Outcomes-based evaluative research at a Cape Town substance abuse integral theory treatment centre

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ABSTRACT

The aim of this study was to evaluate the outcomes of a substance abuse secondary care treatment centre. The World Health Organization's Alcohol, Smoking and Substance Involvement Screening Test was administered on admission to 13 participants and to seven participants one month after been discharge from treatment. One hundred percent abstention rate was reported by participants at one month after discharge. The emotional and behavioural functioning of participants was separately assessed on admission and one month after discharge using the Global Assessment of Individual Needs scales. Significant improvement was found in both categories at one month after discharge. SOCRATES drinking and drug scales were used to assess levels of recognition, ambivalence and steps taken around participants' substance use problems. Attitudes on these scales improved from admission to one month after discharge. Other findings included that participants experiencing more urges to use after discharge were more likely to attend more Alcoholics Anonymous/ Narcotics Anonymous meetings than those experiencing fewer. This suggests successful inculcation by the treatment programme of the use of AA/NA as a practical support resource after discharge. In sum, therefore, participants reported significant improvements in most areas assessed. However, this study addressed only a small sample with only a short follow-up period and no control group so further research using a larger sample is recommended.

Keywords: substance abuse; outcomes; treatment; secondary care; drugs; alcohol; programme evaluation; emotion; behaviour; Alcoholics Anonymous; Narcotics Anonymous.

With an annual average alcohol consumption of 20 litres per capita, 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 a problem are at 31.5% while binge drinkers amount to about 7.5% of the population. Binge drinkers are defined as those consuming large quantities of alcohol at sporadic intervals, mainly on weekends, a trend particularly prevalent amongst school going adolescents, (Department of Social Development, 2005/2006).

The last decade has seen a marked increase in the availability and consumption of a variety of drug products. 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). Poor law enforcement, increased land and air travel, combined with sophisticated banking and telecommunications systems have further compounded South Africa's vulnerability in this regard with the increasing use of heroin, cocaine and methamphetamine reflecting the exigency of the situation (Table 1, (Parry, Plüddemann, & Myers, 2005).

Table 1

Indications of Changes in Primary Drug Choice Trends of Patients Admitted to Cape Town Treatment Centres

Drug Type	Year	Percent	Year	Percent
Methamphetamine	2002	0.3	2008	36
Heroin	1997	0.7	2008	13
Alcohol	2003	39	2008	30
Cocaine	2003	3	2008	5
Dagga	2003	15	2008	11
Dagga/Mandrax	2003	24	2008	3

Trends in alcohol abuse suggest that its use is higher in the Western Cape than in other provinces in South Africa. Furthermore, Wechsburg et al. (2008) assert that the prevalence of drug and alcohol abuse in Cape Town and the Western Cape is abnormally

high within a global context. Foetal Alcohol Syndrome is particularly prevalent in Wellington, a traditional Western Cape farming community, with 1999 levels reflecting the highest rates ever recorded in that area (Parry, 2005). Substance abuse constitutes both a social and economic problem, which the City of Cape Town is currently attempting to address through its alcohol and drug strategy (City of Cape Town, 2007). While overall alcohol consumption appears to have stabilized between 1994 and 2004 this situation does not apply to other drug products (Parry, 2005).

There has been an enormous upsurge in the reported use and abuse of methamphetamine (Tik) in Cape Town and surrounds in the past few years, with it increasingly reported as the primary drug of choice for under 20 year olds entering treatment (Table 2). According to Plüddemann, Myers, and Parry (2008) it is of particular concern in light of the role that methamphetamine is perceived as playing in acts of sexual violence and other crimes. An additional source of concern is the increased probability of contracting and spreading HIV as a result of disinhibition through drug ingestion, leading to risky sexual behaviour (Berg, 2005; Sawyer-Kurian, Wechsberg, & Luseno, 2009).

Table 2

Primary Drug of Abuse (Percentage) for All Patients in Treatment in the Western Cape

Drug of Abuse	Jan-June 08	Male	Female	Under 20 years
Alcohol	30	72	28	5
Cannabis	11	92	8	33.1
Methaqualone	3	91	9	3.5
Cocaine	5	70	30	0.6

Heroin	13	77	23	10.1
Methamphetamine	36	71	29	45.5

The majority of research in Cape Town pertaining to substance misuse and abuse has to date focused on historically disadvantaged communities, namely Black and Coloured populations from low socio-economic groups. Paradoxically these are the same groups found to be considerably underserved by treatment options in the region. An assessment of access to treatment services by black South Africans revealed that logistical issues involving travel expenses and other costs were cited as a cause for under-representation by blacks amongst those in treatment. Cultural differences were also not sufficiently catered for and in this regard very few black therapists were found to be employed at treatment centres and English and Afrikaans featured as the primary languages used in the treatment environment (Myers & Parry, 2004).

The literature around the prevalence of substance use and abuse in Cape Town reflected consensus of opinion in separate findings including the central role played by the misuse or abuse of intoxicating substances in various high risk behaviours. These findings, together with the high prevalence of drug and alcohol abuse in the Western Cape and Cape Town, are indicative of a need for the establishment and maintenance of high-functioning substance abuse treatment centres to service multicultural communities in this region. This is especially in the light of The City of Cape Town's operational strategy of improving access to treatment interventions and treatment facilities (City of Cape Town, 2007).

When an opportunity was received to evaluate the treatment outcomes of a residential secondary care treatment facility in Cape Town, it was undertaken in the hope that findings, although of special relevance to the particular treatment centre under evaluation, could be generalized to other treatment centres offering similar programmes. Even though it is not feasible that high-cost centres such as the one evaluated in this study would ever be available to poorer communities, treatment modalities found to be successful could possibly be adapted especially for use in underserved populations in different treatment settings.

Although a number of South African research studies have been completed on treatment centre admission trends and The South African Community Epidemiology Network on Drug Use comprehensively monitors drug abuse treatment admissions in South Africa (Plüddemann et al., 2008), none of the literature reflects research undertaken with regard to the monitoring of the actual outcomes of any treatment centre in South Africa; a gap in this field. If The City of Cape Town is serious about improved access to treatment interventions and treatment facilities, the financial constraints surrounding funding to disadvantaged communities require that appropriate research be done to determine the most effective treatment modalities within the framework of residential drug rehabilitation treatment centres.

The treatment centre under evaluation closely models the Minnesota Model treatment method. This in turn incorporates the principles of Alcoholics Anonymous (AA), the same as those of Narcotics Anonymous (NA). References to Alcoholics Anonymous in this report should be assumed to incorporate Narcotics Anonymous. The treatment programme is based on an Integral Theory-based approach, elaborated on later in this review. As no evaluative research literature on South African treatment centres was found, only international studies emanating from Europe and the United States of America have been used as comparisons in this article. No literature specifically relating to secondary care residential treatment facility outcomes was found which was considered unimportant because of different periods of treatment undergone by patients in various treatment settings in the literature covered by this study.

Residential secondary care facilities continue a programme of therapy similar to that initiated at residential primary care level with an exception being more freedom of movement within the parameters of the programme requirements.

Evaluations on treatment modalities linked to the Minnesota Model or AA recovery programs or 12-step programmes.

In keeping with Simpson et al.'s (1997) assertion that differences at treatment centres are related to quality of outcomes, this review focuses on evaluations of the Minnesota Model or AA recovery programs or 12-step programmes, (see Appendix A for details of results). This is due to the Minnesota Model's inclusion into the Integral Based Recovery

Model (IBRM), used by the treatment centre in question and in the absence of previous evaluations on the IBRM.

The Minnesota Model

The Minnesota Model consists of four key philosophies, namely: the possibility of change, the concept that addiction is a disease, the setting of clear treatment goals, and the principles of the 12 steps of the AA programme which apply to any form of addiction. The AA programme is spiritually orientated and advocates introspection and spiritual surrender as key philosophies of its programme. Both of these concepts resonate throughout the 12 steps and 12 traditions of AA (see Appendices B and C for more details). Piedmont (2004) defines spirituality as being much like a personality construct in that it is considered an individual attribute and refers to a personal relationship to larger, transcendent realities. He warns against confusing this concept with that of religiosity which is more closely associated with rituals and institutionalism.

The Minnesota Model incorporates a comprehensive and multi-professional approach to the treatment of addiction including: group and individual therapy, medication if necessary, lectures on appropriate topics, and the use of recovering addicts or alcoholics as counsellors within a therapeutic atmosphere. In addition to work assignments patients are expected to begin work on the AA 12-steps, attend group and AA meetings as well as write their life stories (Cook, 1988).

Evidence related to the association of treatment retention with improved outcomes is offered by Winters, Stinchfield, Opland, Weller, and Latimer (2000), who investigated the outcomes of a Minnesota Model approach to the treatment of adolescent drug and alcohol abusers. A valuable feature of this study was the use of a waiting-list control group. The sample group consisted of 245 adolescents of whom 179 received treatment with a Minnesota Model approach and 66 were waiting-list control participants. Outcome findings indicated that completers reported far more successful outcomes compared to incompleters and waiting-list groups. In this instance a 12-step programme was favourably linked to successful outcomes and treatment retention was also found to be an important contributor to outcome. Cook's (1988) critique of a

number of evaluations of the Minnesota Model acknowledges the Minnesota Model's effectiveness in his finding of its association with successful outcomes.

Bodin and Romelsjo (2006) discovered in their study of a Minnesota Model treatment centre that a higher baseline alcohol use rate resulted in less favourable outcomes and that abstinence achievers were more likely to have been more motivated to give up drinking and more likely to maintain AA affiliation after treatment. Similar results were obtained by Winters et al. (2000), who in addition to length of stay predicting treatment effectiveness, found that motivational factors and social influence played a role, both of which are features of the AA programme.

AA and 12- step programme evaluations

A recent longitudinal study found that affiliation with the AA and AA-related coping skills was predictive of reduced substance misuse. The same study revealed that involvement in the AA had independent positive effects on substance use disorders, and found a causal connection between AA affiliation and increased self-efficacy as well as with changes in social network support (Laffay, McKellar, Ilgen, & Moos, 2008). This study, which was conducted over a period of 4 years, also found that greater AA-related coping predicted more improvement in substance abuse problems at four years follow-up, as did higher baseline endorsement of AA-related philosophy. Another longitudinal study reflected significant results in favour of the AA programme's success (Moos & Moos, 2007). In addition, a study involving adolescent substance abuse found a stronger association between abstinent friends and reduced substance use than between drug-using friends and elevated substance use. This is particularly relevant in the context of the importance of like-minded peer affiliations within the AA social network (Latimer, Newcomb, Winters, & Stinchfield, 2000).

Project MATCH, one of the largest psychotherapy outcomes study ever undertaken, found that the only significant matching effect involving a client attribute was that of the outcomes of a 12-step facilitation programme, administered on an individual basis to clients without psychopathology. This therapeutic approach was significantly more successful than compared outcomes of clients with similar attributes who underwent individual Cognitive Behavioural Therapy or Motivational Enhancement Therapy (Project Match, 1997).

Cook (1988) comments on the effectiveness of the ideology of the AA in the context of the extreme attitude changes experienced by some patients as simulating a religious conversion. This theme is continued by Piedmont (2004) in his study of spiritual transcendence as a predictor of psychosocial outcomes from a substance abuse program. His findings reflected that involvement in a spiritually-grounded programme such as that of the AA may be predictive of recovery.

Integral Theory

Integral Theory is derived from a combination of factors intended to maximize the facilitation of personal transformation. This is achieved through the premise that the concept of consciousness is encapsulated by its distribution across four quadrants of existence. These include intentional, behavioural, cultural and social quadrants, which in turn incorporate multiple levels of development (Wilbur, 1997). The developmental stages or levels were informed through accessing and integrating the strengths of the different approaches to Eastern and Western schools of consciousness studies with the aim of transforming consciousness to post-formal levels of existence through post-formal stages of awareness. The concept 'post-formal' may be described as moving away from deliberate effort to access a larger field of existence by simply 'being', (Kabat-Zinn, 2002). This is similar to the concept of spiritual transcendence, which Piedmont (2004) defines as the "capacity of individuals to stand outside of their immediate time and place and to view life from a larger, more objective perspective" (p.215). The treatment facility practices the Integral-Based Recovery Model (IBRM) which incorporates six recovery dimensions namely: mind, body, emotions, spirituality, social and financial/environmental. A combination of spiritual surrender, a vital component of the AA 12-step programme, and the rational recovery processes of psychotherapy provides the basis for the recovery model at the treatment centre.

The Integral Theory of Consciousness also informs the approach of mindfulness and positive psychology as core components and methodologies of the IBRM. Kabat-Zinn (2002) describes the concept of mindfulness as paying attention to one's own inner

experiences, quieting the mind and refining conscious non- judgmental awareness to achieve greater integrity and balance and well being in mental, spiritual and physical realms (Gazella, 2005).

Positive psychology is an approach that accentuates optimal functioning through reinforcement of positive emotions and personal strengths. It is aimed at cultivating pleasure, engagement and meaning and complements rather than replaces mainstream clinical psychology (Duckworth, Steen, & Seligman, 2005). As individual personality vulnerabilities may contribute towards the use of substances to reduce anxiety, depression or stress, (Edwards, Marshall, & Cook, 1997), the reduction of these emotions through positive psychology should increase optimal functioning.

The Integral Based Theory acknowledges the epistemological value of various approaches, and the integration of the Minnesota Model and the AA programme with the IBR model sits comfortably within its premise of inclusion.

Length of stay in treatment

After analyzing the results of a variety of evaluation studies, Simpson (1993) found that only a small portion of the total variance in outcomes could be attributed to clients' backgrounds and psychosocial and environmental factors. A later study by Simpson and colleagues (1997) found that although client attributes are important in the prognosis for future abstention, not all program differences in retention rates can be accounted for by these attribution differentiations, implying that differences in service at treatment centres are also involved. They assert that length of stay in treatment still serves as one of the most consistent predictors of outcomes particularly if there is continued therapeutic contact with the client. McKay and Weiss (2001) acknowledge too that a longer period of treatment is associated with reduced drug use.

Description of treatment centre programme

The treatment centre to be evaluated follows a model informed by the Integral Theory of Consciousness originated by Ken Wilbur (Wilbur, 1997) and designed by the programme director, Guy du Plessis (Du Plessis, 2009). This Integral-Based Recovery Model (IBRM) incorporates philosophical and programmatic approaches whilst retaining

globally respected and accepted traditional treatment modalities in its recovery tools repertoire.

Programme aims and activities

On a practical level the programme followed by the treatment centre includes a variety of activities intended to address the six dimensions of body, mind, emotional, spiritual, social, financial, and the environment. Activities include physical exercise in various forms, nutritional education, cooking lessons, lectures, workshops and written work. Dialectic Behaviour Therapy, Rational Emotive Behaviour Therapy, Cognitive Behaviour Therapy and 12-step education are also offered. Emotional health is addressed by individual counselling, various group therapies and emotion regulation skills. Spiritual health is promoted through daily mindfulness meditation and groups focusing on spiritual education. AA affiliation is considered extremely important and patients are expected to attend 12-step fellowship meetings and perform service activities as well as have a sponsor. They are expected to participate in community and environmental service in various forms and attend administrative life skills and financial education groups and guidance in accessing safe accommodation. All of these activities are designed to contribute towards the moral development of the patients as well as their personal growth and behaviour modulation. The centre's programme is intended to improve patients' lives in respect of all the above mentioned relevant domains including attitude and emotional and behavioural health with the express aim of achieving abstention from substance use (Du Plessis, 2009).

Study Aims

This study attempted to assess the efficacy of the treatment programme described above from two angles. The first approach was the assessment of the status and functioning of the individual at one month after discharge from the facility compared to that at admission. Hypotheses included:

1. Substance use or abuse will have decreased or stopped at one month post discharge.

2. Participants' emotional health levels will have improved from admission to one month post discharge.
3. Participants' behavioural health levels will have improved from admission to one month post discharge.
4. AA affiliation levels will be higher one month post discharge than on admission.
5. Levels of recognition of the problem and taking steps to deal with the problem will have improved over the time categories of admission, discharge and one month post discharge.

The second aspect I wished to address was the abstention rate of past patients in the programme at one month after discharge and the factors associated with that abstention. Hypotheses in this regard were:

1. AA affiliation will have had a positive effect on levels of substance use or abuse at one month post discharge.
2. Emotional health will have had a positive effect on levels of substance use or abuse at one month post discharge.
3. Behavioural health will have had a positive effect on levels of substance use or abuse at one month post discharge.
4. Levels of eagerness to change will have had a positive effect on levels of substance use or abuse at one month post discharge.

METHOD

This study was done in the form of a programme evaluation, which Louw (2000) explains is the methodical assessment of programme results and the equally methodical assessment of the extent to which the programme itself is responsible for those findings.

Due to the nature of the institution under evaluation and the limited number of potential participants available, a convenience sample was used. There was a longitudinal component to the within-subjects design as scores in one domain were compared over three time periods namely, admission, discharge and one month post

discharge. The other four domains were tested on admission and at one month post discharge.

Procedure

Subjects were recruited over a two- month period at the secondary care treatment facility located in Cape Town, South Africa. Patients who were admitted to the treatment centre were approached by a counsellor and informed of the research project underway. If patients were amenable to participating, they were asked to read and sign the consent form (see Appendix D for form). Participation was entirely voluntary and participants were informed that they may at any stage withdraw from the study for any reason whatsoever without that decision impacting on their relationship with treatment centre staff or their treatment programme in any way at all.

If the patient was willing to participate, questionnaires which consisted of the ASSIST scales as well as the SOCRATES, AA Affiliation and GAIN scales (all of which are described later in this report) were self-administered. The patient placed the completed questionnaires in an envelope provided and sealed and signed the envelope flap to ensure confidentiality. The envelope was handed to a staff member at the treatment centre who placed the envelope in a safe location.

Upon discharge, questionnaires were again completed in an identical manner and similarly placed in a sealed envelope. One month after discharge I communicated with the participants telephonically and asked them to complete the same questionnaires as those administered on admission. On the AA Affiliation Scale, if they listed the number of meetings attended in questions 8 and 9 between two figures then I consistently recorded the lower figure as the number attended. I telephoned some participants regarding incomplete sections of their questionnaires and they stated that all unanswered questions could be deemed to be negative responses.

Possible risk to participants' physical, psychological or social well being was not foreseen although some of the questions ask for recall of what some may consider embarrassing behaviour. This potential embarrassment was diluted by the fact that admission questionnaires were self-administered. The dignity and respect of the participant took precedence at all times during the course of this study.

Identifying information on the consent form and data collection forms were kept in separate locked filing cabinets and not made available to anyone other than the researcher. No study participants are identifiable in this report and the entire study was conducted within strict parameters of confidentiality.

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. A copy of this report will be available for viewing at the treatment centre by December 2009.

Participants

Inclusion and exclusion criteria

Inclusion criteria were a minimum age of 18 years of age with no upper age limit as well as alcohol or substance abuse or dependence and active substance use or drinking during at least the 3 months before initial intake. Alcohol and drug abuse levels were determined by the ASSIST scale. Exclusion criteria were disorders unattended by any substance or alcohol misuse or abuse or being considered a danger to self or others by treatment centre staff. Although 14 participants were recruited at baseline, only seven had completed the one-month follow-up period by the time collection of data was stopped.

Materials

The Alcoholics Anonymous Affiliation Scale

Developed by Humphreys, Kaskutas, and Weisner (1998), this scale is intended as a short and reliable unidimensional assessment of participants' levels of affiliation with AA (see Appendix E for questionnaire). Validity and reliability of the scale was tested on a sample of 927 alcohol treatment-seeking individuals from American public 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).

Due to the treatment programmes accenting the importance of the principles of the AA, as well as the necessity for patients to work the AA 12 steps, 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)

This measurement tool was designed by the World Health Organization to identify substance abuse problems worldwide (see Appendix F for questionnaire). The Alcohol, Smoking and Substance Involvement Screening Test V3.0 (ASSIST) is a standardized instrument which has undergone testing for significance of feasibility, validity, reliability, flexibility, comprehensiveness, cross-cultural relevance and its application in brief interventions. The ASSIST consists of a 10-minute eight section self-administered pencil and paper questionnaire. Respondents are assessed for risk related to tobacco, alcohol, cannabis, cocaine, amphetamine–type stimulants (including ecstasy), inhalants, sedatives, hallucinogens, opiates and 'other drugs' (WHO, 2008).

Scores on the instrument measure whether the respondents are at low, moderate or high risk of experiencing problems related to substance abuse. A recent study was undertaken to ascertain the validity of the instrument and findings included significant correlations between ASSIST scores and scores of other well-established similar measuring instruments. These results reflected substantial validity in the ASSIST and, specifically, that it was found to be a valid measure of severity of dependence for the substance that was most problematic for the person concerned. These significant correlations indicated that ASSIST's low, moderate and high risk categories are good predictors of, respectively, substance use, substance abuse and substance dependence and may be referred to as such in this study (Newcombe, Humeniuk, & Ali, 2005).

Due to the primary aim of the treatment centre being abstention from any mind-altering substance, this instrument was chosen as the most appropriate measure both to assess severity of dependence on admission to treatment as well as to measure level of substance use one month after discharge from treatment.

Socrates Stages of Change Readiness and Treatment Eagerness Scale

The SOCRATES Stages of Change Readiness and Treatment Eagerness Scale was chosen as a suitable instrument to reflect the impact of the intervention of the treatment

centre on issues such as problem recognition, ambivalence and taking steps towards change (see Appendix G for questionnaire). The scales were derived from sample populations already in treatment. Baseline values may also be predictive of compliance with efforts to change substance abusing behaviour (Miller & Tonigan, 1996).

This instrument developed by Miller and Tonigan (1996) is designed to assess readiness for change in alcohol and drug abusers. The SOCRATES consists of 19 items rated on a 5-point Likert-like scale divided into three subscales with relatively little overlap. The Recognition subscale assesses the respondent's self-perception of drinking problems. 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 subscale assesses attitude towards change and ambivalence about change. A high score shows uncertainty or ambivalence as well as openness to reflection about their drinking or drug use. Low scores can either indicate that respondents "know" they do not have a drinking/drug problem or "know" that their use of alcohol or drugs is a problem. Lastly, the Taking Steps subscale assesses the level of action being taken by respondents to make positive changes to their drinking or drug use. It was found that high scores may predict successful change and the taking of active steps toward change (Miller & Tonigan, 1996). The same study found a strong positive relationship between problem severity and Recognition. Instrument reliability is strong as it makes use of two large data sources namely Project MATCH baseline data set and the Project MATCH Reliability Study, both of which include a range of demographic and drinking variables that permit assessments of instrument validity. Project Match was a large statistically powerful trial undertaken in the U.S. to test whether different types of alcoholics responded to different types of therapeutic intervention (Del Boca & Brown, 1996). The SOCRATES scale also reports test-retest reliability coefficients on all subscales based on these data sources. Cronbach α test-retest reliability for Ambivalence was .88 and .87 respectively; Recognition, .95 and .95 and Taking Steps, .95 and .96 respectively. Due to the treatment programme underscoring the importance of attitude and state of mind, this instrument was chosen as the best measure to ascertain participants' attitudes towards treatment. This self-administered questionnaire was completed on entry into treatment, on discharge from treatment and one month after discharge from treatment.

The Global Appraisal of Individual Needs

The development of the Global Appraisal of Individual Needs instrument (GAIN) was a collaborative effort of clinicians, researchers, and policymakers from a number of behavioural agencies to create a broad bio-psychosocial assessment tool (see Appendix H for questionnaire). GAIN has been systematically validated psychometrically (Dennis, Scott, Gosley, & Funk, 1999). Internal consistency was high on both the Internal Behaviour subscale (Cronbach's $\alpha = .90$) and the External Behaviour subscale (Cronbach's $\alpha = .88$), (Titus & Dennis, 2005). This tool is comprised of eight screening assessments related to diagnosis and placement of individuals in a substance treatment context.

Due to the emphasis of the treatment programme on the improvement of psychological health, I chose the subscales of Emotional and Behavioural Health to gauge these aspects of research participants both on admission and one month after discharge from the facility. The Emotional Health Scale consists of three subscales designed to measure internalized distress, namely; the Depression Symptom Scale, the Suicide Risk Scale and the Anxiety-Trauma Scale. The Behavioural Health Scale focuses on external behaviours and measures symptoms of activity and inattention, conduct disorder and criminal behaviour with three subscales: The Activity-Inattention Scale, the Behaviour Problem Scale and the General Crime Scale.

Appropriateness of questionnaires use in South Africa

All of the above measuring instruments were considered to be appropriate for use in a South African context as no item is culturally specific. Question number 5 on the AA questionnaire 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). The ASSIST measuring 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).

RESULTS

I collected 14 questionnaires but only 13 were valid. One participant's completed forms were excluded as Obsessive Compulsive Disorder was unattended by any substance abuse problems. In my sample of 13 on admission, 54% of participants listed alcohol as their primary drug of choice, (see Table 3 for details of substance use of participants prior to treatment). Of that portion, 57% were male. Reports of cannabis and amphetamines as a primary drug were considerably less (both 15%) and both of these categories were equally divided between males and females. Opioids at 8% were the least reported drug of abuse.

Table 3

Primary Drug of Abuse (Percentage) for all Participants on Admission

Primary drug of abuse	Admission	Male	Female	Under 40	40 years+
Alcohol	54	57	43	57	43
Cannabis	15	50	50	100	0
Amphetamines	15	50	50	50	50
Opioids	8	50	50	100	0
Combination Cocaine, Sedatives and Amphetamines	8	100	0	100	0

In addition to primary drug choices, 62% of all participants reported dependence on alcohol while 31% and 23% reported dependence on cocaine and amphetamines respectively. Half of participants reported high levels of internal distress and external behaviour problems with 71% of males reporting high levels of external behaviour problems (see Table 4 for general baseline characteristics of participants).

Cronbach's alpha was run on all scales and subscales with varying results, (see Appendix I for table of results). Cronbach's alpha could not be calculated on some scales and subscales due to too many null variances in item scores. As the small sample size was a contributory factor in these results and all of the scales and subscales had been previously independently tested for validity using Cronbach's alpha test, as indicated in

the measures descriptions above (albeit in different contexts), I continued with the data analysis. All admission totals apart from the SOCRATES Recognition sub-scales fell within the normal distribution range. Some, with very few scores, were slightly negatively skewed.

Table 4

Baseline Characteristics of Participants

			Low Cat		Mod Cat		High Cat	
	N	%	N	%	N	%	N	%
Demographics								
Total number admissions	13	100						
Female	6	47						
Male	7	53						
Age under 40 years	9	69						
Age 40 years and over	4	31						
Drug Use History								
Substance dependency	13	100						
Tobacco			3	23	4	31	6	46
Alcohol			1	8	4	31	8	62
Cannabis			6	46	5	38	2	15
Cocaine			1	8	8	62	4	31
Amphetamines			4	31	6	46	3	23
Inhalants			9	69	3	23	1	8
Sedatives			7	54	2	15	4	0
Halucinogens			8	62	5	38	0	15
Opioids			9	69	4	31	2	15
Other			9	69	2	15	0	0
Psychological								
High in internal distress (female)							3	50
High in internal distress (male)							4	57
High in poor external behaviour (female)							3	50

High in poor external behaviour (male)						5	71
Peer Programmes: AA/NA							
AA/NA Affiliation		6	46	3	23	4	31
Number of meetings averaged monthly	4						
Number of meetings averaged in lifetime	73						

Although the sample size was small (13 participants), I ran individual correlation tests on the ASSIST admission scores with all other admission variables which revealed no significant association between any of the variables: Poor correlations were found between totals of ASSIST scores on admission and admission totals of: Internal Behaviour, Socrates Drug Recognition, Socrates Drug Ambivalence, Socrates Drug Taking Steps, Socrates Drink Recognition, Socrates Drink Ambivalence, Socrates Drink Taking Steps and AA Affiliation. The only result approaching an association of any significance was that of External Behaviour admission totals with that of admission ASSIST scores ($r = .444$, $p = .129$), indicating a weak positive association between poor external behaviour and higher dependence on drugs or alcohol.

However, AA Affiliation on admission strongly correlated with Internal Behaviour on admission ($r = .837$, $p < .0001$) indicating a possible trend towards a relationship between poor internal behaviour and higher AA Affiliation scores on admission. Similarly, there was a correlation, although not significant, between AA Affiliation admission scores and External Behaviour admission scores indicating that there may be a trend towards some relationship between poor external behaviour and higher AA Affiliation scores on admission, ($r = .55$, $p = .243$).

I attempted to run repeated measures ANOVAs on all of the SOCRATES subscales in all time categories for both drink and drugs in order to explore whether attitudes towards recognition of a drinking or drug problem and taking steps towards the same had improved over that time period. Similarly I wanted to investigate whether levels of ambivalence had changed. Although there were no significant main effects found in the analyses on the subscales of Recognition and Ambivalence, the greatest effect size was found in the score differences of the SOCRATES Ambivalence drug category over time ($\eta^2 = .392$, F (2) 3.224, $p = .083$). As probability values are affected

by sample size and my sample was so small I felt that further investigation was warranted. The assumption of sphericity in this analysis was upheld indicating that all three time measures' scores tended to vary similarly ($\chi^2 = .328$, $df = 2$, $p = .849$) so I ran a post-hoc Tukey's test to see whether any differences between the time categories of Ambivalence were of interest. The difference between the SOCRATES drug admission totals of Ambivalence and the post one month discharge drug totals of Ambivalence approached significance ($Mean_{\ TOTSocDrgA} = 19.00$, $Mean_{\ TOTPDSocDgA} = 14.00$, $p = .07$). This change of the Ambivalence mean score from the high to the low category is not cause for concern as the ambiguity of the questions in this category can result in either high or low scores implying openness to reflection. Guidelines for interpretation of SOCRATES scores direct that low Ambivalence scores should be understood in the context of Recognition scores. In this study Recognition scores were high at one month post discharge justifying the assumption of openness to reflection in participants.

I was unable to run an ANOVA Repeated Measures test on the SOCRATES Drug and Drink admission, discharge and one month post discharge time periods of the sub-scale Taking Steps due to the lack of variance in the post one month discharge scores. The identical highest possible scores registered against each participant may have been due to the fact that all 7 participants who completed the one month post discharge questionnaires were abstinent and in all likelihood extremely aware of the positive changes in their drinking or drug taking. As change in this context is the main theme of the questions related to this subscale, this uniformity is understandable.

I wanted to check actual category changes in each subscale of each time category for SOCRATES due to the small sample size possibly affecting statistical power on the above ANOVA test results. Again due to the small sample size, I amalgamated Miller and Tonigan's (1996) Very Low and Low categories into one Low category and the Very High and High categories into one High category. The Moderate category remained the same. A number of the results reflected in Table 5 below are of interest. Over half of the participants were high in recognition on both drink and drug subscales on admission. With all but three of the thirteen participants having had some connection with AA prior to treatment admission this proportion is not anomalous with expectations. Discharge Recognition drink and drug scores are also of interest in gauging the centre's success in

attitude change and reveal that 86% and 100% of participants fell into the high category of SOCRATES Recognition drink and drug sections respectively. One month post discharge drink Recognition in the high category remained at 86 % while drugs dropped to 83%. Taking Steps follows a different route in both drink and drug categories as percentages of participants falling into the high category followed a consistently upward trajectory. One hundred percent of participants fell into the high category of Taking Steps in both drink and drug groups one month after discharge.

Table 5

Socrates Category Scores

	N	Percentage	N	Percentage	N	Percentage	N	Percentage
				Admission				
Drink	Low		Moderate		High		Totals	
Recog	3	27	2	18	6	55	11	100
Ambiv	4	36	1	9	6	55	11	100
TS	3	27	1	9	7	64	11	100
Drug								
Recog	2	17	3	25	7	58	12	100
Ambiv	0	0	0	0	12	100	12	100
TS	3	25	2	17	7	58	12	100
				Discharge				
Drink	Low		Moderate		High		Totals	
Recog	1	14	0	0	6	86	7	100
Ambiv	2	29	0	0	5	71	7	100
TS	0	0	1	14	6	86	7	100
Drug								
Recog	0	0	0	0	6	100	6	100
Ambiv	2	33	0	0	4	67	6	100
TS	1	17	0	0	5	83	6	100
				Post Discharge				

Drink	Low		Moderate		High		Totals	
Recog	0	0	1	14	6	86	7	100
Ambiv	3	43	0	0	4	57	7	100
TS	0	0	0	0	7	100	7	100
Drug								
Recog	0	0	1	17	5	83	6	100
Ambiv	4	67	0	0	2	33	6	100
TS	0	0	0	0	6	100	6	100

Note. Recog = Recognition; Ambiv = Ambivalence; TS = Taking Steps

In keeping with my hypothesis I wanted to check whether emotional behaviour had improved between admission and one month post discharge so I ran t-tests for dependent samples on Internal Behaviour scores. Results reflected a significant difference in internal behaviour of participants, ($t(6) = 3.89$; $p = .008$) with mean scores of $M_{Admission\ Internal\ Behaviour} = 10$ and $M_{One\ month\ post\ discharge\ Internal\ Behaviour} = 4.57$. This indicated a considerable improvement in internal behaviour functioning. These encouraging results warranted further investigation and I ran the same tests for each of the subscales of internal behaviour to ascertain if a particular area was responsible for the great improvement in overall internal behaviour. As depression and symptom scale scores improved significantly as well as scores on the subscales of Suicide Risk and Anxiety/Trauma it was clear that improvement was stable across all three dimensions of internal behaviour (see Table 6 for details).

Table 6

Internal Behaviour Scale Scores on Admission and Post One Month Discharge

Subscale	*M*	*SD*	*N*	*t*	*df*	*p*
Depression						
Admission	4,57	0.79				
Post Discharge	1.86	1.57	7	5.73	6	.001

Suicide risk						
Admission	2	1.29				
Post Discharge	0.29	0.49	7	3.62	6	.01
Anxiety/Trauma						
Admission	6.43	0.53				
Post Discharge	2.43	2.07	7	5.08	6	.002

To ascertain whether external behaviour had improved between admission and post one month discharge a t-test for dependent samples was also run on these scores of External Behaviour. The results reflected a significant improvement in behavioural functioning, (t $(6) = 9.94$; $p < 0.001$), with $M_{Admission\ External\ Behaviour} = 17.71$ ($SD = 4.27$) and $M_{One\ moth\ post\ discharge\ External\ Behaviour} = 1.86$ ($SD = 1.95$). This striking improvement invited further enquiry into the subscales of External Behaviour namely; Activity-Inattention, Behaviour Problem and General Crime. Both the general crime and behaviour problem subscales significantly improved from admission to discharge. Activity-Inattention results closely approached significance (see Table 7 for details).

Table 7

External Behaviour Subscale Scores on Admission and Post One Month Discharge

Subscale	*M*	*SD*	*N*	*t*	*df*	*p*
Activity-inattention						
Admission	4.12	1.86				
Post Discharge	1.71	2.06	7	2.44	6	.05
Behaviour problem						
Admission	3.57	1.99				
Post Discharge	0.14	0.38	7	5	6	.001
General Crime						
Admission	1.29	1.11				

Post Discharge	0	0	7	3.06	6	.02

The last dependent t-test sample was run on AA Affiliation at admission and one month post discharge. The result was not significant (t (6) = -1.55, p = .17), although the mean scores suggested some increase in AA Affiliation ($M_{AA\ Affiliation\ Admission}$ = 3.43; $M_{AA\ Affiliation\ Post\ Discharge}$ = 4.86). I checked the association between the one month post discharge ASSIST scores and the number of meetings attended in the past month by one month post discharge completers. Results reflected a significant positive correlation between these variables (r = .819, p = .02), meaning the higher the ASSIST scores, the more meetings attended after discharge. A weaker, but still interesting positive association was found between one month post discharge Assist scores and AA Affiliation scores at the same time (r = .57, p = .18). Despite the lack of significance, this warrants comment as the statistical power of the p value may be reduced by the small numbers in my sample, and these results may still indicate a possible link between higher ASSIST scores and AA affiliation. The results of this study reflected that all abstinent participants at one month after discharge were attending AA meetings across a range of regularity as well as engaging in activities reflecting some affiliation with AA (see Table 8 below). Because of the strong association at admission between AA affiliation and internal behaviour I tested the same association of these variables at admission only between the seven one month post discharge participants to avoid erroneously generalizing results. A similar result was obtained, (r = .84, p = .02). Further enquiry found that 43% of the post one month discharge population reported high AA affiliation on admission as opposed to 31% of the total admission sample. Only 29% had no affiliation prior to admission while the remaining 14% fell into the high range of moderate affiliation.

Table 8

AA Affiliation Details at One Month After Discharge

In Past Month	N	%
Consider self member of AA	7	100

Read AA literature	7	100
Have AA sponsor	6	86
Been to 15 or more meetings	6	86
Been to 4 meetings	1	14
Had a spiritual awakening experience	4	57

Although all seven participants were abstinent one month after discharge and fell into the same Low Risk category of ASSIST, I attempted a simultaneous regression using each SOCRATES subscale at discharge and ASSIST post one month discharge continuous data as I wanted to see if there were any particular SOCRATES subscale associations with outcomes of abstention. As the assumption of multicollinearity could not be upheld due to the independent variables correlating extremely highly with each other and extremely poorly with the dependent variable, the analyses would have served no predictive purpose. Similarly, regression tests could not be run on the remainder of the independent variables due to the lack of variance in the ASSIST one month post discharge results. Therefore the relationship of emotional health, behavioural health and AA affiliation with continued substance use or non-use could not be tested.

DISCUSSION

Although my sample sizes proved to be smaller than expected (13 at admission, seven at discharge and also seven at post one month discharge), for the purposes of this project I continued with interpretation of the data. Alcohol was reported as the primary drug of choice as well as the drug with the highest dependency percentages. AA affiliation was associated with internal and external behaviour on admission and internal behaviour one month post discharge. In all instances both worse internal and external behaviour were associated with higher AA affiliation. Other associations linked AA affiliation (meetings attended) to higher ASSIST scores at one month post discharge. Internal behaviour and external behaviour were significantly better on one month post discharge than on admission, while the SOCRATES subscales already fairly high on admission, improved somewhat over time.

The fact that the majority of participants listed alcohol as their primary drug of choice was not surprising considering the literature surrounding the prevalence of alcoholism in the Western Cape, (Department of Social Development, 2005/2006). What was interesting however was that dependence on amphetamines (incorporating the drug methamphetamine) was not as high as expected in accordance with the literature on the subject (Plüddemann et al., 2008). This is especially in the light of Cape Town treatment centres reporting it as the primary drug of choice of 36% of patients in 2008 (see Table 1). A factor contributing towards this anomaly could be that none of the participants were financially sponsored and were all private, self-funding patients. This would imply that participants were not from poor socioeconomic backgrounds from where the majority of methamphetamine users in Cape Town come, (Plüddemann et al., 2008). In addition to this, no participant was under the age of 20 years and the highest reported use of methamphetamine abuse fell into this age category (see Table 2).

The significant improvement in ASSIST scores and the self-reported abstinence of all participants at one month after discharge enabled acceptance of the hypothesis that substance use or abuse would decrease or stop at one month post discharge. However, this abstinence rate precluded any predictive testing due to the lack of variance in the dependent variable. Therefore, although 100% abstinence was achieved by all seven participants, suggestive of some success in intervention treatment, I was unable to associate any particular treatment component with this success. As a result none of the hypotheses relating to the factors associated with this abstention could be definitively accepted.

The hypotheses relating to the improvement in emotional and behavioural functioning of participants between admission and one month post discharge were also accepted as both categories of functioning showed significant improvement. As a primary objective of the treatment centre is to improve these areas of functioning with a view to establishing and sustaining abstinence in the longer term this study found that both those goals were met. Within the emotional health category, all subscales of depression symptoms, anxiety-trauma levels and suicide risk reflected significant improvement. Depression and anxiety are cited in the literature as predictive of substance abuse (Edwards et al., 1997). It is therefore logical to conclude that reduction

of levels in the measured areas of internal health in this study would aid abstinence maintenance even though there was no association between ASSIST scores and Emotional Health.

The significant improvement in all participants' external behaviour scores included significant improvement in the subscales of problem behaviour and general crime. Only comparative scores on the subscale measuring activity and inattention just missed the level of significance. As integral therapy encourages mindfulness and recognition of addictive behaviours, this result is encouraging in that past patients are self-regulating their behaviour far more at one month post discharge than they were at admission. This may be impacting on decisions not to relapse as the positive association, although fairly weak, between admission ASSIST and scores measuring external behaviour is in keeping with the literature linking anti-social behaviour to substance abuse (Titus et al., 2005).

The hypothesis that AA affiliation levels would increase between admission and post one month time periods, could not be accepted. As most patients reported AA affiliation on admission and one third reported high affiliation (so reducing the probability of a significant result), I felt that further investigation exploring abstinent participants' involvement with AA was warranted. The findings of a significant positive correlation at one month after discharge, between higher ASSIST scores and more meetings attended was of particular interest. The variance within these ASSIST scores lay mainly in the responses to question 3 which relates to frequency of urge to use drugs or alcohol, with higher scores indicating more urges. This strong association may be tentatively suggestive of the treatment centre's success in inculcating the notion of AA as a primary support resource which is a major focus of the treatment programme. Additional evidence in support of this is that all participants at one month after discharge considered themselves members of AA, attended AA meetings, read AA literature and most had an AA sponsor. These figures combined with 100% abstinence support the claims of the literature that abstinence achievers were more likely to maintain AA affiliation after treatment (Bodin & Romelsjo, 2006). This study found that 57% of one month post discharge participants reported having experienced a spiritual awakening through AA in the past month. This tentatively suggests that the spiritual framework

within which the AA as well as the treatment centre operate, could be a contributory factor towards continued abstinence as claimed in the literature (Piedmont, 2004).

An unexpectedly high positive correlation found between internal behaviour and AA affiliation on admission indicates that even prior to treatment, participants experiencing more emotional difficulty and anxiety tended to have a stronger affiliation with AA than those who experienced less. The literature reports higher baseline endorsement of AA as predictive of continued abstinence after discharge which led to further tests in my sample (Bodin & Romelsjo, 2006). No significant association was found between these two variables but nearly half of the post one month discharge population reported high AA affiliation at admission and only about a quarter had no prior affiliation with AA at that time.

Previous affiliation with AA may have impacted on SOCRATES Recognition scores which reflected no significant change over time (although statistical power was weak). The fact that over half of admission scores fell into the High category may have been due to a number of factors: A cornerstone of AA philosophy is the personal acknowledgement of one's own alcoholism or addiction and as two thirds of the admission population had some affiliation with AA prior to admission it seems likely that there would be some recognition of a substance abuse problem. High recognition in this population in particular may also have been linked to the relatively high cost of residential rehabilitation centres together with the fact that all patients were self-funding. It seems rational to assume that before spending a large amount of both time and money in and on a programme designed to treat substance abuse problems, patients would first recognize at some level that such a problem exists. Higher SOCRATES scores for both drink and drugs in the recognition category at discharge suggest that the treatment centre's programme was successful in raising awareness of patients' own substance abuse problems while in treatment.

Exactly the same case could be made for the SOCRATES Taking Steps category in relation to both AA affiliation and costs involved .The AA programme is based on 12 steps to help members make changes in their lives in the quest for relief from active addiction. As high scores in the Taking Steps category is, according to the literature, predictive of successful change (Miller & Tonigan, 1996), the fact that all abstinent

participants scored high at discharge and the highest possible mark in this category one month post discharge supports this claim.

The change, approaching significance, of the Ambivalence mean score from the high to the low category of discharge and post one month discharge scores respectively may be explained within the instrument interpretation guidelines. The ambiguity of the questions in this category may result in either high or low scores implying openness to reflection. Examples of questions where the answers require contextual framing are: "Sometimes I wonder if I am an alcoholic/addict" and "There are times when I wonder if I drink/use drugs too much". Many participants disagreed with these statements but their concurrent high recognition scores require that in keeping with guidelines the answers be interpreted as that respondents do not wonder if they are alcoholics/addicts or drink/use too much because they know that they are and they do. In this study Recognition scores were high at post one month discharge justifying the interpretation of Ambivalence scores as openness to reflection in participants.

Limitations

The sample population was considerably smaller that that envisaged at the planning phase of the project. It transpired that only seven participants had been discharged for one month by the 30 September 2009 cut-off as many patients remain at the secondary care treatment centre for longer than the average four weeks length of stay at primary care facilities.

A more desirable pseudo-experimental research design with a wait list component (or any kind of control group) was precluded due to the facility under evaluation obtaining its clients directly from primary care centres. This situation prevented the possibility of any control or comparison group being used.

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).

Data from an earlier time point was reconstructed on admission but such recalls did not take place more than eight weeks after the time of expected recollection. This was to accommodate the retrospective responses relating to all of the abovementioned questionnaires at initial primary treatment intake. The time lapse between the participant's admission into primary care and the initial research questionnaire was not ideal. The risk of memory loss in relation to the events in question was considered outweighed by the benefit of the practical application of the principle of rigorous honesty which is a core component of addiction treatment programmes.

Conclusion

Despite these limitations, treatment outcomes gauged on abstention rates of participants were successful with 100% abstention reported by all participants at one month after discharge. In addition to this, overall emotional and behavioural functioning of participants significantly improved from admission to one month post discharge. Within these categories only the subscale Activity-Inattention missed the level of significance by .001 suggesting successful intervention in treatment. Participants' levels of recognition of their substance abuse problems improved as did openness to reflection and steps were taken to make changes around those problems. Other findings included that participants experiencing more urges to use an intoxicating substance after discharge were more likely to attend more Alcoholics Anonymous meetings than those experiencing fewer. This tentatively suggests successful inculcation by the treatment programme of the use of AA as a practical support resource after discharge. As all areas

addressed by this study showed considerable improvement with many improvements being significant, there is tentative evidence that the treatment centre programme was successful.

Implications of findings and directions for further research

All participants were private patients who stayed in treatment for a minimum of two months. This implies backgrounds of high socioeconomic status with probable access to good education. Although the treatment outcomes were successful and reflect favourably on the programme of the rehabilitation centre, further research is required to ascertain whether these programme components could be applied with the same successful results to poorer and less educated communities. The same applies to potential patients of different cultural backgrounds. In addition, due to the small number of participants involved in this study, a larger study with a control group is recommended to improve the predictive power of results.

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Appendix A

Results of International Studies

Results of Treatment Outcome Studies

Study	S S*	Population	Method	Main Finding
Bodin et al. (2006)	244	Patients at Swedish Minnesota Model clinic	Cross sectional representative Study of Minnesota Model.	Treatment retention strongly associated with favourable outcomes. Lower baseline alcohol and stronger motivation associated with favourable outcomes.
Laffay et al. (2008)	2796	Male Patients from 88 different treatment centres in the US	Longitudinal study of AA involve - ment.	AA involvement had independent positive effects on use disorders. Stronger endorse- ment of AA philosophy
Project Match	1726	Patients from 9	Cross sectional	12-Step Facilitation

(1997)		Clinical Research Units in US	representative sample.	Result: Individual TSF more successful than other therapies in non psychopathological clients.
Simpson et al. (1997)	10,010	Patients from treatment centres in 11 US Cities.	Cross sectional representative study	Three months is recommended as minimum length of stay. Retention rates can be predicted by length of stay. Older or alcohol dependent clients were more likely to remain in treatment for more than 90 days. After statistical adjustment for various client and treatment variables programmes still differed re retention rates. Low retention related to poor motivation and psychiatric co-morbidity.
Winters et al. (2000)	245	Adolescents from drug clinic admissions.	Cross sectional representative Study of Minnesota Model. Wait list group.	Treatment retention strongly associated with favourable outcomes. Social influence and motivational factors play role.

Appendix B

The 12 Steps of Alcoholics Anonymous

1. We admitted we were powerless over alcohol—that our lives had become unmanageable.
2. Came to believe that a Power greater than ourselves could restore us to sanity.
3. Made a decision to turn our will and our lives over to the care of God as we understood Him.
4. Made a searching and fearless moral inventory of ourselves.
5. Admitted to God, to ourselves, and to another human being the exact nature of our wrongs.
6. Were entirely ready to have God remove all these defects of character.
7. Humbly asked Him to remove our shortcomings.
8. Made a list of all persons we had harmed, and became willing to make amends to them all.
9. Made direct amends to such people wherever possible, except when to do so would injure them or others.
10. Continued to take personal inventory and when we were wrong promptly admitted it.

11. Sought through prayer and meditation to improve our conscious contact with God as we understood Him, praying only for knowledge of His Will for us and the power to carry that out.
12. Having had a spiritual awakening as the result of these steps, we tried to carry this message to alcoholics, and to practice these principles in all our affairs.

Appendix C

The 12 Traditions of Alcoholics Anonymous

1. Our common welfare should come first; personal recovery depends upon A.A. unity.
2. For our group purpose there is but one ultimate authority - a loving God as He may express Himself in our group conscience. Our leaders are but trusted servants; they do not govern.
3. The only requirement for A.A. membership is a desire to stop drinking.
4. Each group should be autonomous except in matters affecting other groups or A.A. as a whole.
5. Each group has but one primary purpose - to carry its message to the alcoholic who still suffers.
6. An A.A. group ought never endorse, finance or lend the A.A. name to any related facility or outside enterprise, lest problems of money, property and prestige divert us from our primary purpose.
7. Every A.A. group ought to be fully self-supporting, declining outside contributions.

8. Alcoholics Anonymous should remain forever non-professional, but our service centers may employ special workers.
9. A.A., as such, ought never be organized; but we may create service boards or committees directly responsible to those they serve.
10. Alcoholics Anonymous has no opinion on outside issues; hence the A.A. name ought never be drawn into public controversy.
11. Our public relations policy is based on attraction rather than promotion; we need always maintain personal anonymity at the level of press, radio and films
12. Anonymity is the spiritual foundation of all our traditions, ever reminding us to place principles before personalities.

Appendix D

Consent to Participate in a Research Study

Dear Patient,

Formal Title: Outcomes based evaluative research at a Cape Town substance abuse treatment centre

Study Purpose
You are being asked 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.

Study Procedures
If you decide to participate in this study, you will be asked to complete a questionnaire on admission to ascertain your previous levels of substance use, your emotional and behavioural health and your perceptions of your own substance use. The entire process should take no longer than 40 minutes. Similar questionnaires will be administered soon before departure and you will be asked to complete a follow up questionnaire one month after departure from 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.

Possible Risks
There are no foreseen psychological risks although some questions may ask you to recall some embarrassing past behaviour.

Possible Benefits
There are no direct benefits to you in participating in this study but by agreeing to participate you are assisting in furthering the body of knowledge surrounding effective substance abuse treatments.

Confidentiality
The researcher will be the only person aware of your identity in which regard you are assured of her strong commitment to the principles of anonymity and confidentiality. Tabankulu 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 file 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 file cabinet.

Voluntary Participation
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.

If you are interested in the findings of this research, the report will be available for viewing from December 2009 onwards at Tabankulu Secondary Care Treatment Centre.

Debriefing
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 December 2009.

Questions
Any questions related to this study may be addressed to:

Lynda Duffett 0824343490
Dr Catherine Ward 021 6503422

_____ _____
Signature of participant Date

_____ _____
Name of participant (printed) Witness

_____
Participant's home telephone number

_____
Participant's cell phone number

Appendix E

Alcoholics Anonymous Affiliation Questionnaire

ALCOHOLICS ANONYMOUS AFFILIATION SCALE

Please Answer Yes or No

1 Have you ever considered yourself a member of AA?
2 Have you ever called an AA member for help?
3 Do you now have an AA sponsor?
4 Have you ever sponsored anyone in the AA?
5 Have you ever had a spiritual awakening or conversion experience through your involvement with AA?
6 In the past 12 months, have you read AA literature?
7 In the past 12 months have you done service, helped newcomers, or set up chairs, made coffee, cleaned up after a meeting, etc?
8 How many AA meetings would you estimate that you have gone to during your lifetime?
9 How many AA meetings have you gone to in the last 12 months?

Appendix I

Validity Testing Results

Summary of Cronbach Alpha on each scale used

Scale	Admission	Discharge	One Month Post Discharge
ASSIST			
Tobacco	0.90		*
Alcohol	*		*
Cannabis	0.85		*
Cocaine	0.84		*
Amphetamines	*		*
Inhalents	0.94		*
Sedatives	0.94		*
Hallucinogens	0.83		*
Opioids	0.96		*
Other	*		*
Emotional Health			
Depression Sympton	*		0.67
Suicide Risk	0.56		*
Anxiety-Trauma	*		*
Behavioural Health			
Activity-Inattention	*		0.82
Behaviour Problem	*		*
General Crime Scale	0.54		*
SOCRATES Drug			
Recognition	*	*	*
Ambivalence	0.45	0.79	0.65
Taking Steps	0.89	*	*
SOCRATES Drink			

Recognition	0.94	*	*
Ambivalence	0.79	0.80	0.59
Taking Steps	0.89	*	*
AA Affiliation	*		*

Note. * *= unable to run Cronbach's Alpha due to too many null variances*