide vraelyste nie. U kan verseker wees dat dit streng konfidentieel gehou sal word, en dat die inligting op hierdie toestemmingsvorm en die data –insamelingsvorms toegesluit word in kabinette en dat dit nie beskikbaar is aan enige iemand behalwe die navorsers en seker universiteits amptenare wat die projek leêrs dalk mag oudit nie. Enige verslae van die studie sal nie u of enige ander deelnemers se identiteit ontbloot nie.

Voluntary Participation Vrywillge Deelname

Participation in this study is entirely voluntary. You may refuse to answer any question and you may withdraw from the study at any point in time. If you choose not to participate in this study it will not affect your relationship with the treatment centre in any way.
Deelname in hierdie studie is totaal vrywillig. U mag weier om enige van die vrae te beantwoord en u mag op enige stadium onttrek van die studie. As u kies om nie deel te neem aan hierdie studie nie, sal dit op geen manier die verhouding wat u met hierdie sentrum het, benadeel nie.

Debriefing Ontlonting

On completion of the writing up of the final research report a copy will be sent to the treatment centre and may be viewed there after February 2012.
Aan die einde van die finale navorsings verslag sal 'n afskrif van die verslag na die behandeling sentrum gestuur word en dit kan gesien word na Februarie 2012.

Questions Vrae

Any questions related to this study may be addressed to:
Enige vrae in verband met hierdie studie kan geadresseer word aan:

Lynda Duffett 0824343490
Dr Catherine Ward 021 6503422
Department of Psychology, UCT 021 6503417
Departement van Sielkunde, UK

Appendix F

_____	_____
Signature of participant **(Handtekening van deelnemer)**	Date **(Datum)**
_____	_____
Name of participant (printed) **(Naam van deelnemer (drukskrif))**	Witness **(Getuie)**
_____	
Participant's home telephone number **(Deelnemer se huis telefoon nommer)**	
_____	
Participant's cellphone number **(Deelnemer se selfoon nommer)**	

Appendix G

Sessions Attended by Type

Table G1

Individual sessions attended for those in treatment

Dosage as % (18)	Freq.	Percentage	Cumulative Percentage
0%	27	19%	19%
17%	25	18%	37%
33%	16	11%	48%
50%	22	15%	63%
67%	11	8%	71%
83%	18	13%	84%
100%	12	8%	92%
117%	3	2%	94%
133%	4	3%	97%
150%	4	3%	100%
Total	142	100%	

Table G2

Lecture sessions attended for those in treatment

Dosage as % (18)	Freq.	Percentage	Cumulative Percentage
0%	11	8%	8%
17%	40	28%	0%
33%	24	17%	0%
50%	8	6%	0%
67%	14	10%	0%
83%	15	11%	0%
100%	20	14%	0%
117%	6	4%	0%
133%	3	2%	0%
167%	1	1%	0%
Total	142	100%	

Appendix G

Table G3

Group sessions attended for those in treatment

Dosage as % (18)	Freq.	Percentage	Cumulative Percentage
0%	29	20%	20%
17%	22	15%	36%
33%	20	14%	50%
50%	14	10%	60%
67%	19	13%	73%
83%	17	12%	85%
100%	13	9%	94%
117%	4	3%	97%
133%	3	2%	99%
167%	1	1%	100%
Total	142	100%	

Appendix H

Regression Results for Imputed Data Analyses (n=142)

Table H1

Regression Results for Imputed Data Analyses (n=142): Global ASSIST vs. Time and Dosage

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	64.93	3.79	225.26	17.15	.000	57.47	72.39
Time	-29.07	3.75	277.09	-7.75	.000	-36.45	-21.69
Dosage	-16.25	5.14	277.03	-3.16	.002	-26.36	-6.13

Table H2

Regression Results for Imputed Data Analyses (n=142): Global ASSIST vs. Time and Previous Clean Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	57.44	4.09	201.96	14.04	.000	49.37	65.51
Time	-29.50	4.11	253.52	-7.18	.000	-37.58	-21.41
Previous Clean Time	0.27	0.93	253.50	0.29	.768	-1.55	2.10

Appendix H

Table H3

Regression Results for Imputed Data Analyses (n=142): Global ASSIST vs. Time and AA Affiliation

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	55.07	2.96	162.00	18.59	.000	49.22	60.92
Time	-29.48	3.80	280.00	-7.77	.000	-36.95	-22.01
AA Affiliation	1.62	0.96	271.63	1.68	.093	-0.27	3.51

Table H4

Regression Results for Imputed Data Analyses (n=142): Global ASSIST vs. Time and Self-Efficacy

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	76.95	4.31	275.24	17.87	.000	68.47	85.43
Time	-22.61	3.76	276.84	-6.01	.000	-30.02	-15.21
Self-Efficacy	-0.06	0.01	232.65	-6.08	.000	-0.08	-0.04

Appendix H

Table H5

Regression Results for Imputed Data Analyses (n=142): Global ASSIST vs. Time and SOCRATES Taking Steps

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	110.79	14.33	270.72	7.73	.000	82.57	139.01
Time	-27.65	3.77	262.56	-7.33	.000	-35.07	-20.23
SOCRATES Taking Steps	-1.55	0.40	269.46	-3.89	.000	-2.33	-0.76

Appendix H

Table H6

Regression Results for Imputed Data Analyses (n=142): Global ASSIST vs. Time and SOCRATES Recognition

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	24.02	11.96	252.54	2.01	.046	.47	47.57
Time	-28.73	3.78	267.71	-7.61	.000	-36.17	-21.30
SOCRATES Recognition	1.01	.36	242.25	2.77	.006	.29	1.72

Appendix H

Table H7

Regression Results for Imputed Data Analyses (n=142): Global ASSIST vs. Time and SOCRATES Ambivalence

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	92.65	5.03	247.76	18.42	.000	82.74	102.55
Time	-40.24	3.70	257.94	-10.88	.000	-47.52	-32.96
SOCRATES Ambivalence	-0.44	0.05	142.46	-8.85	.000	-0.54	-0.34

Appendix I

Regression Results for Non-Imputed Data Analyses (n=98)

Table I1

Regression Results for Non-Imputed Data Analyses (n=98): Global ASSIST vs. Time and Dosage

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	61.35	4.17	147.96	14.71	.000	53.10	69.59
Time	-42.12	3.98	146.00	-10.57	.000	-50.00	-34.25
Dosage	-9.52	4.21	145.26	-2.26	.025	-17.85	-1.19

Table I2

Regression Results for Non-Imputed Data Analyses (n=98): Global ASSIST vs. Time and Dosage

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	57.75	4.49	128.34	12.85	.000	48.86	66.65
Time	-43.24	4.35	130.61	-9.94	.000	-51.85	-34.63
Previous Clean Time	-0.12	0.77	129.87	-0.15	.878	-1.64	1.40

Appendix I

Table I3

Regression Results for Non-Imputed Data Analyses (n=98): Global ASSIST vs. Time and AA Affiliation

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	56.40	3.64	105.94	15.50	.000	49.19	63.62
Time	-42.10	4.01	148.38	-10.49	.000	-50.03	-34.17
AA	-0.07	0.79	134.05	-0.08	.934	-1.62	1.49

Table I4

Regression Results for Non-Imputed Data Analyses (n=98): Global ASSIST vs. Time and Self-Efficacy

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	66.08	4.47	176.28	14.77	.000	57.25	74.91
Time	-37.62	4.13	161.82	-9.11	.000	-45.78	-29.47
Self-Efficacy	-0.03	0.01	124.60	-3.47	.001	-0.04	-0.01

Appendix I

Table I5

Regression Results for Non-Imputed Data Analyses (n=98): Global ASSIST vs. Time and SOCRATES Taking Steps

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	89.87	15.12	175.41	5.94	.000	60.03	119.72
Time	-40.29	4.09	150.20	-9.85	.000	-48.38	-32.21
SOCRATES Taking Steps	-0.94	0.41	167.65	-2.27	.025	-1.75	-0.12

Table I6

Regression Results for Non-Imputed Data Analyses (n=98): Global ASSIST vs. Time and SOCRATES Recognition

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	38.25	9.74	152.96	3.92	.000	19.00	57.50
Time	-41.29	4.01	149.66	-10.31	.000	-49.20	-33.37
SOCRATES Recognition	0.57	0.28	125.75	2.01	.046	0.01	1.13

Appendix I

Table I7

Regression Results for Non-Imputed Data Analyses (n=98): Global ASSIST vs. Time and SOCRATES Ambivalence

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	52.79	12.43	148.34	4.25	.000	28.21	77.36
Time	-42.23	4.03	147.17	-10.47	.000	-50.20	-34.26
SOCRATES Ambivalence	0.05	0.14	131.54	0.32	.752	-0.24	0.33

Appendix J

Substance Use Tables

Table J1

Substance use at admission for individuals using Alcohol (Once/Twice) only at 10 weeks post-admission

Participant Number	Alcohol	Cannabis	Cocaine	Methamphetamine	Sedatives	Hallucinogens	Opioids	Other	Mandrax
13	Daily		Once/Twice						
16	Weekly			Daily					
19	Weekly								
20	Once/Twice			Daily					
34	Weekly	Weekly				Once/Twice			
38	Once/Twice			Weekly	Once/Twice				
45	Monthly			Weekly					
50	Daily	Daily		Weekly					
53	Once/Twice			Monthly					
75	Weekly	Daily	Once/Twice	Daily			Daily		Daily
76	Weekly	Daily				Once/Twice			
84	Weekly	Weekly							
90	Weekly			Weekly					

Appendix J

Table J2

Substance use at admission for individuals using Alcohol (Weekly) only at 10 weeks post-admission

Participant Number	Alcohol	Cannabis	Cocaine	Methamphetamine	Hallucinogens
32	Daily				
55	Monthly	Once/Twice		Monthly	
64	Weekly	Weekly			
82	Daily	Daily	Once/Twice	Once/Twice	
87	Weekly			Weekly	
88	Weekly	Weekly		Once/Twice	Once/Twice

Appendix K

Regression Results for Non-Imputed Data Analyses (n=89)

Table K1

Regression Results for Non-Imputed Data Analyses (n=89): Comparing Admission to 6 Weeks Post-Admission and 10 Weeks Post-Admission: Global ASSIST vs. Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept (Admission)	55.10	3.58	88.00	15.40	0.00	47.99	62.21
6 Weeks Post-Admission	-39.21	4.03	132.15	-9.73	0.00	-47.19	-31.24
10 Weeks Post-Admission	-42.12	3.96	125.62	-10.64	0.00	-49.96	-34.29

Appendix K

Table K2

Regression Results for Non-Imputed Data Analyses (n=89): Comparing 6 Weeks Post-Admission to Admission and 10 Weeks Post-Admission: Global ASSIST vs. Time

Parameter	Estimate	Std. Error	*df*	*t*	*p*	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept (6 Weeks Post-Admission)	15.89	1.86	88.00	8.56	.000	12.20	19.58
10 Weeks Post-Admission	-2.91	2.51	174.58	-1.16	.249	-7.87	2.05
Admission	39.21	4.03	132.15	9.73	.000	31.24	47.19

Table K3

Regression Results for Non-Imputed Data Analyses (n=89): Comparing Admission to 6 Weeks Post-Admission and 10 Weeks Post-Admission : Substance Use vs. Time

Parameter	Estimate	Std. Error	*df*	*t*	*p*	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept (Admission)	12.28	0.74	88.00	16.49	0.00	10.80	13.76
6 Weeks Post-Admission	-9.06	0.86	140.32	-10.55	0.00	-10.75	-7.36
10 Weeks Post-Admission	-8.91	0.87	144.34	-10.25	0.00	-10.63	-7.19

Appendix K

Table K4

Regression Results for Non-Imputed Data Analyses (n=89): Comparing 6 Weeks Post-Admission to Admission and 10 Weeks Post-Admission: Substance Use vs. Time

Parameter	Estimate	Std. Error	*df*	*t*	*p*	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept (6 Weeks Post Admission)	3.37	0.45	88.00	7.52	0.00	2.48	4.26
10 Weeks Post-Admission	-0.15	0.62	175.61	-0.24	0.81	-1.37	1.08
Admission	8.91	0.87	144.34	10.25	0.00	7.19	10.63

Table K5

Regression Results for Non-Imputed Data Analyses (n=89): Global ASSIST vs. Time and Dosage

Parameter	Estimate	Std. Error	*df*	*t*	*p*	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	22.53	2.32	144.16	9.71	.000	17.94	27.11
6 Weeks Post-Admission	-2.91	2.38	173.33	-1.22	.223	-7.61	1.79
10 Weeks Post-Admission	39.21	4.03	126.81	9.74	.000	31.24	47.18
Dosage	-12.83	2.92	207.85	-4.39	.000	-18.59	-7.07

Appendix K

Table K6

Regression Results for Non-Imputed Data Analyses (n=89): Global ASSIST vs. Time and Previous Clean Time

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	15.36	2.63	128.62	5.83	.000	10.15	20.56
6 Weeks Post-Admission	-3.27	2.71	154.13	-1.21	.229	-8.63	2.08
10 Weeks Post-Admission	40.20	4.38	118.37	9.18	.000	31.53	48.87
Previous Clean Time	0.22	0.53	188.12	0.42	.678	-0.83	1.28

Table K7

Regression Results for Non-Imputed Data Analyses (n=89): Global ASSIST vs. Time and NA/AA Affiliation

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	16.46	1.94	94.70	8.47	.000	12.60	20.31
6 Weeks Post-Admission	-2.82	2.51	172.87	-1.12	.263	-7.77	2.13
10 Weeks Post-Admission	39.14	4.05	130.45	9.66	.000	31.13	47.16
AA Affiliation	-0.44	0.47	186.99	-0.94	.346	-1.37	0.48

Appendix K

Table K8

Regression Results for Non-Imputed Data Analyses (n=89): Global ASSIST vs. Time and Self-Efficacy

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	29.32	3.66	190.75	8.02	.000	22.11	36.54
6 Weeks Post-Admission	-1.92	2.43	174.50	-0.79	.430	-6.71	2.87
10 Weeks Post-Admission	35.82	4.04	138.76	8.88	.000	27.84	43.80
Self-Efficacy	-0.03	0.01	150.65	-4.21	.000	-0.04	-0.01

Table K9

Regression Results for Non-Imputed Data Analyses (n=89): Global ASSIST vs. Time and SOCRATES Taking Steps

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	54.16	11.75	233.50	4.61	.000	31.02	77.31
6 Weeks Post-Admission	-2.53	2.46	171.84	-1.03	.305	-7.40	2.33
10 Weeks Post-Admission	37.35	4.10	133.56	9.12	.000	29.25	45.45
SOCRATES Taking Steps	-1.02	0.31	234.50	-3.32	.001	-1.63	-0.41

Appendix K

Table K10

Regression Results for Non-Imputed Data Analyses (n=89): Global ASSIST vs. Time and SOCRATES Recognition

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	1.95	5.60	177.90	0.35	.728	-9.11	13.01
6 Weeks Post-Admission	-2.20	2.51	170.89	-0.88	.383	-7.16	2.76
10 Weeks Post-Admission	39.34	4.02	131.18	9.78	.000	31.38	47.29
SOCRATES Recognition	0.44	0.17	186.74	2.60	.010	0.11	0.77

Table K11

Regression Results for Non-Imputed Data Analyses (n=89): Global ASSIST vs. Time and SOCRATES Ambivalence

						95% Confidence Interval	
Parameter	Estimate	Std. Error	*df*	*t*	*p*	Lower Bound	Upper Bound
Intercept	11.03	8.30	197.57	1.33	.186	-5.35	27.41
6 Weeks Post-Admission	-2.52	2.54	171.76	-0.99	.322	-7.52	2.49
10 Weeks Post-Admission	39.74	4.07	130.77	9.76	.000	31.69	47.79
SOCRATES Ambivalence	0.05	0.10	199.42	0.58	.566	-0.13	0.24