

**The role of readiness to change and other patient factors in the
prediction of dropout from treatment for problem drinking of alcohol**

By

Amina Saban

Supervisors: Dr. Neo Morojele; Dr. Colin Tredoux

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ABSTRACT

The main purpose of the study was to examine the predictive role of patients' readiness to change drinking behaviour, in dropout from treatment for problem drinking. The predictive role of patient demographic factors, socioeconomic factors, personal history and drinking factors in dropout from treatment for problem drinking was also examined. A subsidiary interest of the study was to examine the differences between patients who completed their treatment and patients who did not complete their treatment for problem drinking.

The study was conducted at Avalon Treatment Centre, an alcohol treatment centre in Cape Town, South Africa. The subjects consisted of all inpatients and daypatients who were admitted to the Avalon Treatment Centre Rehabilitation Programme over a period of five consecutive months ($n = 62$). Information for the study was elicited from the subjects by means of an interview schedule designed for the study, and the Readiness to Change Questionnaire (Treatment Version) which was developed by Heather, Luce, James, Peck and Dunbar (1996). The interview schedule consisted of four main sections that requested information about patient demographic characteristics, socioeconomic characteristics, personal and drinking history factors, and information regarding discharge from treatment at Avalon Treatment Centre. The researcher conducted the interviews and administered the Readiness to Change Questionnaire (Treatment Version) to all the subjects. Information relating to patient discharge was obtained from the patients' folders, the patients themselves, the patients' families, and from the Avalon Treatment Centre therapeutic staff.

The results of the study are described. The data was analysed statistically by means of bivariate analyses (such as chi square tests) and multivariate statistical analyses (namely, discriminant function analysis). The findings indicated that statistically, significantly more daypatients dropped out of the Rehabilitation Programme than did inpatients. The discriminant

function analysis suggested that six patient factors contributed significantly to the discrimination between dropouts and completers of treatment for problem drinking of alcohol. The patient factors were: wine, the alcoholic beverage consumed most frequently; drinking alcoholic beverages daily; living alone at the time of the admission for treatment via the Rehabilitation Programme; being separated from spouse at the time of admission; the Preparation-Action stage of change; previous treatment for problem drinking. These results indicated that dropout from treatment for problem drinking could be reliably predicted from patient characteristics. The results also suggested that there are significant differences between dropouts and completers of treatment for problem drinking.

The results are discussed in the light of related research findings, and possible explanations for the findings are offered. Recommendations for the implementation of the findings and their implications for future research are suggested.

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CHAPTER 1

INTRODUCTION

The present study examined the role of patient characteristics in discriminating between patients who dropped out of treatment for problem drinking of beverage alcohol, and patients who remained in treatment and completed their treatment. In particular, the role of patient characteristics such as patient demographic factors, socioeconomic factors, drinking pattern and personal history factors, and readiness-to-change (motivational) factors, was considered and determined in relation to dropout from treatment. The role of these patient characteristics (also called patient factors in the study) was examined by analysing the data using descriptive and multivariate statistical analyses. The discriminatory role of the patient characteristics was analysed by means of discriminant function analysis to determine which patient factors would facilitate the prediction of dropout from treatment for problem drinking.

In the arena of health service provision, one aspect of services has often been a source of great concern to service providers. This area involves patients who have been diagnosed with, and informed about, a condition that requires treatment over a protracted period of time, but who terminate their recommended treatment before the treatment has been completed. The termination of the treatment usually occurs against the advice of the treatment managers. The patients who terminate their treatment in this way, and are commonly referred to as 'dropouts from treatment', have been of particular concern. This concern has arisen largely because not completing the treatment has been shown to have negative consequences for both the patients and the service providers (MacNair and Corazzini, 1994). For example, it has been suggested that patients who

drop out of treatment are expected to have poorer outcomes than those who have completed the treatment to which they had been assigned, by being less able to be productively reintegrated into society (Sobell, Sobell and Ward, 1980). There have also been suggestions from psychiatric treatment facilities that patients who drop out of group therapy programmes affect the emotions of their treatment managers and fellow group therapy members (MacNair and Corazzini, 1994). For example, such patients have been found to make the treatment managers and fellow patients despondent about their roles and about the treatment being offered. Treatment managers and group members have also been found to become insecure and resentful when fellow group members have dropped out of therapy programmes. These feelings have often, as a result, led to more group therapy members dropping out of groups (MacNair and Corazzini, 1994). Patients who drop out of treatment generally have also appeared to be more likely to have to return for similar treatment. Such return has often necessitated the investment of additional and repeated resources (Buhrmaster, Hartman, Menefee, Shores and Rogers, 1982) which are invariably limited and often already in short supply.

Patients in treatment for addictive disorders, such as drug abuse and problem drinking of alcohol, have been found to demonstrate a dropout rate that is commonly higher than the dropout rate from treatment in other medical disciplines (Baekeland and Lundwall, 1975). Patients in treatment for these addictive disorders also have dropout rates which are higher than the dropout rates from treatment in other psychological and mental health treatment facilities and rehabilitation programmes (Buhrmaster, Hartman, Menefee, Shores and Rogers, 1982). In particular, patients who are in treatment for problem drinking of alcoholic beverages and related disorders have demonstrated dropout rates, from both inpatient and outpatient treatment facilities, which are higher than the dropout rates from treatment facilities in other areas of medicine (Baekeland and Lundwall, 1975; Mammo and Weinbaum, 1990; MacNair and Corazzini, 1994).

Dropout from treatment for problem drinking of alcohol and related disorders has been a source of concern at treatment facilities in the Western Cape, South Africa (Naude, 1995; Rogers, 1990; Avalon Treatment Centre, personal communication, 1996). The importance of treatment dropout has become particularly significant in this geographical area since South Africa has been struggling with an escalating drug and alcohol abuse problem (Parry, 1994; Matzopoulos and Lerer, 1995). Naude (1995) also demonstrated that there appears to be a great need for improved treatment facilities. The increasing problems with addictive disorders have, therefore, increased the demand for treatment and rehabilitation. This need has caused the available resources to be reviewed so as to provide a more effective service.

However, the South African Reconstruction and Development Programme (RDP) health policy aims (RDP, 1994) have necessitated the redistribution of available finance, human and technical resources, and medication, to satisfy the needs of areas that were previously underserved as a result of racist and apartheid policies. Consequently, established treatment facilities have had to cope with staff, budget and resource reductions, increasing the need for these facilities to function in an efficient and cost-effective manner. It has, therefore, become necessary for these facilities to identify areas where cost-saving measures can be implemented appropriately and where the efficacy of provided services can be optimised. Since patients who drop out of treatment before completing their treatment can be costly to the service providers as well as to themselves, reducing the dropout rates at these facilities could benefit both the service providers and the consumers (MacNair and Corazzini, 1994).

Yet, despite the potential benefits of stemming patient dropout rates, the phenomenon of patient dropout from alcohol treatment facilities has rarely been researched comprehensively within the Western Cape area. The reasons for this are unclear, and the paucity of alcohol treatment dropout research in this area could possibly have arisen from several factors. For example,

available research funds could have been directed to geographical and treatment areas that sponsors have considered as being of greater and more urgent importance. In addition, the difficulties that are encountered in locating dropouts from alcohol treatment (Sobell, Sobell and Ward, 1980) might have discouraged research in this area. Yet, despite the possible difficulties encountered with investigating dropouts from alcohol treatment, the benefits of improved understanding of the phenomenon of dropout in these patients cannot be denied. In particular, such understanding would be especially pertinent to attempts to reduce dropout from treatment in these patients.

Thus, in order to address patient dropout from treatment, and to devise appropriate intervention strategies to stem the dropout rates, the phenomenon of treatment dropout needs to be carefully analysed. For example, it is necessary to identify the patients who drop out of treatment, establish their reasons for dropping out, and to determine how these patients differ (if at all) from those patients who remain in treatment and complete their treatment. Baekeland and Lundwall (1975) established that, although patients drop out of treatment in every medical discipline, the patients in each of these medical disciplines differ as regards various factors. For example, patients who drop out of treatment were found to differ in terms of the nature of their medical problems and the kinds of treatment options that were available to them. Patients who drop out of treatment were also found to differ in terms of the kinds of treatments that they received, the duration of the treatments, and the likelihood of the patients dropping out of treatment (Baekeland and Lundwall, 1975). It, therefore, appears that it would be inappropriate to examine dropout from treatment as a singular entity. Instead, it appears that dropout from treatment would be more appropriately examined if the specificity of the patients, their problems, and the nature of their treatment could be identified and isolated. Such an approach would minimise the chances of the investigation into

dropouts being confounded by a multitude of differing and extraneous patient characteristics. The present study was, therefore, embarked upon with these factors in mind.

In the present study, a group of patients, who sought treatment for problem drinking of alcoholic beverages at an alcohol treatment centre in Cape Town, South Africa, was targeted. The study attempted to determine which factors discriminated between patients who dropped out of treatment and patients who remained in treatment and completed their treatment. The study aimed to compare the patients who dropped out of treatment and those who remained in treatment, using selected patient factors. This was done with a view to, quickly and reliably, identifying those patient factors that place patients at risk of dropout from treatment. Patients at risk for treatment dropout would then be able to have their management structured to reduce this risk, increase the probability of their continuing with and completing their treatment, and, thereby, increase their chances of successful treatment outcome. The patient factors were elicited for examination by means of an interview between the researcher and individual patients. Additional patient information was obtained from patient hospital files and from the treatment managers. The patient factors which were selected included patient demographic factors, socioeconomic aspects in the patients' lives, factors related to the patients' past drinking habits, patients' drinking patterns, and the patients' motivational level at the time of admission. Patient motivational level on admission was assessed by means of the Readiness to Change Questionnaire (Treatment Version) [RCQ(TV)] developed by Heather, Luce, Peck, Dunbar and James (1996). This questionnaire was based on the Stages of Change model proposed by Prochaska and DiClemente (1982). This model suggests the existence of stages through which patients pass during the process of effecting a behaviour change. These stages are said to be indicative of patients' levels of motivation, or preparedness, to effect a behaviour change. Subsequent research by McConaughy, Prochaska and Velicer (1983)

concluded that these stages of change could be used reliably to predict dropout of patients from therapy.

The length of hospital stay and reasons for dropout, in those patients with problem drinking who did not complete their treatment, were also examined. In addition, the ability of patient factors to predict patient dropout from treatment was determined. This analysis was performed in the hope that early prediction of possible treatment dropout would effect future management and policy changes at ATC, and possibly also at other treatment facilities, which would provide potential treatment dropouts with the support to reduce the possibility of their dropping out of treatment.

The major aim of the present study was to identify patient characteristics which would predict dropout from treatment for the problem drinking of alcoholic beverages, with specific emphasis on the role of patients' preparedness to change their drinking habits in treatment dropout. A subsidiary interest of the present study was to identify differences between dropouts and completers of treatment for the problem drinking of alcoholic beverages. The study was conducted at Avalon Treatment Centre (ATC), an alcohol treatment centre in Cape Town, in the Western Cape province of South Africa (see Appendix 1 for further details). Avalon Treatment Centre was one of a few State treatment facilities which provided both inpatient and outpatient treatment programmes exclusively for patients with alcohol-related problems. However, despite wide and public acknowledgement of the much-needed services provided by ATC (see newspaper article in Appendix 2), the available services were drastically restructured and reduced during the course of the present study. This situation at ATC forced data collection for the present study to be concluded hastily and before the intended number of patients had been interviewed. A few months after the conclusion of the data collection for the present study, Avalon Treatment Centre was closed due to cuts in the State budget (Appendix 2). Consequently, all the treatment and

rehabilitation programmes which were offered by Avalon Treatment Centre were discontinued, the staff had to find alternative employment, and problem drinking patients had to be referred elsewhere.

In this thesis, the details regarding the present study will be described, analysed, and discussed. Chapter 2 will discuss the theoretical background to the study, and provide an overview of literature that was pertinent to the study. In Chapter 3, the manner in which the study was conducted will be outlined in detail. The study site, and in particular the Rehabilitation Programme for problem drinkers, will also be described in Chapter 3. The analysis of the results obtained for the present study will be reported in Chapter 4. These results and their implications will be discussed in Chapter 5, the concluding chapter of the thesis.

CHAPTER 2

THE RELATIONSHIP BETWEEN PATIENT FACTORS AND DROPOUT FROM TREATMENT FOR PROBLEM DRINKING OF ALCOHOL

Individuals dropping out of treatment is a phenomenon that occurs in most social and educational programmes, as well as in most areas of medicine (Bischoff and Sprenkle, 1993; Bracken, 1976; MacAdoo and Roeske, 1973; Buhrmaster, Hartman, Menefee, Shores and Rogers, 1982; Baekeland and Lundwall, 1975). But, within a general medical context, patients who terminate their treatment early appear to differ with regards to several factors (Baekeland and Lundwall, 1975). For example, the patients have been found to differ in terms of patient factors such as the reasons for the termination, the person requesting the termination; manner in which the treatment is terminated, the patient's previous history of early treatment termination (Baekeland and Lundwall, 1975). The patients who terminate their treatment early also appear to differ in terms of treatment factors such as circumstances at the treatment facility at the time of treatment termination (Baekeland and Lundwall, 1975). The patients also differ in terms of the kind of treatment that is terminated or the amount of treatment that had been received before the treatment termination (Baekeland and Lundwall, 1975; Sobell, Sobell and Ward, 1980). Patients who drop out of treatment also differ in terms of temporal factors such as the time spent in treatment before termination of the treatment (Baekeland and Lundwall, 1975). Different medical disciplines also experience different and varying dropout rates amongst patients. For example, in their review of dropout literature, Baekeland and Lundwall (1975) found that 37% to 60.2% of tuberculosis inpatients had signed out of treatment against the advice of their treatment managers over a

particular period of time. In comparison, 20% to 50% of hypertension patients were recorded by these authors as dropping out of treatment within the first year of treatment. Most of the latter patients were found to have dropped out within the first two months of their treatment.

In particular, high proportions of patients appear to drop out of rehabilitation and psychotherapy programmes (Buhrmaster, Hartman, Menefee, Shores and Rogers, 1982). For example, 20% to 50% of patients entering group therapy in general were found to terminate their treatment early (MacNair and Corazzini, 1994). But different studies examining dropout rates in clients diagnosed with similar problems have reported different dropout rates (Baekeland and Lundwall, 1975). However, the general consensus in the literature appears to be that dropout rates from most therapeutic programmes are high enough to warrant concern and investigation. For example, from 21 dropout studies reviewed by Bostwick (1987, cited by MacNair and Corazzini, 1994), the mean premature termination rate was 35%. Thus, although these rates of dropout, approximating one in every three patients, warrant investigation of the phenomenon, the added burden of the financial, resource, time and psychological costs to patients and service providers would further justify concentrated efforts to understand and attempt to alleviate early termination of treatment in general. In the present study, a group of patients who dropped out of treatment, specifically for the problem drinking of alcoholic beverages, was targeted.

Dropout from treatment for substance abuse

Dropping out of treatment is particularly common amongst patients who are in treatment for drug or alcohol-related disorders. In fact, patients in treatment for these disorders are often singled out in the literature on dropout from treatment in general, because of their relatively high dropout rates when compared with dropout rates from other treatment programmes (Baekeland and Lundwall, 1975). Robinson and Little (1982) reported a dropout rate of 50% or more from treatment programmes for drug abuse, while Rogers (1990) reported a 52% dropout rate for the

period 1988/1989 in clients attending treatment at the Cape Town (South Africa) Drug Counselling Centre. However, as is the case with all other patients who terminate their treatment early, patients who are in treatment for drug and alcohol-related disorders also tend to differ in terms of the circumstances which prevail at the time of their treatment termination.

One of the factors pertinent to early termination of treatment appears to be the kind of treatment that is terminated. For example, MacNair and Corazzini (1994) found that alcohol-abusing patients demonstrate a larger dropout rate from group therapy than from individual therapy. These authors have suggested that this was the case primarily because alcohol-abusers, like other substance abusers, demonstrate denial and low expectations of success in interpersonal relationships, and suppress their deeper feelings. These patients consequently experienced discomfort in a group therapy environment, causing these group attendees to be minimally involved, or even completely uninvolved, in the group. These feelings of discomfort are thought to lead to early termination of the treatment. Thus within the group therapy setting, the early termination of the treatment provides an escape from an environment which the patient perceives to be threatening because of the inadequacy of his/her social abilities. Although this example provides only one instance in which the kind of treatment from which patients drop out is a salient feature of early termination of treatment, it is evident that the nature of the treatment to which the patient is exposed is highly pertinent to whether or not the patient remains in the treatment and completes the treatment.

Studies which were conducted with patients who experienced alcohol-related disorders have indicated that some patients who drop out of treatment or receive no treatment at all spontaneously recovered from their problems (Sobell, Sobell and Ward, 1980; Presley, 1980). However, the trend in the literature appears to be that most patients who drop out of treatment for alcohol-related disorders are thought to have a poorer prognosis than do those who complete their assigned treatment (Baekeland and Lundwall, 1975). The present study evolved through an

awareness of the results of several research projects. For example, it has been found that patients who drop out of treatment for alcohol-related disorders appear to be less successfully integrated into their society (Baekeland and Lundwall, 1975; Sobell, Sobell and Ward, 1980). Some such dropouts have been found to recover after receiving minimal treatment or no treatment at all (Sobell, Sobell and Ward, 1980; Presley, 1980). According to the literature, alcohol treatment dropout has been investigated less frequently than other areas of alcohol treatment, often because of the difficulties encountered in tracing the dropouts (Sobell, Sobell and Ward, 1980). Alcohol abuse is also regarded by some researchers as being costly to society and the national economy due to its causing premature deaths and unemployment (Parry, 1994). When these findings were considered in conjunction with the little research on alcohol treatment dropout within the Western Cape (South Africa), where treatment resources are limited and problems of substance abuse are escalating (Parry, 1994), the present study was embarked upon to examine treatment dropout in a group of patients who were admitted for the treatment of alcohol problem drinking. However, since the present study was conducted specifically within a South African context, some background regarding alcohol consumption, its implications, and its consequences in South Africa will be provided.

Consumption of beverage alcohol and its effects in South Africa

One of the major health problems facing South Africa at present is the effect of the widespread use of drugs and alcohol. According to Parry (1994), this problem is not sufficiently acknowledged by the public, has been ineffectively addressed by policy-makers, and occurs at great cost to the society. For example, the cost of alcohol abuse is said to approximate two percent of the South African Gross National Product (Parry and Bennetts, 1996). The exact cost of alcohol abuse in South Africa is unknown. But the cost of alcohol abuse in South Africa has been estimated to be approximately 10 billion rand or more *per annum* when the lost productivity, medical expenses,

motor vehicle accidents, violence and crime, fire damage and social problems are taken into account (Parry and Bennetts, 1996). When these negative costs are weighed against the revenue received from the South African beverage alcohol industry (via income tax, excise taxes on the purchase of alcohol products, water and electricity supplied by the government to farmers and manufacturers of alcohol beverages), the cost of alcohol abuse is likely to outweigh the contribution made by the beverage alcohol industry to the economy of the country. In fact, Parry and Bennetts (1996) are of the opinion that the misuse of alcohol could be regarded as hampering the economic and social development of the country. Alcohol abuse has also been found to be responsible for a large number of so-called premature deaths due to violence, road accidents, drownings, and suicides. Matzopoulos and Lerer (1995) examined non-natural mortality in the Cape Town Metropole during 1994 and found that, although the legal limit for blood alcohol level when driving was 0.08g/100ml blood, 51% of the victims of all unnatural deaths had a blood alcohol level greater than 0.1g/100ml blood. Fifty-five percent of all homicide victims, 55% of all pedestrians killed in motor vehicle accidents, and 53% of all vehicle drivers who were fatally injured showed similar blood alcohol levels. In addition, 62% of victims of fire accidents, 31% of fall fatalities, 39% of drowning victims, and 26% of suicide victims were under the influence of alcohol.

The consumption of alcoholic beverages has appeared to be very popular amongst the youth, and particularly so amongst high school students. For example, at three high schools in the Cape Peninsula area of the Western Cape, Ziervogel, Morojele, Parry and Robertson (1996) found that 39% (predominantly White), 26.3% (predominantly Coloured) and 35.6% (predominantly Black) of Standard 8 male pupils had had five or more drinks at least once in the 14 days preceding their being interviewed. Similarly, amongst the females in this sample, 18.4% (predominantly White), 25% (predominantly Coloured) and 3.6% (predominantly Black) had had five or more drinks at least once in the preceding fourteen days. Further research results indicated that alcohol

use and/or abuse, together with alcohol-related problems, were prevalent in a large proportion of the South African population, and were particularly widespread in the Western Cape (Flisher, 1993; London, 1994). This situation places an enormous burden on society due to the costs incurred by the loss of manpower, productivity and working hours, use of medical resources, material losses such as loss of possessions due to motor vehicle accidents, fires and crimes, and the financial implications of legal proceedings and jail terms. The costs of widespread abuse of alcohol, therefore, have ramifications into several aspects of society, including family life, the productivity of workers, community safety and security, health costs, required treatment facilities, employment, and the development of the country, and the issues arising out of such widespread use need to be addressed.

Combating problems associated with the consumption of beverage alcohol

In an attempt to combat problems associated with the consumption of beverage alcohol, two major intervention strategies are usually adopted. These intervention strategies usually encompass methods of preventing further such problems, and ways in which the problems can be treated, its victims rehabilitated and successfully reintegrated into society.

Parry (1994) identified mass intervention strategies and targeted interventions as the primary methods employed in the attempt to prevent further development of alcohol-related problems. The mass intervention strategies usually consist of community health education programmes and the development of policies to control advertising, sales and distribution of alcoholic beverages. Targeted interventions involve strategies geared at specific groups (such as motor vehicle drivers) who are at risk of disadvantaging themselves and others because of alcohol-related problems. However, while preventive measures are developed and implemented, those individuals who experience the problems of alcohol-related disorders have to be managed and rehabilitated to occupy their places in society. Ideally, in the opinion of the researcher in the present

study, prevention and treatment programmes should be coordinated and integrated in order to address the problem of alcohol-related disorders comprehensively and effectively. Unfortunately, however, it has been the experience of the researcher in the present study that facilities that address preventive and management mechanisms often function and are funded independently of each other. As a result, they do not equally benefit from the input of the large variety of academic disciplines that contribute to either aspect of addressing alcohol-related disorders.

As previously mentioned, one major intervention strategy in addressing alcohol-related problems involves the management of the individuals who experience these problems. The management techniques employed are largely determined by the theoretical framework that defines the manager's perspective of alcohol-related disorders. For example, in an attempt to manage individuals with, or at risk of, alcohol-related problems, a distinction is often drawn between the following categories:

- 'misusers' of alcohol
- 'abusers' of alcohol
- people who are 'dependent' on alcohol
- 'chronic' alcoholics

An alcohol 'misuser' is a lay term defined as someone who drinks alcohol heavily and regularly. Alcohol 'abuse' is a recognised psychiatric diagnostic entity that describes the condition of someone who experiences physical, psychological, social and occupational problems, associated with alcohol use, for at least one month (American Psychiatric Association, 1987). Alcohol 'dependence' is also a psychiatric diagnostic category, and describes the condition of an individual who experiences tolerance, withdrawal, loss of control, and/or compulsive drinking, and indulges in relief drinking (American Psychiatric Association, 1987). These are the features that are also often used to define the terms 'alcoholism' and 'alcoholic'. The notion of a chronic alcoholic is a lay

description of an individual who demonstrates extreme dependence on alcohol over an extended period of time, and whose dependence on alcohol negatively impacts on the individual who drinks and on the people in his/her life.

These terms and definitions are commonly used in the management of alcohol-related disorders. For example, in the present study, the group of study participants consisted of patients from all these categories of definitions. At Avalon Treatment Centre (ATC), however, patients were categorised primarily in terms of Diagnostic and Statistical Manual IV (DSMIV) diagnostic categories which pertain to alcohol misuse, abuse, dependence without physiological dependence (implying no evidence of tolerance or withdrawal symptoms) and dependence with physiological dependence (implying the presence of tolerance or withdrawal symptoms) [ATC Initial Assessment Questionnaire]. Much controversy surrounds the actual management of these disorders. This controversy stems largely from the conceptual disparity regarding whether alcohol-related disorders constitute a disease or not. These differences have led to continuing debate as to whether alcohol-related disorders should be managed within a biological/medical paradigm (as is largely the case in South African State management facilities) or not, and what alternative management techniques should be considered. The following four sections of this chapter will outline some of the details which characterise the debate regarding the conceptualisation of alcohol-related disorders as diseases.

Arguments for alcoholism to be regarded as a disease

A disease is usually defined as a disruption in normal bodily functions (Fishbein and Pease, 1996). The argument for alcoholism to be regarded as a disease has stemmed primarily from the ambit of biological theories of addiction. These biological theories hold that substances with high abuse potential stimulate reward systems in the brain. This process results in the experience of pleasurable feelings for the individual who then seeks to repeat the pleasurable experiences (Fishbein and Pease, 1996). Thus the

potential alcoholic would persist in drinking so as to continue to enjoy the pleasurable feelings which are elicited from the consumption of alcohol.

The perspective to view alcoholism as a disease has derived largely from the personal experience of medical practitioners who found that patients with severe drinking problems remain chronically addicted to alcohol, regardless of whether or not they abstain from alcohol drinking for extended periods of time (Jurd, 1992). These so-called alcoholic patients who had remained abstinent for decades, were found to resume seemingly uncontrollable drinking after only one drink. These case studies gave rise to the analogy between alcoholism and diseases that go into remission. Thus alcoholism was viewed as a disease which went into remission on abstinence, but was triggered almost immediately when consumption was resumed.

In addition, the finding of a proposed genetic basis for alcoholism has also contributed to the concept of alcoholism as a disease. Though a specific gene or group of genes which code for alcoholism has not been isolated, genetic studies have found that having an alcoholic relative increases the risk of an individual becoming alcoholic (Searles, 1988). Similarly, a severe type of alcoholism, characterized by early onset and antisocial behaviour, has been associated with the sons of alcoholic fathers (Searles, 1988). The argument for a genetic basis to alcoholism has also been strengthened by the discovery of an increased incidence of characteristic genetic material in subjects who had been blindly diagnosed as alcoholic (Jurd, 1992).

The findings of a possible genetic basis for alcoholism have, therefore, led to the perception that alcoholism can be perceived to be an hereditary disease in the same vein as other conditions such as asthma, diabetes, hypercholesterolaemia and hypertension, which also appear to run in families but for whom no specific coding genes have been isolated. According to the disease approach, these findings have resulted in alcoholism being presumed to warrant management within a disease framework in the same way as the other diseases mentioned earlier (namely, asthma, diabetes, hypercholesterolaemia and hypertension). Furthermore, individuals who have

been described as chronic alcoholics have been found to have characteristic enzyme activities in their blood (Jurd, 1992). These individuals were found to experience brain cell loss and subsequent brain damage at a lower alcohol level, than did controls of other physically dependent drinkers. The argument for the disease model of alcoholism, therefore, holds that, with such strong biological markers which distinguish alcoholics from other drinkers, alcoholics have a right to be regarded as being sick because of the disruption of their normal bodily functions. The alcoholism can then be defined as a disease because normal bodily functions are disrupted and can, therefore, be treated within a medical paradigm.

There is, of course, no doubt that excessive alcohol consumption can lead to disease (for example liver cirrhosis), and the role of medical management in the treatment of this disease cannot be denied. Similarly, there is evidence to suggest that physical dependence on alcohol can develop due to neurochemical changes effected by alcohol consumption. Both the diseases and the neurophysiological damage caused by excessive drinking can, therefore, benefit from medical developments and expertise. But, although the diseases and damage are undoubtedly associated with the excessive drinking, there is no justification for the assumption that the excessive drinking itself should be regarded as a disease that can or should benefit from the available medical opinion and management. In addition, arguments for a genetic basis for alcoholism have under-emphasised the role of environmental factors, and the possible dynamic interaction between genes and the environment, in developing alcoholism (Heather and Robertson, 1989).

The strongly substantiated arguments against the reasoning for regarding alcoholism as a disease, together with severe criticism of some of the research techniques employed in determining a biological and disease basis for alcoholism, have, therefore, provided some strong criticism of the conceptualisation of alcoholism as a disease. Thus the argument against viewing alcoholism as a disease has received increased support (Searles, 1988). One of the more prominent arguments in

support of viewing alcoholism as not a disease, and a perspective that is rapidly increasing in popularity and acceptance amongst researchers on alcoholism, will be outlined in the next section.

Arguments against regarding alcoholism as a disease

As previously mentioned, the major argument against alcoholism being regarded as a disease stems from the perspective that, though some of the consequences of excessive drinking can be recognised as diseases, these consequences of alcoholism do not justify perceiving the excessive drinking itself as a disease. Furthermore, despite the suggestion of a genetic transmission for alcoholism, genes that code for alcoholism have not been isolated. The grounds for a genetic basis to alcoholism are thus weakened. This is so largely because alcoholism would, as a result, be a disease which is undefined in terms of its cause and would be diagnosed in terms of symptoms which have been found to occur in some individuals who are not regarded as having alcoholism (Heather and Robertson, 1989).

In 1989, Heather and Robertson constructed a comprehensive, evidence-based argument against the disease concept of alcoholism. They proposed that there were very likely several disease concepts of alcoholism that determined the treatment modalities proposed. These authors categorised the various disease concepts in terms of their bases which, in the opinion of Heather and Robertson (1989), viewed alcoholism as either a physical abnormality, a psychopathology, or an acquired addiction or dependence. They isolated four assumptions that were presumably made by the disease perspectives of alcoholism. They identified these assumptions as being:

- i) that alcoholism was a singular disease with symptoms which clearly differed from people who were not regarded as having the disease,
- ii) that alcoholics had no control over their drinking,
- iii) that alcoholism was incurable, and
- iv) that untreated alcoholism would lead to continual deterioration of the individual.

Heather and Robertson (1989) then provided the evidence to refute each of these assumptions. For example, their reviews of research indicated that problem drinking and non-problem drinking of alcohol were part of a continuum of drinking. A distinct entity such as alcoholism could, therefore, not be isolated. Instead, all the points on the continuum of alcohol drinking would be susceptible to medical, legal, socioeconomic and personal problems. In addition, they found that alcohol drinking was strongly influenced by environmental conditions, and could, therefore, not be simplified as a behaviour that occurred involuntarily. These authors also proposed that controlled drinking was an attainable goal for some problem drinkers. Thus, problem drinking which had sometimes been described as alcoholism could be reversed. They also found that there was no evidence to indicate that with continuing his/her drinking, the individual would continue to deteriorate physically, psychologically, and socially. As a result of these findings, which provided a strong counter-argument for the perception to regard alcoholism as a disease, Heather and Robertson (1989) concluded that, though treatment might be useful for certain problem drinkers, environmental changes in the lives of the problem drinking individuals would make a greater impact on their rehabilitation.

Implications of the disease concept of alcoholism

The definition of the term 'disease' has long been a source of debate and argument. Yet the concept is largely accepted as implying a condition which requires medical intervention, and assumes a biological basis for the condition. But some of the problems associated with alcoholism (for example the emotional, domestic, social, economic and psychological problems) appear to transcend human physiology, biochemistry and genetics. Thus, it would appear that approaching management of alcoholism and alcohol-related disorders from a solely medical perspective would have some distinct disadvantages. For example, Heather and Robertson (1989) argue that by perceiving and managing alcoholism as a disease, the influence of social policy on the availability

and sale of alcoholic beverages would be ignored. And, by disregarding the effects of social policy on the consumption of alcohol, one of the most effective ways of reducing or preventing incidence of alcohol-related disorders, namely by controlling or reducing consumption, would be overlooked.

There can, however, be little doubt that, by altering the perception of alcoholism, from deviant and socially unacceptable behaviour deserving punitive action, to an illness in need of treatment, the circumstances for the problem drinker have in many cases improved. Yet, the approach to treat alcoholism as an illness contributed to absolving the alcoholic of his/her responsibility for his/her problem with drinking alcohol. Instead, the alcoholism was regarded as a condition that imposed itself on the individual. The individual was then regarded as a victim of his/her biological constitution, who required treatment from someone else. Also, by addressing the alcoholism as a disease, the individual was regarded as someone who had acquired a condition that made him/her different from other people. Yet the difference between the alcoholic individual and other non-alcoholic individuals was not explained by this approach and served no purpose other than to negatively, and possibly morally, label and marginalise the individual. But at the same time, the individual with the more obvious and severe symptoms of excessive drinking would be more likely to be treated, while insidious damage and less obvious symptoms would be ignored. Thus some individuals who were also in need of assistance would be overlooked. Instead, by approaching the management of alcoholism as a phenomenon with varying degrees of severity, the finer nuances of alcoholism could be addressed, and the phenomenon could then be managed in its entirety.

As an alternative approach, Heather and Robertson (1989) proposed the involvement of behavioural psychology to address alcoholism more comprehensively. This approach proposed the inclusion of consideration of the cognitive and social aspects of the phenomenon of alcoholism. In doing this, they suggested that alcoholism be regarded as a behaviour that was performed by an individual. Thus the individual would not be regarded as a problem. Instead, the individual would

be perceived as indulging in a particular behaviour which posed a problem. Thus harmful drinking would be the problem, not the individual. Heather and Robertson (1989) proposed that the behavioural problem be referred to as "problem drinking". This alternative approach, proposed by Heather and Robertson (1989), will be summarised in the following section of this thesis.

An alternative approach to the disease model of alcoholism

In their approach to problem drinking, Heather and Robertson (1989) engaged a major tenet of social learning theory, namely that perceptions of normality and abnormality exist on a continuum. Social learning theory is a scientific and empirical examination of the processes involved in the learning of behaviour, thoughts and feelings. These learning processes are perceived to be able to occupy various levels. For example, learning processes may involve classical conditioning, instrumental learning, modelling, self-management, self-regulation, or cognition (Heather and Robertson, 1989). These levels assist in improving understanding of the processes involved in learning behaviour. These levels are characterised by interaction and mutual influencing of one another, with classical conditioning and cognition occupying the two extremes of a continuum.

Social learning theory holds that non-problem and problem drinking differ only quantitatively and not qualitatively, since normal and problem behaviour form the extremes of a continuum. Thus, in keeping with social learning theory, according to Heather and Robertson (1989) problem drinking and normal drinking were viewed as existing as part of a continuum which had management of the individual and prevention of problem drinking as its endpoints. This approach could, therefore, address the problems of clients with either less or more severe problem drinking. Total abstinence was also not perceived to be the only viable goal of management. Instead, clients would be confronted with the option of controlled drinking as a possible management goal. The alcohol drinking would then be perceived as a behavior performed by an

individual and impacted upon by client factors and factors in the individual's social and emotional environment. Management of the problem drinking in this manner would not encourage removal of the client from his/her environment for treatment. Instead environmental forces would be constructively engaged, where appropriate and practical, in the management of the problem drinking. At the same time, client input in the management process would be encouraged.

An important part of this management approach was also to develop the sense of the benefits of drinking more lightly, or possibly abstaining from drink entirely in cases of some serious problem drinkers. As a result, an attempt would be made to increase the client's motivation to bring about a change in his/her behaviour (namely, problem drinking). With strong emphasis, thus, on the level of motivation of the client, and a recognition of the need for clients to increase this level of motivation in order to be ready to effect a behaviour change, Miller and Rollnick (1991) developed a series of techniques called motivational interviewing. Since motivational interviewing involves the notion of motivation, a discussion of the concept of motivation will follow, with particular reference to the management of problem drinkers.

Motivation and the management of problem drinkers

The term 'motivation' has been frequently used in discussions of individuals with addictive disorders. In particular, individuals with alcohol-related disorders have often been described as being 'poorly motivated' (Miller, 1985), especially when these individuals have not responded to management in a manner expected of them by treatment managers. These individuals have often been regarded as 'a lost cause' for treatment when they were perceived by their treatment managers to be unmotivated or poorly motivated (Saunders and Wilkinson, 1990). Being motivated has, therefore, often been regarded as a prerequisite for treatment. Thus, the concept of motivation has been a concept that has frequently been a major aspect of the management of individuals who experienced problem drinking.

Yet, despite the frequency with which the concept of motivation has appeared in the literature on the management of problem drinkers, and despite the recognition and acknowledgement of the concept as an important aspect of management (Cox and Klinger, 1988), a comprehensive definition of the concept has never been agreed upon (Saunders and Wilkinson, 1990). Instead, motivation has commonly been defined retrospectively in terms of the outcome of individuals after management (Miller, 1985). For example, individuals who demonstrated what managers defined as poor functioning after being managed would be said to have been insufficiently motivated to recover from their drinking problems. Saunders and Wilkinson (1990) took exception to the view that individuals who persisted in a behaviour such as problem drinking, despite seeking assistance or being managed, were unmotivated to change the behaviour and, therefore, could not be helped. These authors concurred with Miller's (1985) view that individuals with problem drinking who were assisted but continued with similar drinking patterns after their management were judged as unmotivated to change the drinking behaviour because these individuals did not respond to their management in a way that was expected of them by their therapists or managers. Instead, Saunders and Wilkinson (1990) were of the view that all behaviours, including behaviours that were obviously harmful to the individual concerned and to the people in his/her life, were motivated. Thus, problem drinkers could be sufficiently motivated to continue drinking as they had always done, to start drinking more than usual, to start drinking less than usual, or to stop drinking. The important point that they made, though was that these behaviours and individuals were motivated. Being motivated, therefore, did not necessarily imply being motivated to change a particular behaviour.

Instead, it would be important to examine the factors that sustain a particular behaviour. It would also be important to consider the factors that would influence an individual to change a particular behaviour. Saunders and Wilkinson (1990) proposed that addictive behaviour such as problem drinking should be viewed in terms of the costs and benefits, as perceived by the individual

concerned, provided by continuing or changing the behaviour. Though the cost-benefit analysis for each individual could be different, this analysis would ultimately determine the choices made by the individual. The authors, therefore, proposed that the task of management and treatment of these individuals be to assist clients in their decision-making as regards, for example, their drinking. Thus, clients should be assisted in perceiving the value of effecting a behaviour change in order to effect the change. This process of assisting the client to observe the worth in changing a behaviour forms a major component of motivational interviewing (Moyers and Yahne, 1998; Miller and Rollnick, 1991). The concept of motivational interviewing will be discussed in greater detail in the next section of this chapter.

Motivational interviewing

Motivational interviewing is a therapeutic technique that was developed by Miller and Rollnick (1991). The technique was developed to assist clients in recognising the need to change a problem behaviour, by creating an atmosphere to enhance the behaviour change. The technique requires the counsellor to be empathic, respectful of the client's views, non-confrontational, accepting, and understanding of the client's feelings from the client's perspective. The technique, therefore, requires the counsellor's acceptance of the client's feelings of ambivalence about the behaviour change as being not pathological or defensive. At the same time the client is encouraged to recognise the discrepancy between the consequences of the problem behaviour and his/her personal goals. The technique encourages the client to speak, and for the counsellor to listen, and uses reflective-listening statements and self-motivational statements. Because motivational interviewing allows the perceptions of the client to motivate the behaviour changes, the need for the behaviour change is effected by the client him/herself, and is not imposed by the counsellor. However, the counsellor is required to facilitate and encourage the belief of the client in his/her ability to effect the perceived needed behaviour change. The principles of motivational interviewing

developed out of the stages of change concept proposed by Proschaska and DiClemente (1982). The concept of the Stages of Change model, as proposed by Proschaska and DiClemente (1982) will be discussed in the following section of this chapter.

The stages of change

Proschaska and DiClemente (1982) were concerned about the proliferation of therapeutic techniques that sought to understand and explain the principles and processes involved in effecting behaviour change. In a pilot retrospective study of smokers, they found that smokers who stopped smoking on their own (self-changers), as well as smokers who received treatment intervention programmes (therapy changers), experienced a sequence of stages of change through which they could identify passing. Proschaska and DiClemente (1982) identified four stages of change. They described the four stages of change as being, thinking about stopping smoking, becoming determined to stop smoking, actively changing habits or environment, and maintaining a non-smoking lifestyle. In the process of changing their behaviour, clients were found to sometimes regress to an earlier stage, or progress to a subsequent stage. These observations led Proschaska and DiClemente (1982) to propose naming the following stages:

- Precontemplation (PC) stage of change which referred to the stage preceding consideration of behaviour change.
- Contemplation (C) stage of change, which referred to the stage where the individual was sufficiently motivated to think seriously about changing the problem behaviour.
- Determination (D) stage of change, which referred to the individual making a serious commitment to change the problem behaviour.
- Action (A) stage of change, which referred to the individual actively changing the problem behaviour.

- Maintenance (M), which referred to the individual's maintaining behaviour which was free of addiction.
- Relapse (R), which referred to the individual's resuming the problem addictive behaviour.
- Termination (T), which referred to the stage after prolonged maintenance, when the client was no longer at risk of relapsing.

Proschaska and DiClemente (1982) suggested that these stages of change occurred cyclically and not linearly. This conceptualisation would explain why clients with addictive problem behaviour could regress to a previous stage of change and then repeat the process through the subsequent proposed stages.

In 1983, McConaughy, Proschaska and Velicer developed the Stages of Change Questionnaire by means of which they examined the relationships between the client's stage of change on therapy, and the course that the therapy took. Their expectation was that precontemplators would drop out of therapy at a higher rate than clients would in the later stages of change. This expectation was confirmed. The research subsequently concluded that the Stages of Change Questionnaire could reliably identify the following stages of change:

- Precontemplation
- Contemplation
- Action
- Maintenance

In 1989, McConaughy, DiClemente, Proschaska and Velicer demonstrated that the Stages of Change Questionnaire could reliably measure stages of change in a sample of patients who demonstrated an addictive behaviour. This research gave rise to the recognition of the stage of change of a client on entering therapy. As a result, the treatment process could address the needs of each specific client, based on the client's stage of change. This approach allowed for the matching

of the management to the client, and, thereby, increased the chances for clients to have successful outcome after management. In 1992, Rollnick, Heather, Gold and Hall developed what they called the Readiness to Change Questionnaire (RCQ) based on the Stages of Change model of Proschaska and DiClemente (1982). The development of the RCQ will be discussed in greater detail in the next section of this chapter.

Development of the Readiness to Change Questionnaire (RCQ)

The experience of Rollnick, Heather, Gold and Hall (1992) was that healthcare workers often had very little time to assess a problem behaviour such as excessive alcohol drinking when a client or patient was in treatment for problems other than the drinking. They decided to use the stages of change model proposed by Proschaska and DiClemente (1982), to assist in conceptualising and quickly assessing the motivational readiness of their clients to change drinking behaviour. Rollnick, Heather, Gold and Hall (1992) examined the motivational readiness to change drinking behaviour in excessive alcohol abusers who did not attribute the problems they experienced to their drinking. The authors needed an instrument that would allow assessment of the client to be performed quickly because the assessors had little time available, particularly because these clients were in treatment for problems other than their drinking. Consideration of the available instruments led to the University of Rhode Island Change Assessment (URICA) scale being rejected as inappropriate because of its length. The URICA also attempted to elicit the client's problem from the client. Since the people to be assessed by Rollnick, Heather, Gold and Hall (1992) were in treatment for problems other than their drinking-related problems, and since the authors were interested in assessing readiness to change drinking behaviour specifically, the URICA was deemed inappropriate because of the possibility of confusing the patients. The Stages of Change Questionnaire (McConaughy, Proschaska and Velicer, 1983) was also not considered to be an appropriate instrument for the purposes of Rollnick, Heather, Gold and Hall (1992). This

was because the latter authors sought an instrument that would allow the direct allocation of an individual to a stage of change. This requirement could not be met by the Stages of Change Questionnaire, because the instrument expected stage of change to be inferred from reported behaviour or from the behaviour intended by the individual. Thus, the need for brevity, simplicity and specificity with respect to alcohol drinking led to the development, by Rollnick, Heather, Gold and Hall (1992), of the short RCQ for brief opportunistic interventions among problem drinkers.

The short RCQ allowed excessive alcohol drinkers to be assigned to one of the stages of change as proposed by Prochaska and DiClemente (1982). Originally the RCQ consisted of 28 items which were scored by the client on a five-point rating scale ranging from -2 for Strongly Disagree, through zero for Unsure, to +2 for Strongly Agree. The 28 items were made up of four groups of seven items, with each group representing one of four stages of change. The four stages of change represented in the short RCQ were:

- Precontemplation
- Contemplation
- Action
- Maintenance

The 28 items were assessed by eight clinical psychologists who assigned each item to a stage of change. Items that were not allocated to the same stage of change by all the assessors, were discarded. As a result, the number of items that were accepted for the questionnaire was systematically reduced until consensus was reached by the assessors on 12 items. These 12 items represented three stages of change with four items in each stage. The stages that were represented in this questionnaire were:

- Precontemplation
- Contemplation

- Action

These stages of change and their related scales were found to demonstrate good internal consistency, test-retest reliability and concurrent validity.

In 1993, Heather, Rollnick and Bell examined the relationship between readiness to change behaviour and drinking outcomes in male excessive drinkers who sought treatment for problems other than alcohol-related disorders. This research attempted to validate the ability of the RCQ to predict whether subjects in the Action stage were more likely to reduce their alcohol consumption than were subjects in the Precontemplation or Contemplation stages. They also examined the predictive ability of the Preparation stage (proposed by DiClemente, Proschaska, Fairhurst, Velicer, Velasquez and Rossi, 1991, as a subdivision of the Contemplation stage and was previously labelled the Determination stage of change) to accommodate those subjects who were preparing to change their drinking behaviour but had not yet set about effecting this change. In effect, this research of Rollnick, Heather and Bell (1993) was an attempt to validate the findings of McConnaughey, Proschaska and Velicer (1983) in which the predictive ability of the stages of change was examined. But while McConnaughey, Proschaska and Velicer (1983) examined the ability of the stages of change to predict therapy dropout, Heather, Rollnick and Bell (1993) tried to determine the ability of the stages of change to predict behaviour change specifically in terms of a reduction in alcohol consumption. The results of the latter investigation indicated that the RCQ could be used to predict changes in drinking behaviour over time.

However, the RCQ was designed by using only male excessive drinkers who were not in treatment for a drinking problem. Yet Heather, Luce, Peck, Dunbar and James (1996) found that the RCQ was sometimes used in later studies with patients who sought treatment for alcohol-related disorders. It was found that this occurred despite the fact that the instrument had shown insufficient internal reliability with problem drinkers in treatment for their problem drinking (Gavin, Sobell and Sobell, in press). In response to these findings, which were considered cases of

inappropriate use of the RCQ, Heather, Luce, Peck, Dunbar and James (1996) embarked on a project to develop a treatment version of the RCQ (RCQ-TV). The RCQ (TV) was developed to assess readiness to change problem drinking behaviour in individuals who were seeking treatment for their problem drinking. Though the RCQ (TV) will be discussed in greater detail in the next chapter, a brief outline of the instrument will be provided here.

As previously mentioned, the RCQ (TV) [Rollnick, Heather, Gold and Hall, 1992] was developed to assess problem drinking in patients who were not in treatment for their problem drinking. In fact, the RCQ had been found to be unreliable for use with these patients (Gavin, Sobell and Sobell, in press). However, under the appropriate circumstances, the RCQ had proven to be an extremely useful and reliable assessment instrument (Rollnick, Heather, Gold and Hall, 1994). Thus the need to extend the use of the RCQ to accommodate problem drinkers, who were in treatment for their problem drinking, was established. As a result, the treatment version of the RCQ, namely the Readiness to Change Questionnaire (Treatment Version) [RCQ (TV)], was developed by Heather, Luce, Peck Dunbar and James (1996). The RCQ (TV), also based on the Stages of Change model of Prochaska and DiClemente (1982), was found to be suitable for both clinical and research assessment procedures in which the preparedness of individuals to cease or reduce alcohol drinking was to be assessed. The subsequent allocation of the clients to a stage of change could be used to guide the treatment approach. The developers of the RCQ (TV) concluded that the instrument could appropriately, and more correctly, replace the RCQ for use with clients who sought management of their problem drinking. Thus, in the present study, the RCQ-TV was selected as the instrument to assess the motivational readiness to change drinking behaviour in a group of individuals who sought treatment for their drinking behaviour.

A salient feature of the stages of change model and the concept of readiness to change resides in the fact that patients, who present themselves for treatment of an addictive disorder such as problem drinking, are not all equally ready to change the problem behaviour. In fact, they might

not even be ready to change the behaviour at all. These patients are perceived as occupying different positions on the stages of change continuum, which ranges cyclically from the PC stage of change, through the C, PA, A stages to the M stage of change. However, each of these patients would have factors in his/her own life that would influence him/her to effect a behaviour change. The extent to which the patient would perceive a particular change to be beneficial to him/her, or the extent to which the patient would perceive sufficient worth in changing the behaviour of concern, would then determine the extent to which the patient would choose to change the behaviour. The aim of the concept of separate stages of change is, therefore, to guide a management approach. Allocation to a stage of change, therefore, would give an indication of the extent to which a patient would need to increase his/her level of preparedness to change a behaviour, in order to effect a behaviour change.

In the present study, the ability of the RCQ (TV) stages of change to predict dropout was examined. In particular, the ability of these stages of change to predict dropout from treatment for the problem drinking of alcoholic beverages, in a group of patients who had been admitted for the treatment of problem drinking, was examined. In conjunction with examining the role of the concept of readiness to change behaviour in treatment dropout, the predictive ability of other patient factors (sometimes referred to also as patient characteristics) was also examined with respect to dropout from treatment. These other patient factors will be discussed in greater detail in the next section of this chapter.

Patient factors and dropout from treatment

The role of patient factors (also sometimes referred to as patient or client characteristics) in patient dropout from treatment has been examined extensively in general medicine (Baekeland and Lundwall, 1975). However, the role played by the demographic, social, personal and drinking history, and psychological factors, pertinent to individuals with alcohol-related disorders, have not

been examined quite as commonly. In particular, these factors have rarely been examined in relation to individuals who terminate their treatment for alcohol-related disorders before the treatment has been completed (Mammo and Weinbaum, 1991). As a result, the phenomenon of dropping out of treatment in patients with alcohol-related disorders has generally been poorly and inadequately understood. Coupling this knowledge deficit with the cost of dropout to both patients and treatment providers (MacNair and Corazzini, 1994), the need for the entire phenomenon of treatment dropout to be closely examined is, therefore, clearly demonstrated.

Some studies are geared at establishing the specific client factors that are related to outcome in individuals who demonstrate behaviour change after some form of intervention (Gossop, Green, Phillips and Bradley, 1990). However, although studies have examined the relationship between client factors and, for example, dropout from treatment, the client factors selected for examination have often differed in the various studies (Baekeland and Lundwall, 1975). This has complicated attempts to compare the results of various studies and projects. In addition, studies that have examined the same, or similar client factors in relation to treatment dropout, have often elicited conflicting results. These conflicting results have made generalisations of the findings difficult. However, some distinct trends have appeared to emerge.

For example, with respect to demographic factors, Rogers (1990) concluded that dropout from treatment for substance abuse was strongly associated with gender and age. She found that females and younger patients were more likely to drop out of treatment than were males and older patients. These findings were supported by the findings of other researchers who also found that women (Duckett, 1985; Straussner, 1985) and younger patients (Mammo and Weinbaum, 1993) were more likely to drop out of treatment for substance abuse. Similar results have been reported in relation to both inpatients and outpatients (Baekeland and Lundwall, 1975). For example, Altman, Evenson and Cho (1978) found that, in alcoholic inpatients, younger age and unemployment were strong predictors of dropout from treatment. But contrary to the suggestions of these findings, the

findings of MacNair and Corazzini (1994) indicated that demographic factors such as age and gender were inconsistently related to prediction of dropout from group therapy. Similarly, Buhrmaster, Hartman, Menefee, Shores and Rogers (1982) reported that age and gender did not distinguish between patients who dropped out of treatment and those who continued treatment to its completion, while Copeland and Hall (1992) found that dropout rates were low among female inpatients. Conflicting results were also evident when examining the literature on the relation between dropout from treatment and socioeconomic factors. Rogers (1990), for example, reported that socioeconomic factors were associated with dropout from substance abuse treatment while MacNair and Corazzini did not confirm any relation between treatment dropout and socioeconomic factors. Bischoff and Sprenkle (1993) found that socioeconomic status was strongly related to dropout from treatment in general, and particularly to dropout from marriage and family therapy. These results were strongly supported by Mammo and Weinbaum (1993) who found that unskilled workers and less educated individuals were at higher risk for dropout from outpatient alcoholic treatment than were skilled workers and more educated individuals. With regards to socioeconomic factors and treatment dropout, therefore, few conclusive trends are evident. It does, however, appear that socioeconomic status plays a role in dropout from treatment in general, and particularly in dropout from psychotherapeutic treatment, but, as previously mentioned, the nature of this role has not been clear from the studies conducted.

There is also evidence to suggest that the age of onset of alcohol drinking could provide a useful predictor for remaining in or dropping out of treatment. For example, Robinson and Little (1982) found that those patients who started drinking at a younger age were more likely to drop out of treatment. Other factors that have been significantly related to dropout from treatment include living conditions, length of stay in treatment and the number of treatment sessions attended (Mammo and Weinbaum, 1993).

Factors that have been consistently associated with adherence to, and dropout from, treatment have been psychological factors relating to the level of patient motivation (Bracken, 1978; Ryan, 1985; Snyder and Spreitzer, 1984; MacNair and Corazzini, 1994). In particular, ambivalent alcoholics have demonstrated a large dropout rate from treatment (Baekeland and Lundwall, 1975) and especially from group therapy sessions (MacNair and Corazzini, 1994). These results seem to suggest the possible relationship between the level of patient motivation (or state of readiness to change behaviour) and dropout from treatment for problem drinking.

The role of the various patient factors which have been mentioned, has demonstrated that dropout from treatment seems to be a rich and complex phenomenon, impacted upon by several factors. Yet much of this richness could be diminished by performing only bivariate analyses between patient factors and treatment dropout. Thus, although there can be great value in understanding the phenomenon of dropout from treatment, it is important that the interaction between the relevant patient factors be recognised. A paucity of information exists regarding the subject of dropout amongst South African patients who have been in treatment for alcohol-related disorders. The present study, therefore, elected to examine demographic, socioeconomic, historical and psychological factors that have been reviewed in the literature on dropout from treatment for problem drinking, particularly as pertained to dropout from treatment at an alcohol treatment centre in Cape Town, South Africa. The present study was embarked upon to assist in improving knowledge about dropout from alcohol treatment. This was done with the hope that improved knowledge would increase understanding of the phenomenon, which could in turn be used to assist in devising methods of stemming the dropout rates and assist dropouts and potential dropouts.

Purpose and rationale of the study

In the present study, the prediction of the attrition of patients, in treatment for problem drinking at a treatment centre that accommodated both inpatients and outpatients, was the major

concern. This concern stemmed from the need to develop a coherent and empirically evidenced understanding of the complexities involved in the premature termination of treatment amongst patients with problem drinking. As has been mentioned previously, reviews of the literature on dropout from treatment indicated that several studies had been conducted on patient dropout from treatment, particularly in various fields of general medicine. These have included studies, primarily in the fields of psychiatry and clinical psychology, on patients who have dropped out from treatment for abuse of addictive substances. These studies have generally tended to agree that patients in treatment for alcohol abuse, in particular, appear to demonstrate dropout rates that exceed those of patients in treatment in other areas of medicine (Baekeland and Lundwall, 1975). Yet the studies on dropout from treatment for problem drinking have often reported conflicting results regarding the factors which have been found to contribute towards the dropout from treatment. Furthermore, at present, South Africa is grappling with problems associated with increases in the availability and consumption of addictive substances. These problems have become magnified by a shortage of funds to treat and rehabilitate individuals who struggle with problems of addiction. In particular, abuse of alcohol has been reported to occur at great cost to the country (Parry, 1994). Since dropout from treatment has been recognised as costly to both the patients and the treatment facilities (MacNair and Corazzini, 1994), a reduction in the rate of dropout from treatment for problem drinking has been identified as one area in which cost-saving measures could be implemented (Baekeland and Lundwall, 1975; MacNair and Corazzini, 1994; personal communication with Charles Parry and Staff at Avalon Treatment Centre). But there appears to be very little research that has been conducted within South Africa to improve understanding of the phenomenon of patient dropout in general, and dropout from treatment for problem drinking in particular, even though it is accepted that such understanding would be crucial to attempts to alter dropout from treatment (Parry, 1996, personal communication).

The present study examined the differences and similarities between patients who remained in treatment and completed their treatment, and patients who dropped out of treatment before the completion of their treatment. These differences were examined with regards to demographic, social, personal history and psychological patient factors. In particular, the role of patients' preparedness to change their drinking behaviour in treatment dropout was examined. The primary aim of the present study was thus to determine the role of readiness to change behaviour in the prediction of dropout from treatment for problem drinking. The contribution of the demographic factors, socioeconomic factors, personal history and drinking patterns to the prediction of dropout was also examined. This was done with a view to increasing understanding of the factors which contribute to patient dropout from treatment (especially within the local South African and Cape Town population), and to identifying patient factors which could reliably predict which patients were at risk of dropping out of treatment. Thus, in summary, the aims of the study were as follows:

Primary aim:

- To determine the predictive role of patients' readiness to change in dropout from treatment for problem drinking of alcoholic beverages.

Secondary aims:

- To determine the predictive role of patient demographic, socioeconomic and personal history factors in dropout from treatment for problem drinking of alcoholic beverages.
- To determine the differences between patients who remained in treatment and completed their treatment, and patients who dropped out of treatment before completing their treatment, as regarded patient demographic, socioeconomic, historical and readiness to change factors in patients who sought treatment for problem drinking of alcoholic beverages, by means of descriptive and inferential statistical analyses.

The present study was conducted so that patients at risk for treatment dropout might be able to be managed so as to minimise this risk. The rationale for this approach was the understanding and perception that decreasing dropout from treatment would contribute to more efficient use of the available treatment resources, and to increasing patients' chances of successful treatment outcome. Details of the manner in which the study was conducted will be reported in the next chapter of this thesis.

CHAPTER 3

METHOD

The primary aim of the present study was to determine the predictive role of patients' readiness to change drinking behaviour in dropout from treatment for problem drinking. In addition, the study examined the predictive role of patient demographic, socioeconomic, personal history and drinking pattern factors in dropout from treatment for problem drinking. As a subsidiary interest, the study also determined the differences and similarities between patients who completed their treatment and patients who dropped out of treatment before completion of the treatment. These similarities and differences were examined in terms of the patient demographic, socioeconomic, personal history, drinking pattern and readiness to change factors. The present chapter reports information about the institution at which the study was conducted, the observations and experiences of the researcher during the research, and the manner in which the study was conducted.

Study Site: Avalon Treatment Centre (ATC)

The present study was conducted at Avalon Treatment Centre in Cape Town, in the Western Cape province of South Africa. Avalon Treatment Centre was fully functional at the inception of the study. However, while the study was in progress, the treatment centre experienced many changes in the manner in which it was functioning, the available treatment staff, and the facilities and treatment programmes that were offered. These changes eventually culminated in the complete closure of the treatment centre a few months after conclusion of the data collection for the present study. As a result, when the major proportion of the present study was written, Avalon Treatment Centre was no longer in existence as a facility for the treatment of problem drinkers.

Avalon Treatment Centre (ATC) was an alcohol treatment centre that was established in 1976. The treatment centre operated under the auspices of the Psychiatry Department at Groote Schuur Hospital and the Medical Faculty of the University of Cape Town, and served as a treatment centre for people with alcohol-related problems as well as a teaching facility for students from these institutions. Avalon Treatment Centre was situated in an area which bordered on large Western Cape residential areas that are occupied mainly by communities that had been severely disadvantaged during the years of apartheid rule. However, ATC accepted referrals from all sectors of the Western Cape.

Referral to Avalon Treatment Centre

Avalon Treatment Centre catered for people who misused alcohol and sought treatment voluntarily, or had been forced, by the Department of Correctional Services, to seek treatment. All referrals were seen by appointment only, since ATC did not provide an emergency or walk-in service. Referrals who had a pending court case were not accepted until the case had been settled. Sources of referral to ATC included self-referrals, employers, community and private doctors, psychologists and psychiatrists, friends, family members, social welfare agencies, hospitals and day hospitals.

Programmes offered by ATC

ATC accommodated outpatients who attended pre-arranged treatment sessions on specified days, inpatients who remained in residence at ATC for the duration of their rehabilitation treatment (which was usually a period of four consecutive weeks) and were discharged for each weekend only, and daypatients who attended the full rehabilitation programme for inpatients (Table 1) but did not remain in residence at ATC during their treatment. The status of patients as outpatients,

inpatients or daypatients was usually decided by mutual consultation between the patient and his/her treatment manager. It was the impression of the researcher that the factors which influenced whether the patient became an outpatient, daypatient or inpatient usually included the state of health of the patient, the kind of treatment preferred by the patient at a particular time (for example, outpatient or inpatient), the availability of bed space for inpatients, ATC's ability to accommodate the patient in group sessions, and whether the patient had the time available to accommodate a specific treatment arrangement. Thus, patients who were in poor physical condition would be treated as outpatients by the ATC psychiatrist, or referred to Groote Schuur Hospital for appropriate management to improve his/her health. Patients who required detoxification would usually also be treated at a state general hospital such as Groote Schuur, and be referred to ATC for subsequent management. Patients who were advised to enter the rehabilitation programme and chose not to do so, would continue to attend outpatient treatment sessions if they wished or were able to do so. Patients who were recommended to the inpatient rehabilitation programme, but who had domestic responsibilities that prevented them from being in residence during treatment, would enter the day-patient programme. Patients who were unemployed, or employed and could take leave of absence from work, would enter the inpatient programme when advised to do so. Outpatients could also request entry to the inpatient rehabilitation programme, and were granted their request when this was considered appropriate by the case manager, and when the patients could be accommodated in the rehabilitation programme.

Outpatient programmes: All new referrals at ATC were assessed as outpatients initially. After the initial outpatient assessment, decisions were made regarding further treatment as an inpatient, outpatient, or daypatient. Outpatient consultations provided facilities for individual appointments, couple counselling and family therapy. Where it was deemed appropriate by case managers, medication would be provided to facilitate detoxification (for example, by using diazepam), to improve health status (for example, by prescribing vitamins) and to facilitate

abstinence (for example, by using disulfiram or calcium carbimide). Where necessary, outpatient staff members performed home or community visits, provided telephonic counselling, and facilitated patient links with community support organisations such as Alcoholics Anonymous (AA) and Al-Anon. Outpatients also had the option of joining an outpatient support group at ATC, and/or an education programme which consisted of a weekly session for four consecutive weeks.

Inpatient/Daypatient programme (Table 1): The programme offered to inpatients and daypatients was a rehabilitation programme that was offered daily over a period of four consecutive weeks. All patients were discharged over weekends because ATC closed on Friday afternoons and reopened on Monday mornings.

The rehabilitation programme could accommodate a maximum of 28 patients at any one time, with a maximum of seven new inpatients and seven new daypatients who could be admitted each week. These numbers were governed by the availability of beds at ATC, the availability of therapeutic staff, and the number of patients that could be accommodated in group sessions. New patients were admitted weekly on Monday mornings. Alternatively, if the Monday was a Public Holiday or the ATC staff reviewed their programme on this day, ATC would be closed for the day, and admissions would occur on the Tuesday. The rehabilitation programme would then follow a four-day week for that week. On occasion when patients who were expected failed to arrive for admission on the Monday, a patient on the waiting-list for admission was allowed to be admitted later that week, but this would always occur within three days of the start of a new rehabilitation programme group.

The content of the rehabilitation programme included (Appendix 1):

- i) Group work: This involved conducting support groups, role plays, goal setting opportunities, stress management and assertiveness training, growth games, educational group sessions, and relapse prevention training. Video recordings were often used as educational aids

during the educational group sessions, and didactic lectures and opportunities for debates and discussions were provided.

ii) Sport and recreation: ATC provided facilities for both indoor and outdoor sport (for example, volleyball, soccer, table tennis, darts, dominoes) as well as gardening, sewing, art and woodwork.

iii) Other therapies: These included individual therapy, couple counselling, family therapy, AA sessions, and spiritual counselling provided by a local minister.

Aims of the Rehabilitation Programme (ATC Information Booklet, Appendix 1)

The aims of the Rehabilitation Programme offered by ATC were described as being:

- i) To place the patient in an alcohol-free environment
- ii) To educate the patient regarding the nature and effects of alcohol
- iii) To increase self-awareness and setting of life goals
- iv) To teach coping skills in areas of difficulty, for example, stress, communication, problem solving, conflict management
- v) To facilitate improved family functioning and awareness of the nature of alcohol dependence
- vi) To establish contact with support networks

However, although it was not expressed as one of the formal primary aims of the programme, one of the main aims of the programme was to assist patients in reducing or ceasing their drinking of alcohol entirely. This was done with a view to improving the functioning of patients within their social environments and to facilitate their reintegration into society.

Table 1

Avalon Treatment Centre Rehabilitation Programme

TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
08h00	Breakfast	Ontbyt / Breakfast	Breakfast	Ontbyt / Breakfast	Breakfast
09h00	Support Group	Self Growth/Orientation Group	Growth games	Support Group	Education Group
10h00	TEA	TEA	TEA	TEA	TEA
10h30	Free Time	Video	Assertiveness Training	Spiritual	Community Meeting
11h00	Leisure		Relaxation	Review goals	Elect & Assess Reps (11h15 - 11h45)
11h30					
12h00	Community Meeting		Role Play	Sport	Relapse prevention (What if?)
12.30	LUNCH	Video Discussion		Free Time	
13h00		LUNCH	LUNCH	LUNCH	LUNCH
13h30	AA Programme				
14h00	12 Stepping	Stress Management	Elective Education	Goal Setting	Speaker's Corner
15h00	TEA	TEA	TEA	TEA	TEA
	Relax	Socialise	Exercise	Find Hobbies	Home
19h00			AA Meeting		

Therapeutic Staff for the Rehabilitation Programme

The therapeutic staff at ATC consisted of one psychiatrist and one psychiatric registrar, approximately ten psychiatrically trained nursing staff, a clinical psychologist, and an occupational therapist. All the patients who were admitted to the inpatient rehabilitation programme were examined and assessed by the resident psychiatrist or psychiatric registrar. These doctors prescribed the necessary medication to treat patients' physical and psychiatric conditions (for example, colds and influenza, high blood pressure, depression or anxiety), and provided medication to facilitate their rehabilitation from alcohol-related disorders. The nursing staff administered the medication and supervised its consumption. The nursing staff also conducted all the group sessions. At the start of each week, nursing staff members would usually allocate themselves to the various group sessions on particular days. At least two nursing staff members participated in each group session. The clinical psychologist conducted individual therapy sessions with patients, and regularly supervised group therapy sessions. The occupational therapist engaged the patients in sport and recreational activities, and participated as a therapy facilitator in some group therapy sessions with patients. Daily meetings, with all therapeutic staff members present, were conducted every morning to provide feedback on all the patients who were attending the rehabilitation programme.

During the course of the present study the staff complement at ATC often changed. For example, domestic and nursing staff numbers were reduced as a cost-cutting measure. The resident psychiatrist left the institution and was not replaced by another, and the occupational therapist was transferred to another job and was not replaced. At no time during the course of the present study was a qualified social worker employed at ATC. In addition, during sampling for the present study, the nurse who supervised inpatients overnight contracted a contagious disease and was obliged to go on sick leave. A replacement night-nurse could not be found because of a shortage of

able and employable staff. Since patients could not be allowed on the premises overnight without supervision, all inpatients at the time had to be reassigned to daypatient status. This required that patients who had been in residence at ATC at the time had to go elsewhere each evening and return for treatment each morning. Meanwhile no new inpatients could be admitted. The rehabilitation programme was, therefore, conducted as a day-patient programme.

As previously mentioned, the nursing members of the therapeutic staff, the clinical psychologist and the occupational therapist facilitated group therapy sessions. The languages used in these sessions were English and /or Afrikaans. During the execution of the present study, some patients who were admitted to the Rehabilitation Programme spoke Xhosa as their primary language. These patients were included in the English/Afrikaans group therapy sessions because they could understand and speak a little of either English and/or Afrikaans as well.

On completion of the four-week rehabilitation programme, follow-up outpatient visits were arranged by the nursing staff in consultation with the patients. It was the experience of the researcher that certain patients who had had previous inpatient treatment at ATC were often considered for, and provided with, another opportunity as an inpatient in the Rehabilitation Programme. This occurred when the case manager was of the opinion that another opportunity as an inpatient on the Rehabilitation Programme would benefit the patient and/or his/her family.

Factors at Avalon Treatment Centre which affected the study

The proposal to do the present study was approved more than six months before a pilot study was to be embarked upon. The pilot study was to take the form of a mini-project during which the researcher would become more familiar with the rehabilitation programme, administer the interview schedule and questionnaire to about twenty admitted patients, and follow the proposed study procedure. The interview, interview schedule, administration of the questionnaire,

and proposed study procedure would then be revised where necessary, depending on the observations of the researcher during the pilot study.

However, one week after sampling was commenced for a pilot study, the researcher was informed that the inpatient unit was being considered for closure within the following two months, due to staff and budget cuts at ATC. The researcher was then advised to commence sampling for the actual study immediately so as to avoid the problems of having too small a sample size. Sampling for the study was, therefore, commenced, after completing only informal and casual interviews with patients attending ATC at the time. However, by this time the researcher had become familiar with the Rehabilitation Programme and the details that governed treatment and administrative procedures at Avalon Treatment Centre.

Statistics in the year prior to commencement of the present study indicated that ATC experienced an influx of approximately five to seven new inpatients, and a similar number of daypatients, each week. However, during the period of the study, these numbers reduced drastically. For example, in one particular week of sampling, only one new patient was admitted to the Rehabilitation Programme. The primary reason suggested by ATC staff for this situation was that possibly patients were experiencing financial problems that made accessing daily transport to and from ATC as a daypatient, or taking off from work for the four-week inpatient programme, difficult. As a result, sampling for the present study proceeded at a pace that was considerably slower than had been expected.

As previously mentioned, approximately six weeks after sampling was commenced, the only nurse supervising patients overnight at ATC was diagnosed with a contagious disease and was obliged to be away from work for about four weeks. A nursing replacement could not be found for overnight supervision, largely as a result of a staff shortage at ATC, and a reduced health budget. ATC's inpatient unit was, therefore, forced to close. All resident inpatients were reassigned as daypatients with immediate effect, and new patients could be admitted as day-patients only, despite

some of these patients having elected to be inpatients and having, therefore, already made the necessary work and domestic arrangements. ATC was said to remain exclusively a day-patient unit for seven weeks to accommodate the staff changes.

However, before the seven weeks had expired, the staff complement changed again since the night-duty nurse was declared fit to return to work, and inpatients could be accommodated once again. As a result, two day-patients elected to become inpatients with immediate effect, thus avoiding having to commute to and from Avalon Treatment Centre daily.

Throughout the period of sampling, rumours abounded about the permanent and imminent closure of the ATC inpatient unit, and the possible closure of ATC entirely. However, dates and definite details regarding the possibility or probability of these events remained unclear, despite meetings between the ATC staff and State authorities. Eventually, the researcher was informed that the inpatient unit would definitely be closed at the end of September 1997. During the weeks preceding the expected closure of the inpatient unit, ATC could not admit inpatients to the Rehabilitation Programme for four weeks, since the inpatients could not be accommodated for the full period. At the same time staff reshuffling to accommodate the possibility of job losses and cost-cutting due to a reduced budget for ATC, required that the daypatient programme be altered to accommodate a three-day per week programme instead of the original five-day per week programme over four weeks. The new rehabilitation programme offered by ATC differed markedly from the rehabilitation programme offered at the time that the present study was embarked upon. For example, with the advent of the new daypatient programme, patients could not be accommodated in residence during treatment, patients did not attend treatment daily, the programme was not time-limited and, therefore patients could attend the programme as was convenient for them. The present study had aimed to examine dropout from the original Rehabilitation Programme to which patients were committed for a period of four weeks. Since not being in residence during treatment was suspected of possibly playing a major role in treatment

dropout, the change to the new exclusively daypatient programme on alternate days without a fixed time limit, altered major aspects of the study. The researcher was, therefore, advised to terminate sampling for the study, although a larger sample size would have been preferred.

In July 1998, less than a year after sampling for the present study was terminated, Avalon Treatment Centre was closed down completely as a result of cuts in the state health budget (See Appendix 2 for the newspaper article which reported news of ATC's closure).

In the following sections of this thesis, the details regarding the manner in which the present study was conducted, will be outlined.

Subjects

The subjects in the study consisted of all the inpatients and daypatients that were admitted to Avalon Treatment Centre's Rehabilitation Programme over a period of approximately five months from 14 April 1997 to 16 September 1997. This group consisted of 48 male and 14 female patients with ages ranging from 22 years to 62 years. Most of the subjects were married, had attended some secondary schooling, were qualified to do only unskilled work, and were unemployed. The large majority of study subjects had either referred themselves to Avalon Treatment Centre or had been referred by a doctor or hospital. The subjects were admitted to ATC as either inpatients (sleeping over at ATC during treatment) or as daypatients (not sleeping in at Avalon during treatment), and, therefore, attended the same rehabilitation programme at ATC. Further details of the sociodemographic characteristics of the study subjects are reported in Table 2.

Table 2
Sociodemographic characteristics of the study sample

Sample size		n=62
Patient status	n	%
Inpatient	38	61.3
Daypatient	14	22.6
In/Daypatient	8	12.9
Day/Inpatient	2	3.2
Gender		
Male	48	77.4
Highest educational level		
Primary school	18	29
Secondary school	36	58
Tertiary	7	11.3
Remedial	1	1.6
Referral source		
Self	25	40.3
Doctor/Hospital	18	29
Family	5	8.1
Correctional Services	1	1.6
Employer	11	17.7
Friend	2	3.2
Marital status		
Married	25	40.3
Single	19	30.6
Divorced	11	17.7
Separated	5	8.1
Widowed	2	3.2
Employment status		
Employed	27	43.5
Kind of work qualified for		
Professional	2	3.2
Management	6	9.7
Skilled	22	35.5
Unskilled	32	51.6
Age		
Mean	39.28 years	
Standard deviation	8.28	
Range	22 - 62 years	

At ATC, patients for admission were processed individually by the administrative staff. The prospective participants for the study were, therefore, approached for the study interview individually and consecutively, as they were admitted. Once the patient consented to being part of the study, the interview with the patient was commenced. Participants in the study were, therefore, sampled consecutively, in the same order as they were admitted, and were interviewed immediately after admission. However, one of the patients was admitted late and without the researcher being informed. This patient was then interviewed 3 days after admission.

Patients who were admitted to ATC during the sampling period were considered for exclusion from the study if the patient did not grant his/her permission to be included in the study, if the patient was unable to cooperate with the interview due to incoherence or an inability to speak either English or Afrikaans, if the patient was discharged from ATC before s/he could be interviewed for the study, or if there was no opportunity to interview the admitted inpatient or daypatient within the first five days of admission. These exclusion criteria did not apply to any of the patients who were admitted during the period of sampling for the study. As a result, all 62 patients admitted during the sampling period were accepted as participants in the study.

Measures and Instruments

The instruments used in the study were an interview schedule (Appendix 1) and the Readiness to Change Questionnaire-Treatment Version (RCQ-TV) (Heather, Luce, Peck, Dunbar and James, 1996) (Appendix 1). The use of these instruments in the present study is described in the following sections of this chapter.

Interview Schedule (Appendix 1)

The interview schedule was designed specifically for the present study. It consisted of four main sections, and two letters of consent to be signed by the subjects. Each section of the schedule requested patient information regarding patient characteristics, which were specifically selected for

the study, to be examined in relation to the patients' completing or not completing the rehabilitation programme to which the patient had been assigned. The four sections of the interview schedule listed the following patient factors, namely:

- Demographic factors, such as the patient's age, gender, primary home language.
- Social factors, such as highest educational level, employment status.
- History of drinking factors, such as at what age the patient started drinking alcohol fairly regularly, how much the patient drank, and the alcoholic beverage consumed most frequently by the patient.
- Discharge from treatment factors, such as reason(s) for discharge, the number of treatment days after which the patient was discharged.

The first letter of consent provided information about the researcher, the study, and patient permission to participate in the study). The second letter of consent granted permission for the interviewer to obtain any patient information, required by the study, from the relevant hospital files and folders, and to contact the patient again after discharge from ATC).

Readiness to Change Questionnaire (RCQ)

The original Readiness to Change Questionnaire was developed by Rollnick, Heather, Gold and Hall(1992). This instrument was developed because the authors identified a need to be able to assess quickly an individual's level of motivation to effect a change in addictive behaviour. In particular, the instrument was developed to assess the level of readiness to change excessive drinking of alcohol in hospital patients who had sought treatment for conditions other than those related to alcohol, and who possibly did not even view their drinking as a problem. The aim of these authors was to develop an instrument which would allow the patient to be allocated to one of the stages of change proposed by Prochaska and DiClemente (1983) in effecting smoking cessation. The rationale for this approach was to identify the level of motivation at which the

individual was functioning, so as to gear management of the addictive behaviour at that level. Management of the addiction would then be designed to emphasise increasing the individual's level of motivation to change the addictive behaviour to a level where the individual was ready to effect the change him/herself.

The Readiness to Change Questionnaire was subsequently administered in various research projects. However, despite the fact that the instrument was developed for patients who did not seek treatment, or who were not attending treatment for alcohol-related disorders, the RCQ was found to be frequently used with patients who sought treatment for alcohol-related problems (Heather, Luce, Peck, Dunbar and James, 1996). In addition, further research indicated that the RCQ was inappropriate for use with patients in treatment for alcohol-related disorders because the instrument did not show sufficient internal reliability (Gavin, Sobell and Sobell, in Heather, Luce, Peck, Dunbar and James, 1996). As a result, the development of an alternative instrument, which would reliably assess motivational level and its changes in patients seeking treatment for alcohol-related problems, was needed. This need led to the development of the Readiness to Change Questionnaire-Treatment Version (RCQ-TV).

Readiness to Change Questionnaire-Treatment Version (RCQ-TV) [Appendix 1]

The RCQ-TV (Heather, Luce, Peck, Dunbar and James, 1996) consists of 30 items. These items are in the form of statements that relate to one of five stages of change. Thus each stage of change has six items associated with it. The five stages of change [with an example of an item from each stage] which are represented in the questionnaire are:

- Precontemplation (PC) [There is no need for me to change my drinking habits]
- Contemplation (C) [I enjoy my drinking but sometimes I drink too much]
- Preparation-Action (PA) [I have decided to do something about my drinking]
- Action (A) [I am trying to stop drinking or drink less than I used to]

- Maintenance (M) [I am working hard to prevent having a relapse of my drinking problem]

The items selected for the treatment version of the RCQ were largely taken from the original RCQ. However, the original RCQ differed from the treatment version in some ways.

For example, the original RCQ did not provide for a Preparation or a Maintenance stage of change and did not include the possibility of abstinence as a goal for patients.

Since abstinence is often a treatment goal for excessive drinkers in treatment (Heather and Robertson, 1989), items relating to abstinence seemed appropriate for inclusion in the treatment version of the RCQ. Similarly, excessive drinkers in treatment for problem drinking could already have effected some changes in their drinking habits, and could possibly choose to maintain these changes. This possibility created the need for a Maintenance stage of change to be included in the treatment version of the RCQ. The Preparation stage of change included in the RCQ(TV) accommodates those patients who are preparing to effect a change in their drinking but have not yet acted on the decision to change. In summary, therefore, the RCQ(TV) differs from the original RCQ by including items which relate to abstinence as a treatment goal, a Preparation stage of change, and a Maintenance stage of change.

Since stages of change models have been reliably used in other instruments, items were selected from these instruments [namely, the University of Rhode Island Change Assessment Scale (URICA) (McConaughy, Prochaska and Velicer, 1983), and the Stage of Change Readiness and Treatment Eagerness Scale (SOCRATES) (Miller and Tonigan, 1994, unpublished)] and the items selected were adapted for use with the RCQ(TV). A similar approach was adopted in the development of the original RCQ.

Scoring of the RCQ-TV

The statement items of the RCQ-TV are alternated between the five stages of change. Thus statements relating to the relevant stage of change are alternated in the following order, namely, PC, C, PA, A, and M. Items on the RCQ-TV are scored on a five-point rating scale ranging from -

the patient which could be obtained from the folder cover (for example, the patient's folder number, address, telephone number) were usually recorded by the researcher and not asked of the patient.

Each patient was requested to read through the consent forms, and was asked to complete and sign these forms if s/he agreed to be part of the research. The researcher read and explained the details of the consent forms to all patients who indicated not understanding the purpose of their encounter with the researcher. The researcher conducted each interview herself by asking of the patient each of the questions in the interview schedule and recording the answers in writing on the interview schedule. The researcher also assisted patients with the scoring of the RCQ-TV items, particularly when patients needed clarification of the statements. All the interviews were conducted in English because all the patients who were sampled said that they were able to understand English. However, where necessary, the researcher paraphrased and/or translated words or phrases into Afrikaans to facilitate understanding of phrases or words which primarily Afrikaans-speaking patients experienced difficulties with (for example, statements in the RCQ-TV, such as item 22, which are phrased with a seemingly double-negative construction). The duration of the interviews varied from about twenty minutes to more than thirty minutes. This variation occurred because some patients spoke freely and volunteered information not necessarily required for the study, while other patients responded only to what was asked of them. After each interview, the patient was thanked and returned to the care of the ATC nursing staff.

After the patient had been discharged from treatment, the nature of, and reasons for, the discharge were recorded by the researcher in writing in the interview schedule. These details were obtained by using the patient folder or information obtained from the ATC staff. Patients who had left treatment before completing the treatment to which they had been assigned, and whose discharge details were unclear in the hospital folders, were contacted by telephone to clarify or corroborate the information obtained from the ATC staff and folders. Though attempts were made to speak personally to all patients who left their assigned treatment before the treatment was

completed, this was possible with only one of these patients. With the remaining patients, information was obtained from family members who answered the telephone when contacted, or from ATC staff members. Attempts were always made to corroborate the discharge information about the patients who did not complete the Rehabilitation Programme . Thus the researcher always tried to obtain the information from more than one source.

In the following chapter the results obtained in the present study, including the discharge information of patients who did not complete the Rehabilitation Programme, will be described and analysed in detail.

to become inpatients when they could be accommodated. None of the daypatients who could be reassigned as inpatients were employed.

Table 3
Drinking patterns of patients

Social environment of drinking	N	%
Drinks mostly alone	22	35.5
Drinks mostly in company	39	62.9
No. of drinking units usually consumed		
0 - 4	1	1.6
5 - 9	9	14.5
10 - 14	1	1.6
15 - 19	4	6.5
20+	47	75.8
Drinking frequency		
Daily	50	80.6
Few times per week	7	11.3
Weekends only	4	6.5
No definite times	1	1.6

Preferred drinks		
Wine	19	30.7
Fortified wine	14	22.6
Spirits	5	8.1
Beer	24	38.7
Age at which patient started drinking alcohol fairly regularly		
Mean	17.93 years	
Standard deviation	3.75	
Range	11 - 28 years	

Drinking patterns and personal drinking history of study participants (Table 3)

Fifty percent of the participants started drinking alcoholic beverages fairly regularly (that is, at social gatherings when alcoholic beverages were available, or bought alcoholic beverages when desired) between the ages of 11 and 17 years. Thirty-nine (62.9%) of the patients drank mostly with friends (61.7% of the males, and 71% of the females). Some patients drank with a regular group of drinking partners, with one patient who lived alone drinking only in pubs and did not keep any alcohol in his home. Forty-seven (75.8%) of the patients interviewed reported drinking more than 20 units of the alcoholic beverage they preferred once they started drinking on any particular day, with one unit being equivalent to 100ml wine, 50ml fortified wine, 25ml spirits, or 250ml beer (ATC Initial Assessment Questionnaire). Beer and wine were the alcoholic beverages reported as most frequently consumed by the patients. Fifty (80.6%) patients reported drinking every day. Avalon Treatment Centre rehabilitation programme, however, required that patients not drink at all in the week prior to admission to the programme. This precondition to admission was waived on occasion, and patients were admitted despite having been drinking in the week prior to their admission date, or even on the morning of the admission to ATC.

Fifteen of the patients interviewed in the present study had previously been treated for alcohol-related problems as inpatients at either ATC or a general State hospital, or had attended a specific time-limited treatment programme to which they had been referred. Seven of these patients had received this treatment in the year prior to the research interview. Thirteen of the patients who had received treatment previously had completed the treatment. Twenty of the patients interviewed for the present study did not complete the rehabilitation programme at ATC to which they had been assigned (Table 4).

started drinking alcoholic beverages regularly before the age of 20 years, drank mostly in the company of other people, drank every day and drank mostly beer or wine. Most of the patients had never been in treatment for alcohol-related problems before, other than, as is usually required at ATC, attending ATC as outpatients before their admission. Twenty of the study participants were discharged from the ATC Rehabilitation programme before they had completed the programme.

Profile of study participants in terms of the Readiness to Change Questionnaire (Treatment Version) and analysis of the RCQ (TV) items

All of the patients who were interviewed for the present study completed the RCQ (TV). The ratings, assigned by the patients, to each of the items within each of the five scales/stages of the questionnaire were summed to provide a total score for each stage of change for each patient, recorded in Table 5a as PCTOT, CTOT, PATOT, ATOT, and MTOT. The means and standard deviations for each stage of change are recorded in Table 5c. Each patient was allocated to the stage of change on which the patient had obtained the highest absolute total score, bearing in mind that the direction of the total score indicated Disagreement with a scale if the total scale score was negative, and Agreement with a scale if the total scale score was positive. Thus, a patient would be regarded as having a tie of absolute scores if, for example, the patient scored a total score of -12.000 on the Precontemplation scale and a score of 12.000 on the Maintenance scale. In keeping with the forward rule suggested for dealing with tied scores (Heather, Luce, Peck, James and Dunbar, 1996), in the event of a patient having a tie of absolute scores on more than one stage of change, the patient was allocated to the stage of change furthest from Precontemplation and closest to Maintenance. The patient mentioned in the aforementioned example would, therefore, be assigned to the Maintenance stage of change according to the

forward rule for dealing with tied scores. However, to observe any possible differences, patients were also allocated to a stage of change according to the backward rule, mentioned by these authors (1996), for dealing with tied scores. This involved allocating patients, who had a tie of absolute scores on more than one scale score, to the stage of change furthest from Maintenance and closest to Precontemplation. The patient in the aforementioned example would thus be allocated to the Precontemplation stage of change according to the backward rule for dealing with tied scores. The total scale scores for each study participant and the stage of change to which they were allocated are recorded in Tables 5a and 5b.

Table 5a

RCQ(TV) total stage/scale scores and the stages/scales on which tied scores occurred

	PCTOT	CTOT	PATOT	ATOT	MTOT	STAGE
1	-8.000	9.000	12.000	11.000	9.000	PA
2	4.000	8.000	12.000	12.000	12.000	PA/A/M
3	-10.000	6.000	11.000	9.000	10.000	PA
4	-6.000	2.000	7.000	10.000	7.000	A
5	-12.000	-8.000	11.000	12.000	11.000	PC/A
6	-2.000	6.000	11.000	12.000	9.000	A
7	-9.000	6.000	12.000	9.000	7.000	PA
8	-10.000	6.000	12.000	10.000	5.000	PA
9	2.000	7.000	8.000	8.000	10.000	M
10	-3.000	5.000	11.000	11.000	5.000	PA/A
11	-12.000	-2.000	12.000	12.000	12.000	PCPA/A/M
12	-12.000	8.000	12.000	12.000	10.000	PC/PA/A
13	-11.000	-5.000	8.000	11.000	-2.000	PC/A
14	-8.000	-2.000	11.000	7.000	3.000	PA
15	9.000	2.000	4.000	4.000	-6.000	PC
16	-8.000	5.000	8.000	7.000	2.000	PA
17	-8.000	-1.000	11.000	12.000	11.000	A
18	-4.000	2.000	9.000	-1.000	-5.000	PA
19	-6.000	6.000	8.000	6.000	5.000	PA
20	3.000	4.000	9.000	4.000	-1.000	PA
21	-8.000	-1.000	9.000	6.000	-9.000	PA/M
22	-10.000	-1.000	9.000	7.000	4.000	PC
23	-8.000	3.000	10.000	11.000	12.000	M
24	-6.000	5.000	6.000	6.000	5.000	PC/PA/A
25	-11.000	7.000	10.000	8.000	4.000	PC
26	-9.000	1.000	10.000	8.000	-10.000	PA/M
27	-11.000	4.000	12.000	12.000	4.000	PA/A
28	-9.000	5.000	11.000	11.000	7.000	PA/A
29	-6.000	10.000	12.000	12.000	12.000	PA/A/M
30	-8.000	0.000	12.000	12.000	12.000	PA/A/M
31	0.000	12.000	12.000	12.000	11.000	A
32	-7.000	11.000	12.000	12.000	9.000	PA/A
33	-8.000	0.000	5.000	12.000	12.000	A/M
34	-11.000	4.000	11.000	11.000	10.000	PC/PA/A
35	4.000	2.000	7.000	9.000	8.000	A
36	-8.000	-1.000	9.000	0.000	-12.000	M
37	-11.000	7.000	12.000	12.000	12.000	PA/A/M
38	-12.000	8.000	12.000	12.000	9.000	PC/PA/A
39	-7.000	12.000	12.000	12.000	9.000	C/PA/A
40	-10.000	8.000	12.000	12.000	12.000	PA/A/M
41	-11.000	0.000	12.000	12.000	11.000	PA/A
42	-10.000	7.000	12.000	6.000	-12.000	PA/M
43	-11.000	0.000	11.000	10.000	11.000	PC/PA/M
44	-10.000	2.000	8.000	9.000	-10.000	PC/M
45	-10.000	2.000	11.000	11.000	12.000	M
46	-2.000	8.000	9.000	8.000	9.000	PA/M
47	-8.000	11.000	12.000	11.000	-2.000	PA
48	-5.000	7.000	6.000	6.000	6.000	C
49	-3.000	4.000	9.000	7.000	4.000	PA
50	-5.000	8.000	12.000	11.000	-7.000	PA
51	4.000	4.000	6.000	6.000	4.000	PA/A
52	0.000	2.000	6.000	6.000	6.000	PA/A/M
53	12.000	12.000	11.000	9.000	3.000	PC/C
54	-7.000	6.000	10.000	6.000	6.000	PA
55	-6.000	-5.000	9.000	11.000	12.000	M
56	-7.000	4.000	6.000	7.000	6.000	PC/A
57	-11.000	8.000	12.000	11.000	11.000	PA
58	-9.000	8.000	12.000	11.000	-8.000	PA
59	-9.000	8.000	10.000	10.000	8.000	PA/A
60	-8.000	1.000	11.000	10.000	4.000	PA
61	-10.000	4.000	11.000	11.000	11.000	PA/A/M
62	-5.000	6.000	10.000	8.000	6.000	PA

Table 5b

Allocation of patients to the RCQ (TV) stages of change using the forward and backward rules for tied scores

Stage of change	N (Forward rule)	% (Forward rule)	n (Backward rule)	% (Backward rule)
PC	3	4.8	14	22.6
C	2	3.2	2	3.2
PA	17	27.4	35	56.4
A	20	32.3	6	9.7
M	20	32.3	5	8.1

Table 5c

RCQ (TV) mean total scores and standard deviations

Stage of change	Mean total score	Minimum total score	Maximum total score	Standard Deviation
PC	-6.4	-12.0	12.0	5.2
C	4.3	-8.0	12.0	4.3
PA	10.0	4.0	12.0	2.1
A	9.2	-1.0	12.0	2.9
M	5.2	-12.0	12.0	6.8

It is evident from Table 5b that, when the forward rule for tied scores was applied, the large majority of patients (n=57; 91.9%) were allocated to the Preparation-Action (PA), Action (A) and Maintenance (M) stages of change. Similarly, when the backward rule for tied scores was applied, fewer, but still most, of the patients were allocated to the PA, A and M stages of change.

However, when the backward rule for ties was applied, more patients (n=14; 22.6%) were allocated to the Precontemplation (PC) stage than when the forward rule for ties was applied (n=3; 4.8%).

Distribution of the RCQ (TV) item scores

The results indicated that most patients scored either -1 (DISAGREE) or -2 (STRONGLY DISAGREE) on the items of the PC scale. Thus the PC items were found to be largely negatively skewed. Conversely, most patients scored +1 (AGREE) or +2 (STRONGLY AGREE) on the items of each of the stages Contemplation (C), PA, A and M. Thus, these items were largely positively skewed. Item 22, a Contemplation statement, was scored differently. For item 22, most patients scored -1 (DISAGREE) or -2 (STRONGLY DISAGREE).

It must, however, be noted that, in the RCQ (TV), the items for the Precontemplation scale are all phrased in such a way that a problem drinker in treatment would be expected to disagree with, if one assumes that people in treatment for problem drinking must at least be thinking about the possibility of a change in drinking patterns. (For example, the first PC item in the questionnaire is: There is no need for me to change my drinking habits.) Thus, while a negative PC total score indicates a disagreement with the PC scale, the score suggests movement towards effecting a change in problem drinking.

Similarly, all the Contemplation scale items, excepting item 22, are phrased positively and suggest thoughts or movement towards effecting a change in problem drinking. (For example, the first C scale item in the questionnaire is: I enjoy my drinking but sometimes I drink too much.) Thus, positive scores indicating agreement with these items would be deemed appropriate, or even to be expected, in patients who are already in treatment for problem drinking. Item 22

(which is phrased as: I am uncertain whether or not I drink too much), however, is the only C-scale item which can be interpreted as being phrased negatively, thus making a largely negative response to this item (item 22) congruent with the direction of the scores on the other C-scale items.

Inter-item correlations

The table in Appendix 3 indicates that several of the RCQ (TV) items were significantly correlated ($p < 0.05$), suggesting the existence of patterns in the responses to the items. In addition, the alpha coefficients for the PC, A and M scales (Table 6) are all greater than 0.7. In fact, the alpha coefficient for the Maintenance scale was found to be 0.92 which is extremely high, while the alpha coefficients for the Precontemplation and Action scales were found to be very high at 0.83 and 0.8 respectively. These scales can, therefore, be regarded as reliable scales (Heather, Luce, James, Peck and Dunbar, 1996, citing Nunally, 1978). The alpha coefficient for the PA scale approximates 0.7 and can, therefore, also be regarded as acceptably reliable, as suggested by Heather, Luce, James, Peck and Dunbar (1996). In the present study the alpha coefficient for the C scale (Cronbach's alpha = 0.54, Table 6) was found to be not sufficiently high to be acceptable. This result was similar to the result of Heather, Luce James, Peck and Dunbar (1996) who found an alpha coefficient of 0.60 for the C scale and concluded that this value was insufficiently high for the C scale to be considered to be reliable. By deleting item 22, as a result of a possible misinterpretation of the item by patients, the alpha coefficient for the C scale was increased to 0.6, but was still not sufficiently high for the C scale to be regarded as acceptably reliable. Further systematic deletion of C items also did not increase the alpha coefficient to values, which would improve the reliability of the scale.

Table 6

Inter-item correlation range and reliability coefficient (α) for each of the RCQ (TV) stages of change

Stage of change	Inter-item correlation range	Cronbach's Alpha (α)
PC	0.15 – 0.61	0.8
C	-0.13 - 0.37	0.54
PA	0.05 - 0.55	0.66
A	0.22 - 0.70	0.83
M	0.51 - 0.83	0.92

Principal components analysis

The following section of the study will describe the principal components analysis of the items of the RCQ (TV). This analysis was done to determine whether the subsets of RCQ (TV) items, which constitute the scales of the questionnaire, were coherent and independent of one another. Since the approach of this analysis was primarily exploratory, the maximum number of components was initially extracted from the analysis. This resulted in the extraction of 30 components. Eight of these extracted components had eigenvalues which were greater than unity, suggesting the emergence of eight possible scales for the RCQ (TV). This result was reinforced by examination of the scree plot of the eigenvalues for the extracted components that revealed an elbow at approximately the fifth eigenvalue, with the weaker emergence of possibly three further eigenvalues.

Principal components extraction

The thirty items of the RCQ (TV) were analysed by principal components analysis, using the statistical computer programme Statistica (Version 5) 1997, to establish if these items

corresponded to the scales to which they had been allocated in the questionnaire. The principal components analysis was performed using Varimax (normalised) rotation.

Table 7

Principal components analysis of the RCQ (TV) items with the maximum number of components extracted (n=30) and the percentage variance accounted for by the first nine components

Component	Eigenvalue	% of total variance
1	7.819	26.063
2	4.211	14.037
3	2.694	8.980
4	1.739	5.799
5	1.310	4.368
6	1.269	4.231
7	1.156	3.854
8	1.059	3.530
9	0.990	3.302

Eight of the components extracted in the principal components analysis had eigenvalues greater than unity, and together these eight factors accounted for 70.86% of the total variance of the RCQ (TV) items (Table 7). The subsequent seven components with eigenvalues greater than 0.5 but less than unity together accounted for only 17.58% of the total variance of the RCQ (TV) items. On examination of the scree plot of the eigenvalues for the extracted components, five components were clearly revealed, with the possible, but less clear, revelation of approximately three more components. The components on which the highest loadings were recorded for this analysis are reported in Table 8, while the loadings for each of the 30 RCQ (TV) items on each of the eight extracted components are reported in Appendix 4.

Table 8

Principal components analysis of RCQ (TV) items: components on which the highest loadings were obtained (component loadings in brackets)

Stage of change	RCQ (TV) item	Component on which highest loading was obtained
PC	1	VI (-0.766172)
	6	VI (-0.560080)
	11	VI (-0.830863)
	16	II (0.755564)
	21	VI (-0.586339)
	26	VI (-0.560504)
C	2	VIII (0.778496)
	7	IV (0.615981)
	12	IV (0.570041)
	17	VIII (0.490402)
	22	II (0.767580)
	27	VII (0.683221)
PA	3	III (0.612306)
	8	III (0.733494)
	13	IV (0.867255)
	18	III (0.757618)
	23	V (0.404691)
	28	VII (0.734173)
A	4	V (0.766047)
	9	III (0.727544)
	14	VII (0.575232)
	19	V (0.484193)
	24	V (0.705534)
	29	V (0.639041)

M	5	I (0.710578)
	10	I (0.864727)
	15	I (0.877186)
	20	I (0.897535)
	25	I (0.727132)
	30	I (0.817215)

The principal components analysis of the 30 RCQ (TV) items with Varimax (normalised) rotation and the extraction of eight components (Table 8) clearly revealed a component, namely component I, corresponding to the Maintenance stage of change, with all six of the Maintenance items having their highest component loadings on Component I. Component I also accounted for the largest proportion of the total variance explained by the RCQ (TV) items, namely 26.06%. A second component, namely Component VI, corresponding to the Precontemplation stage of change, was fairly strongly revealed, with five of the six PC items having their highest component loadings on Component VI which accounted for 14.04% of the variance explained by the RCQ (TV) items. Two other components (namely Components V and III), corresponding to the Action and Preparation-Action stages of change respectively, were weakly revealed. Four of the six Action items had their highest loadings on Component V, while three of the Preparation-Action items had their highest loadings on Component III. The Contemplation stage of change was very weakly and unclearly revealed, with two of the Contemplation items having their highest component loadings on Component IV and two other Contemplation items having their highest component loadings on Component VIII.

The principal components analysis of the 30 RCQ (TV) items, therefore, revealed two fairly distinct components which corresponded to the Maintenance and Precontemplation stages

of change, and two less distinct components which corresponded to the Action and Preparation-Action stages of change. The Contemplation stage of change was very poorly revealed.

These results, therefore, clearly reflected the high internal consistency of the M and PC stages of change, and the slightly less reliable PA stage of change. It was also clear that the C stage of change was not well defined by this component solution, suggesting C-scale item heterogeneity, and a C-scale of undesirable internal consistency. It would, therefore, be recommended that the C-scale items are replaced with items that would demonstrate a higher internal consistency and an improved definition of the C-scale.

Comparison of patients who completed the rehabilitation programme and those who did not complete the programme

Since one of the interests of the present study was to improve the understanding of patients who did not complete treatment to which they had been assigned, the research data was analysed to examine differences and similarities between those patients who completed the ATC Rehabilitation programme and those patients whose treatment was terminated before the completion of the treatment. Details of these comparisons are summarised in Table 9a and Table 9b.

Table 9a

Sociodemographic characteristics of patients who completed their treatment as compared with patients who dropped out of their treatment

Total sample size				
n=62				
	Completed treatment		Dropped out	
	n	%	n	%
	42	67.7	20	32.3
Patient status *				
Inpatient	28	66.7	10	50
Daypatient	6	14.3	8	40
In/Daypatient	6	14.3	2	10
Day/Inpatient	2	4.8	0	0
Gender				
Male	32	76.2	16	80
Referral source				
Self	15	3.6	10	50
Doctor/Hospital	12	28.6	6	30
Family	4	9.5	1	5
Correctional Services	0	0	1	5
Employer	9	21.4	2	10
Friend	2	4.8	0	0
Highest educational level				
Primary	19	45.2	7	35
Secondary	18	42.9	10	50
Tertiary	5	11.9	2	10
Remedial	0	0	1	5

Marital status				
Married	19	45.2	6	30
Single	10	23.8	4	20
In steady relationship	3	7.1	2	10
Divorced	7	16.7	4	20
Separated	1	2.4	4	20
Widowed	2	4.8	0	0
Employment status				
Employed	19	45.2	8	40
Kind of work qualified for				
Professional	2	4.8	0	0
Managerial	4	9.5	2	10
Skilled	16	38.1	6	30
Unskilled	20	47.6	12	60
Age (years)				
22 – 30	3	7.1	4	20
31 – 40	19	45.2	11	55
41 – 50	16	38.1	3	15
50+	4	9.5	2	10

Demographic characteristics of the patients

It appears (Table 9a) that daypatients were more likely to discontinue their treatment prematurely than were inpatients. In fact, further chi square analysis indicated that daypatients were significantly more likely to drop out of treatment than were inpatients ($p < 0.05$). Details of these analyses are discussed later in the chapter. A similar trend can be noted in the cases where

inpatients had become daypatients ($n = 8$), and when daypatients elected to become inpatients ($n = 2$), while in treatment. The two daypatients who elected to become inpatients completed their treatment, while two of the inpatients who became daypatients did not complete the rehabilitation programme.

All of the patients who spoke primarily Xhosa ($n=5$) completed the rehabilitation programme. Patients who did not complete the rehabilitation programme were approximately equally divided between primarily English-speaking and primarily Afrikaans-speaking patients.

It is also evident from Table 9a that, of the patients who did not complete the rehabilitation programme, the overwhelming majority ($n= 16$; 80%) were male. Exactly one third of all the males in the total sample, and 28.6% ($n=4$) of the females in the total sample, did not complete the treatment programme to which they had been assigned. It, therefore, appears that approximately equal proportions of males and females in the study did not complete the rehabilitation programme.

Method of referral of the patients to ATC

Most of the patients who did not complete the rehabilitation programme were either self-referred or referred by a doctor. Only two of the patients referred by their employers did not complete the programme. One of these patients terminated his treatment when he was informed that he would not be receiving a salary while absent from work during treatment, despite his belief to the contrary. The patient returned to work after one day on the rehabilitation programme, and instead, continued to attend ATC as an outpatient only.

Living arrangements of the patients

Seventy-five percent ($n=15$) of those patients who did not complete their treatment lived with their immediate family, namely either with their parents when single, or their spouse and

children, at the time when the present study was conducted. Only one of the patients who did not complete the treatment lived alone.

Drinking patterns and personal drinking history of the patients (Table 9b)

Nineteen of the twenty patients who did not complete the treatment programme had started drinking fairly regularly between the ages of 11 and 20 years. The remaining one of the patients who did not complete treatment started drinking at the age of 28 years. The latter patient reported that he started drinking alcohol when it became too expensive for him to acquire the other drugs he had been using. Most of the patients who did not complete the rehabilitation programme drank in the company of other drinkers, and drank every day. Fortified wine and beer were the alcoholic beverages which were consumed most frequently by patients who did not complete their treatment (n=18).

Table 9b

Drinking patterns of patients who completed their treatment as compared with patients who dropped out of treatment

Total sample size		n=62		
	Completed treatment		Dropped out	
	n	%	n	%
Total	42	67	20	32.3
Age at which patient started to drink fairly regularly				
11 – 19	25	59.5	18	90
20 – 25	14	33.3	1	5
25 – 30	3	7.1	1	5

Social environment of drinking				
Drinks mostly alone	14	33.3	8	40
Drinks mostly in company	27	64.3	12	60
No. of drinking units usually consumed				
0 – 4	1	2.4	0	0
5 – 9	8	19	1	5
10 – 14	1	2.4	0	0
15 – 19	3	7.1	1	5
20+	29	69	18	90
Drinking frequency				
Daily	33	78.6	17	85
Few times per week	5	11.9	2	10
Weekends only	4	9.5	0	0
No definite times	0	0	1	5
Kind of drink usually consumed				
Wine	19	45.2	0	0
Fortified wine	5	11.9	9	45
Spirits	3	7.1	2	10
Beer	3	7.1	9	45

Chi-square analyses were conducted to examine the significance of the differences in the number of patients who completed the rehabilitation programme and the number of patients who dropped out of the programme before completion of the programme. These differences were examined with respect to the demographic, socioeconomic, personal history and drinking pattern factors listed in Tables 9a and 9b. However, due to the small number of patients occupying

certain categories (for example, the number of patients aged 22 to 30 years who completed or dropped out of the Rehabilitation programme), some cells in Tables 9a and b were collapsed to facilitate more meaningful analyses where appropriate, and to accommodate the limitations of chi-square analyses regarding the requirements for expected frequencies to be greater than or equal to five.

The results of the chi-square analyses indicated that only one of the patient factors (*) listed in Tables 9a and b was significantly involved in identifying differences between the number of patients who completed the Rehabilitation programme and the number of patients who did not complete the programme. It was found that significantly more inpatients (chi square = 4.30; df = 1; $p < 0.05$) completed the programme than did daypatients. The other factors on which differences between number of completers of the programme and dropouts were compared by chi-square analyses were: preferred home language, referral by doctor or self, primary or secondary educational level, married or not married, employed or unemployed, qualified for skilled or unskilled tasks, drinking mostly alone or mostly in the company of others, and drinking mostly wine or mostly fortified wine. None of these factors indicated statistically significant differences between the number of patients who completed the rehabilitation programme and the number of patients who dropped out of the programme before completion of the programme. The factors, age, gender, volume of drinking, and drinking frequency were excluded from the chi-square analyses because of the small cell sizes in certain categories.

Table 10a

Allocation to stages of change with respect to dropout and completion of treatment

Stage of change	Completed treatment		Dropped out of treatment	
	n	%	n	%
PC	1	2.4	0	0
C	2	4.8	0	0
PA	15	35.7	7	35
A	15	35.7	7	35
M	9	21.4	6	30

Table 10b

Allocation to stages of change using the forward and backward rules for tied scores

Stage of Change	Completed treatment		Dropped out of treatment	
	Using forward rule for tied	Using backward rule for tied scores	Using forward rule for tied scores	Using backward rule for tied scores
	n	n	n	n
PC	2	8	1	6
C	2	2	0	0
PA	13	25	4	10
A	14	4	6	2
M	11	3	9	2

Stages of change and dropout from treatment

From Table 10a and Table 10b it appears that, regardless of whether the forward or backward rules for tied scores were applied, patients allocated to the PA, A and M stages of change were more likely to remain in treatment and complete their treatment. These differences in the numbers of dropouts as compared with the numbers of patients who completed their treatment were, however, not found to be statistically significant. When the backward rule for tied scores was applied, more patients were allocated to the PC stage of change than when the forward rule for tied scores was applied. Once again, these differences were not statistically significant. Of those patients who dropped out of treatment early, six had been allocated to the PC stage when the backward rule for ties was applied, while only one of the patients who dropped out of treatment early had been allocated to the PC stage when the forward rule was applied. Considering that the study sample was a group of patients in treatment, there was a preponderance of patients allocated to the PA, A and M stages both in the overall sample and in the sample of patients who dropped out of treatment.

Reasons for patients' discharge from treatment before completion of the treatment

All patients who were discharged from the ATC rehabilitation programme before they had completed the treatment to which they had been assigned, were followed up for information regarding the nature of, and reasons for, the discharge. Attempts were made to contact all those patients whose reasons for early discharge from treatment were unclear or unknown ($n = 10$). Patients were contacted by telephone when they had provided the researcher with a telephone number, or approached when they attended an outpatient appointment subsequent to being discharged from the Rehabilitation programme. However, most of the patients were inaccessible

by not answering their telephone when contacted ($n = 4$), not having a reliably contactable telephone number at home or at work ($n = 1$), or not being home when expected to be according to information from family or friends ($n = 1$). Information about the patients' discharge was thus obtained mainly from patient folders at ATC and from ATC Staff ($n = 10$), or from the patient's family via the telephone ($n = 1$).

Of the patients interviewed for the present study ($n=62$), 20 did not complete the treatment to which they had been assigned, and were discharged from ATC before their expected date of discharge. These patients left the ATC rehabilitation programme for various reasons, and terminated their treatment in a variety of ways. It became evident, during the course of the research, that termination of treatment at ATC occurred under often-complex circumstances. The details of the manner in which treatment was terminated are recorded below.

One patient had himself admitted to the rehabilitation programme for one week only. After this week the patient wished to decide whether to continue for the remaining three weeks, based on whether or not he thought he was benefiting from the programme. When the week was up, the patient requested that he be discharged from the programme, expressing the opinion that he was not going to benefit from remaining on the programme.

Seven other patients were discharged from the programme before having completed the full programme to which they had been assigned. These patients were discharged early either because they requested early discharge, or because they did not return to the programme after the end of a treatment day (daypatients) or from the weekend leave.

Four of the patients interviewed for the present study were discharged from the programme, on the advice of the ATC therapeutic staff, before they had completed the programme. The reason for the discharge in each of these cases was:

Case 1: Contrary to the rehabilitation programme rules, the patient was drinking while being on the programme. The patient was warned about this as the programme dictated, but the warning was not heeded by the patient, who continued to drink while in treatment. The patient was subsequently dismissed from the programme.

Case 2: Patient was regarded by Staff as not being "a good candidate" for the programme. The patient was reported to display "immature behaviour" and not having sufficient insight into what was required of him while in treatment. The patient had a history of being a "slow learner", having attended only remedial classes while at primary school, and ended his school career in his fourth year of school when advised to leave mainstream education. However, in addition to the patient's lack of suitability for the programme, the patient was described as being a "pathological liar" while on the programme. The patient was dismissed from the programme for persisting in lying to Staff and fellow-patients while in treatment.

Case 3: Patient's father died while the patient was on the programme. The patient requested leave from the programme to fulfill his responsibilities in arranging the funeral. The patient was allowed leave from the programme, and missed several days of treatment. The ATC staff felt that the patient was disadvantaged by his exclusion from the programme. The patient was, therefore, advised to leave the programme, and consider readmission at the start of a subsequent programme.

Case 4: The patient became psychotic during the second week of the programme and had to be referred for treatment of his psychosis at another State treatment facility.

As previously mentioned, patients were discharged from the Rehabilitation programme under differing circumstances and for differing reasons. For example, of the patients who did not complete the treatment to which they had been admitted, one patient was admitted as an inpatient to the rehabilitation programme minutes before ATC Staff was informed that the ATC

Rehabilitation programme was obliged to admit only daypatients. Immediately after being processed for admission and being interviewed for the study, the patient was informed that she would not be able to remain in residence at ATC during her treatment. Instead, the patient was informed that she would be able to remain on the programme, but as a daypatient only. This would require that the patient commute to and from ATC during weekdays while on the rehabilitation programme. The patient informed the ATC staff that the transport arrangements would be inconvenient for her. The patient then requested to be discharged from the rehabilitation programme before embarking on any treatment aspects of the programme.

According to the family of one patient who failed to return to the programme after weekend leave, the patient had started drinking while in treatment. Realising that he could be expelled from the treatment programme for drinking while in treatment at ATC, the patient chose not to return for continuation of his treatment. One patient, a single, recently widowed mother, asked to be discharged from the programme, before completing the programme, because of domestic violence among her children during her absence while in treatment. She felt that her assistance with her domestic circumstances was urgently needed. Two patients left the programme before completing the first day of treatment. One of these patients asked to be discharged from the programme immediately after being admitted. He said he was feeling sick and wanted to return home. It had, however, been observed by the researcher and most ATC Staff members, that this particular patient seemed highly intoxicated on admission. The other patient requested discharge after attending the first morning session. The latter patient expressed the possibility of not remaining in the programme while being interviewed for the present study before attending the morning treatment session. However, he did not volunteer any reasons for such action, even when this was asked of him by the interviewer, and indicated that he did not wished to be coerced into providing a response.

It, therefore, appears that the process of discharge and the circumstances surrounding the discharge was unique to each individual who left the Rehabilitation programme before the completion of the treatment availed by the programme. It is also interesting to note that most patients who did not complete their rehabilitation programme terminated their treatment after a weekend's leave. In addition, all three females who entered the rehabilitation programme and did not complete the treatment, were discharged from the programme after attending 10-16 days of the 20-day programme, while more than half of the males who did not complete the programme were discharged after spending 0-7 days on the programme.

Prediction of dropout from patient demographic, social, personal history, and psychological factors

A major aim of the present study was to determine patient factors or characteristics that could reliably predict dropout from treatment in those patients who were receiving treatment for problem drinking of alcoholic beverages. In order to execute this prediction, the study data was analysed using discriminant function analysis.

The decision to analyse the data for the prediction by means of discriminant function analysis rather than by using a procedure such as multiple regression analysis, was based largely on the fact that the grouping dependent variable was clearly dichotomous (namely, dropout/not dropout). The binary nature of the dependent variable, (to be predicted from the patient demographic factors, socio-economic factors, personal history factors and drinking patterns, and psychological factors) made a discriminant analysis preferable to a multiple regression analysis since the discriminant analysis would attempt to detect a variable, or variables, which would facilitate and improve discrimination between the levels of the grouping variable (as would the regression analysis), as well as providing an opportunity to select comparisons of the predictor

variables, or to select subgroups of the predictor variables, which could improve the discrimination between the levels of the grouping variable. Patient factors would, therefore, be identified which would improve the prediction of patient allocation either to the group of patients who would be expected to complete the treatment programme, or to the group of patients who would be expected to drop out of the programme before completing the programme. This ability of discriminant function analysis to classify the patients in terms of the predictor variables and estimate the proportion of correct predictions, as well as to enhance the interpretation of differences among the predictor variables, thus guided the selection of the prediction data analysis by means of discriminant function analysis. However, once the appropriate analysis of the data had been decided upon, the nature of the variables to be entered into the analysis indicated the need for adjustment of some of the recorded data. For example, some of the predictor variables in the analysis had several categories (Interview Schedule Appendix 1). Since these predictor variables were largely nominal or ordinal in nature, and the numbers which represented the coding of the categories of the variables had been selected arbitrarily, a linear relationship between the categories and other predictor variables could not be assumed. The discriminant function analysis model, however, assumes a linear relationship between the predictor variables (Tabachnik and Fidell, 1989). The categorical predictor variables which had more than two categories were, therefore, recoded using dummy variable coding to render these variables dichotomous, thus justifying the assumption of a linear relationship between the predictor variables in accordance with the requirements of the discriminant function analysis. The predictor variables were not formally evaluated for multicollinearity and singularity. This was decided upon since the Statistica (Version 5, 1997) programme, used to perform the discriminant function analysis, tests for tolerance, and excludes predictor variables with insufficient tolerance. Thus, redundant predictors with which multicollinearity and singularity may occur, making the analysis unreliable, would automatically be excluded from the analysis.

A decision was also taken to perform the analysis by means of a forward stepwise discriminant function analysis. This decision was derived at for various reasons. These reasons included, for example, the fact that the study provided no indication or justification for assigning certain predictor variables a higher priority than others. In addition, the study desired a reduced predictor variable set to facilitate implementation of the idea of predicting dropout from patient factors, but thus far there was no justification for the exclusion of certain variables, other than Schooling since all the study participants had had some formal schooling. It was also possible that presumably not all the predictor variables would provide useful information. Furthermore, the literature provides limited guidance as to the patient factors, which clearly predict dropout from treatment.

Since the data for the present study consisted of sets of patient factors (namely, demographic factors, socioeconomic factors, drinking patterns and personal history factors, and readiness-to-change factors) which intuitively preceded each other, it was decided to analyse the data by means of setwise hierarchical discriminant function analysis using Statistica Version 5 (1997). The complete sets of patient factors, from the demographic factors through to the readiness-to-change factors, were entered into the analysis respectively. Thus the sets of patient factors were entered into the discriminant function analysis in the following order, namely, demographic factors, socioeconomic factors, drinking patterns and personal history factors, and readiness to change total scale scores. The grouping variable was dropout from treatment. The individual patient factors, which made up the sets that were entered into the discriminant function analysis, are listed in Appendix 5.

Initially, all the demographic factors were entered as variables into the hierarchical discriminant analysis. Once the set of patient factors was entered into the analysis, the analysis was performed using forward stepwise discriminant function analysis. The tolerance level, F value to enter, and F value to remove were set at the default values of 0.010, 1.00, and 0.00

throughout the analysis. As a result, the variable, Xhosa as the preferred home language had to be excluded from the set of demographic factors entered into the analysis because its tolerance level was less than the minimum value accepted by the Statistica (Version 5), 1997 programme.

On entering the set of demographic factors into the discriminant analysis, four patient factors were accepted by the model. These factors were:

- Daypatient status (Wilks' Lambda = 0.877063; $p = 0.046502$)
- English the preferred home language (Wilks' Lambda = 0.882663; $p = 0.037602$)
- Age of patient at the time of the study (Wilks' Lambda = 0.853733; $p = 0.118287$)
- Afrikaans the preferred home language (Wilks' Lambda = 0.841061; $p = 0.206634$)

On entering the demographic patient factors, a reliable discriminant function emerged [Wilks' Lambda = 0.8176534; $F(4, 7) = 3.177922$; $p < 0.0200$]. With these factors, 35% of cases were correctly classified as dropouts while 80.095% of cases were correctly classified as continuers of treatment to completion. Overall, 70.97% of cases were correctly classified. However, the p -values for the patient factors, Age at the time of the study, and Afrikaans as the preferred home language, were greater than 0.05, suggesting that these factors did not significantly contribute to the discrimination between patients who dropped out of treatment or continued treatment. The variables Age and Afrikaans were excluded from the subsequent analyses. The factors, Daypatient status and English the preferred home language were thus retained as predictor variables to which the next set of variables were added to continue the discriminant analysis.

At the next step in the discriminant analysis, the set of socioeconomic patient factors were added to the selected demographic factors (Daypatient; English) [Appendix 5]. However, the factors, Living in own home, and qualified to do unskilled work, had to be excluded from the

discriminant analysis because of zero variance (Statistica, Version 5, 1997). At this stage in the analysis, 10 factors were accepted into the model, resulting in a statistically significant discriminant function [Wilks' Lambda = 0.6112148; $F(10, 51) = 3.244039$; $p < 0.0026$].

The factors accepted into the model at this stage were:

- Separated from spouse (Wilks' Lambda = 0.740987; $p = 0.001818$)
- Living alone (Wilks' Lambda = 0.694711; $p = 0.010987$)
- English preferred home language (Wilks' Lambda = 0.676757; $p = 0.023316$)
- Highest educational level (Wilks' Lambda = 0.652283; $p = 0.069943$)
- Daypatient status (Wilks' Lambda = 0.636014; $p = 0.156407$)
- Qualified for skilled work (Wilks' Lambda = 0.678196; $p = 0.021920$)
- Qualified for managerial work (Wilks' Lambda = 0.647454; $p = 0.088085$)
- Single, in a steady relationship (Wilks' Lambda = 0.627883; $p = 0.243744$)
- Divorced (Wilks' Lambda = 0.631571; $p = 0.198332$)
- Living in a rented home (Wilks' Lambda = 0.625990; 0.272066)

The addition of the socioeconomic factors resulted in 60% of the cases being correctly classified as dropouts from treatment, while 88.095% of the cases were correctly classified as continuers of treatment to completion. Overall, 79.032% of the cases were correctly classified. However, on addition of the socioeconomic factors, the relatively high p -levels of some of the factors accepted into the model suggested that once again some of the accepted factors did not significantly contribute to the discrimination between dropouts and continuers. As a result, the

factors, Highest educational level, daypatient status, Qualified for managerial work, In a steady relationship, Divorced, and Living in a rented home, were excluded from the next stage in the analysis. The variables retained for the subsequent step in the analysis were: Separated from spouse, Living alone, English the preferred home language, and Qualified for skilled work. The drinking patterns and personal history factors were then added to the factors retained at this stage. The drinking patterns and personal history factors which were added to the analysis are listed in Appendix 5.

On entering the drinking patterns and personal history factors into the analysis, the factor, Drank on weekends only, had to be excluded from the analysis because the tolerance level for this variable was less than the minimum suggested by Statistica version 5 (1997).

On addition of the drinking patterns and personal history factors to the analysis, a statistically significant discriminant function was revealed [Wilks' Lambda = 0.4306961;

$F(9, 51) = 7.490330$; $p < 0.00005$]. Nine factors were accepted into the model. These factors were:

- Wine most commonly consumed (Wilks' Lambda = 0.543591; $p = 0.000606$)
- Separated from spouse (Wilks' Lambda = 0.529145; $p = 0.001261$)
- Living alone (Wilks' Lambda = 0.468019; $p = 0.040487$)
- Had/not had previous treatment (Wilks' Lambda = 0.519871; $p = 0.002049$)
- Drink units consumed (Wilks' Lambda = 0.463360; $p = 0.054671$)
- Fortified wine most commonly consumed (Wilks' Lambda = 0.462099; $p = 0.059387$)

- Age at which patient started drinking alcohol fairly regularly (Wilks' Lambda = 0.458659; $p = 0.074684$)
- Drank daily (Wilks' Lambda = 0.473142; $p = 0.029345$)
- Drank a few times per week (Wilks' Lambda = 0.450860; $p = 0.128478$)

On addition of these drinking patterns and personal history variables, 85% of the cases were correctly classified as dropouts, while 95.238% of cases were correctly classified as continuers. Overall, 91.935% of cases were correctly classified.

Considering that the variables, Drink units consumed, Fortified wine commonly consumed, Age at which patient started drinking alcohol fairly regularly, and Drank a few times per week, had p -values which suggested that these factors did not statistically significantly contribute to the discrimination of the levels of the dependent variable, these variables were excluded from the subsequent analyses. At this stage the RCQ (TV) total scale scores (Table 5a) were added to the retained variables, Wine commonly consumed, Separated from spouse, Living alone, Had/not had previous treatment, and Drank daily.

On addition of the RCQ (TV) total scale scores to the factors retained at this stage, nine factors were accepted into the model, and a significant discriminant function was revealed [Wilks' Lambda = 0.4630667; $F(9, 52) = 6.699427$; $p < 0.00005$]. The variables accepted into the model at this stage were:

- Wine most commonly consumed (Wilks' Lambda = 0.623045; $p = 0.000092$)
- Separated from spouse (Wilks' Lambda = 0.616049; $p = 0.000126$)
- Living alone (Wilks' Lambda = 0.525204; $p = 0.010875$)

- Preparation-Action scale total score (Wilks' Lambda = 0.522932; $p = 0.01233$)
- Drank daily (Wilks' Lambda = 0.499766; $p = 0.047481$)
- Had/not had previous treatment (Wilks' Lambda = 0.503488; $p = 0.037877$)
- Contemplation scale total score (Wilks' Lambda = 0.490759; $p = 0.083703$)
- Maintenance scale total score (Wilks' Lambda = 0.479213; $p = 0.183971$)
- Precontemplation scale total score (Wilks' Lambda = 0.478930; $p = 0.187790$)

On addition of the RCQ (TV) total scale scores to the discriminant function analysis at this stage, the variables accepted into the model resulted in 85% of the cases being correctly classified as dropouts, while 90.476% of the cases were correctly classified as continuers of treatment. Overall, 88.71% of the cases were correctly classified. On the basis of the resulting p -values for the variables, the total scale scores for the Contemplation, Maintenance, and Precontemplation stages were excluded from the analyses. The results, thus far, suggested that the following variables most significantly contributed to the discrimination between patients who dropped out of treatment and patients who continued treatment to its completion:

- Wine most commonly consumed
- Living alone
- Separated from spouse
- Preparation-Action scale total score
- Drank daily
- Had/not had previous treatment

These variables were, therefore, retained and entered into a subsequent standard discriminant function analysis. In this analysis, all six of the factors entered were accepted into the model, and a statistically significant discriminant function was revealed, [Wilks' Lambda = 0.5101844; $F(6, 55) = 8.800693$; $p < 0.00005$]. With these variables in the model, 70% of the cases were correctly classified as dropouts from treatment, while 90.476% of the cases were correctly classified as continuers of treatment to completion. Overall 83.87% of the cases were correctly classified. A summary of these results is recorded in Table 11.

Table 11

Hierachical discriminant function analysis: Patient factors, which contributed most significantly to the discrimination between completers of treatment and dropouts

Patient factor	Wilks' Lambda	p-level
Wine	0.713	0.00002
Separated	0.641	0.00042
Living alone	0.565	0.01792
PA total score	0.554	0.03432
Drank daily	0.552	0.03871
Had previous treatment	0.550	0.04352

In summary, therefore, it appears that the factors, Wine consumed most frequently ($p < 0.0001$), and Separated from spouse ($p < 0.001$), contributed highly and most significantly to the discrimination between patients who dropped out of treatment and patients who continued their treatment to completion. The factors, Living alone, total Preparation-Action scale score, Drank daily, and Previous treatment, also contributed statistically significantly, with $p < 0.05$. These results, therefore, suggest that patients who were more likely to drop out of treatment for problem drinking of alcoholic beverages, rather than continue their treatment to completion, would not

drink primarily wine, would be separated from their spouses, would be living alone, would not be in the PA stage of change, would drink daily, and would have had previous treatment for their problem drinking. The relevance of these results will be discussed in greater detail in the next chapter of the thesis.

CHAPTER 5

DISCUSSION

In the present chapter, the relevance and implications of the primary and most important findings of the study will be discussed first. Subsidiary findings of interest will be discussed thereafter. In conclusion, the limitations of the present study will be considered, and ideas for possible future research will be suggested. Thus, the first findings to be discussed will relate directly to the main aims of the study, namely the prediction of dropout from treatment using selected patient factors, and the differences between dropouts and completers of treatment with respect to patient factors.

The primary aims of the present study were two-fold, namely:

- i) To determine which patient factors could reliably predict dropout from treatment in those patients who were receiving treatment for problem drinking of alcoholic beverages.
- ii) To determine differences between patients who remained in treatment and completed their treatment, and patients who dropped out of treatment before completion of their treatment, as regarded patient demographic, socioeconomic, personal history and readiness-to-change factors, in patients who were receiving treatment for the problem drinking of alcoholic beverages.

On examination of the differences in the number of patients who completed treatment and the number of patients who dropped out of treatment before their treatment was completed, regarding the patient factors which were selected for the study, one patient factor emerged as being significantly involved in identifying differences in the numbers. The results of the study indicated that statistically significantly more inpatients completed the ATC Rehabilitation Programme than did daypatients). In attempting to identify patient factors which could reliably predict dropout from treatment using hierarchical discriminant function analysis, six factors emerged which

statistically contributed significantly to the discrimination between dropouts and completers of treatment. The factors, patients who were separated from their spouses at the time of the research interview, and patients who did not consume wine most frequently when drinking, were found to contribute most significantly to the discrimination between dropouts and completers of treatment. The remaining four patient factors which contributed significantly to the discrimination between dropouts and completers of treatment were Living alone, the total score on the Preparation-Action scale of the RCQ (TV), patients who drank daily, and patients who had previously been in treatment for problem drinking of alcoholic beverages.

Thus, the present study confirmed that statistically significant differences existed between dropouts and completers of treatment as regarded whether patients in treatment for problem drinking of alcoholic beverages remained in residence during treatment, or commuted to and from the treatment institution each day during treatment. In addition, it was confirmed that there are patient factors that can be used reliably to predict early dropout from treatment or continuation of treatment to completion, in patients who received treatment for problem drinking. A more detailed examination of the results obtained in the present study will be discussed in the following sections of this chapter.

Prediction of dropout, and differences between dropouts and completers of treatment

As previously mentioned, the results obtained in the present study indicated that six patient factors discriminated reliably between dropouts and completers of treatment. It was found that patients who dropped out of treatment for problem drinking were not likely to have consumed wine most frequently when drinking, were likely to have been separated from their spouses at the time of the research interview, were likely to have been living alone at the time of the research interview, were unlikely to have been in the Preparation-Action stage of change when admitted for treatment, were likely to have been daily drinkers of alcohol, and were likely to have received previous treatment for problem drinking. Closer examination of the results

indicated that patients who dropped out of treatment were, in particular, more likely to have consumed fortified wines and spirits most frequently, were likely to have been husbands who were separated from their wives, and were likely to have been in the Precontemplation stage of change when admitted for treatment. The reliable discriminant functions which emerged accounted for 70% of the study patients being correctly classified as dropouts from treatment, and 90% of the study patients being correctly classified as continuers of treatment to completion. It, therefore, appears that patient factors emerged which were able to predict completion of treatment more reliably than they were able to predict dropout from treatment, although the prediction of dropout from treatment was still 20% better than chance.

By having six factors emerge as reliable discriminant functions, it necessarily implies that the remaining factors which were entered into the discriminant function analysis (Appendix 5) did not emerge as reliable predictors of dropout and completion of treatment. It would, therefore, be interesting to examine the role of all these patient factors in the discrimination between dropouts and completers of treatment, in view of the results obtained and the literature reviewed for the present study. The role of the factors selected for examination with respect to dropout from treatment will be discussed in the paragraphs that follow.

Patient demographic factors and dropout from treatment

None of the demographic factors that were entered into the discriminant function analysis emerged as reliable predictors of dropout from treatment for problem drinking. This result was in keeping with the findings of MacNair and Corazzini (1994) and Buhrmaster, Hartmann, Menefee, Shores and Rogers (1982) who found that factors such as age and gender were inconsistently involved in the prediction of dropout from group therapy in general. However, the result obtained in the present study did also not concur with the findings of Rogers (1990) when she examined dropout from treatment at a Cape Town drug counselling centre. Rogers (1990) had found that dropout from treatment for substance abuse in general (including abuse of alcohol) was related to age and gender. In particular, she found that younger and female patients were more likely to

drop out of treatment. It is possible that the findings of the present study differed from the findings obtained by Rogers (1990) because the participants in the present study differed from those in the Rogers (1990) study, although the samples for the two studies might have been obtained from similar geographical locations. For example, the participants in the present study were in treatment for problem drinking only, were treated at a State treatment facility which treated problem drinking only, and were examined for dropout from group therapy and a specific rehabilitation programme. In the Rogers (1990) study, the study participants were in treatment for abuse of a variety of substances, were treated at an independently funded and independently functioning facility, and were managed by means of a variety of treatment options. It is possible that these differences in the circumstances, together with inherent differences between problem drinkers and abusers of substances other than alcohol, could have had a bearing on the factors that were pertinent to dropout from treatment in the two studies.

In the present study it was, however, found that the patients in treatment for problem drinking differed in terms of the numbers of patients who dropped out of treatment when the daypatient and inpatient status of the patients was considered. The results obtained indicated that there was a distinct trend for daypatients to be more likely than inpatients to discontinue their treatment before completion of the treatment programme. In fact, it was found that daypatients and inpatients differed statistically significantly in terms of the number of patients who completed their treatment and the number of patients who dropped out of the Rehabilitation Programme. This trend was further demonstrated by the finding that, of the daypatients who became inpatients while in treatment, none dropped out of treatment. However, of the inpatients who became daypatients while in treatment, two dropped out of treatment before completion of the programme. The reason(s) for this phenomenon could stem from the definitions of the terms, 'daypatient', and 'inpatient'. As previously mentioned, daypatients commuted to ATC each morning to attend the Rehabilitation Programme, and travelled to their place of residence at the end of each treatment day. Inpatients did not return to their abodes while in treatment, excepting

on weekends when ATC was closed. This arrangement meant that daypatients usually returned to their domestic and social environment at the end of each treatment day, while inpatients remained within the ATC hospital environment. Daypatients were, therefore, more likely than inpatients to come into contact with friends and an environment in which drinking occurred. Thus, daypatients were more likely than inpatients to be exposed to alcoholic beverages and drinking while in treatment. Daypatients would, therefore, be more likely to drink while in treatment, than were inpatients. Daypatients were also more likely than inpatients to come into contact with influences that could discourage their continuation of treatment for their problem drinking. In addition, commuting to and from ATC each day was costly, and often occurred by use of public transport. The cost and inconvenience of transport, together with the influences of a drinking environment, could have played a major role in effecting dropout from treatment in daypatients. Inpatients were somewhat sheltered from these problems by being present on the therapeutic premises for the greater part of their treatment duration.

The reasons suggested for daypatients being more likely to drop out of treatment than were inpatients, were further reinforced by the finding that most patients who dropped out of the Rehabilitation Programme terminated their treatment after a weekend's leave. It, therefore, appeared that a break from the therapeutic environment and contact with the domestic or familiar social environment could have played a significant role in patients' dropping out of the ATC Rehabilitation Programme.

But, despite the statistically significant difference between daypatients and inpatients with regards to the numbers of patients who dropped out of the Rehabilitation Programme, inpatient or daypatient status did not emerge as a reliable predictor of dropout from treatment. It is possible that such patient status might have emerged as a predictor of dropout if the study sample size had been larger, enhancing a more reliable analysis. It is also possible that the effect of patient status on the prediction of dropout might have been accounted for by another patient factor in the discriminant function analysis equation.

Social factors and treatment dropout

Two social patient factors emerged as reliable discriminant functions in discriminating between dropouts and completers of treatment. It was found that patients who were living alone, and husbands who were separated from their wives, at the time of the research interview, were more likely to drop out of treatment. This result can probably be understood in terms of the suggestions made by the research of Allan (1987) and Hill (1987). Allan (1987) proposed that patients seek assistance and treatment as a result of internal pressures, such as the subjective fears of addiction, and/or external pressures, such as legal or family pressures. He suggested that these pressures operate together to ensure or sustain compliance with treatment. Supplementing these findings, Hill (1987) suggested that treatment dropout would increase when there was minimal family pressure (Rogers, 1990). Considering these findings, it is possible that patients who lived alone or separated from their spouses were exposed to pressures that were less than they would be if these patients were living with their spouses and family. If this low external pressure was also coupled with low internal pressures, it would appear that patients who were separated from their spouses and/or were living alone would be very likely to drop out of treatment, and would definitely be more likely to drop out of treatment than patients who lived with their families. Thus, the finding that patients who dropped out of treatment were not likely to be in the Preparation-action stage of change, and would in fact be more likely to be in the Precontemplation stage of change, could be seen as reinforcing the results of the present study with respect to living alone and/or being separated from spouse and the findings of Allan (1987) and Hill (1987). These findings also suggest the possibility of a strong role played by patient motivation in the completion of or dropout from treatment.

Readiness to change and dropout from treatment

As previously mentioned, Allan (1987) suggested that patients sought treatment due to pressures which are exerted by their personal feelings about the problem behaviour and the pressures from significant others in their environment. He proposed that these pressures would act

together in enabling the patient to comply with his/her treatment. According to Hill (1987), when the pressure exerted on the patient was not sufficient to sustain compliance with the treatment, the patient would drop out of treatment. It would, therefore, be possible that, since the dropout patients in the present study were more likely to have been in the PC stage of change, these patients had not yet reached the stage in which they had sufficient internal pressure exerted to sustain their compliance with treatment. The analogy between internal pressure and readiness to change suggests a possible link between Allan's (1987) and Hill's (1987) perception of pressures from within an individual, and motivation as perceived by the Stages of Change theory proposed by Prochaska and DiClemente (1982). The present discussion will, therefore, explore the possible relationship between motivation, stage of change, readiness to change, and dropout from treatment for problem drinking.

As mentioned in Chapter 2, patients' levels of motivation to change a particular behaviour have often been judged in terms of the patients' outcome after an intervention procedure or treatment. Thus, patients would be regarded as being unmotivated to change a behaviour if they continued the behaviour after having received treatment. The view of Saunders and Wilkinson (1990) was that, instead of judging these patients retrospectively as having been unmotivated to change a behaviour, it was possible that these patients were merely motivated to continue the problem behaviour, and that other factors existed which influenced the patient to sustain the problem behaviour. In accordance with this view, patients who drop out of treatment for problem drinking and are assumed to continue with problem drinking behaviour cannot be judged as having been insufficiently motivated to complete their treatment. Such an assumption could presume that the patients who drop out of treatment do not function as well after their dropout as do those who have completed their treatment, an assumption which seems to be supported to a large extent by the literature (Baekeland and Lundwall, 1975). But, unless the outcome of dropouts and completers in a particular study is specifically investigated, no definitive conclusions can be drawn about the outcome of these patients after the treatment or dropout. Thus

the value of the intervention procedure cannot be commented on unless it is investigated. Furthermore, it would be important to investigate what factors operated in order to bring about the termination of the treatment in those patients who did not complete their treatment

In the present study, most of the patients who dropped out of treatment were found to have been more likely to have occupied the PC stage of change when treatment was commenced, and were unlikely to have occupied the PA stage of change at that time. This result seems to indicate that patients who dropped out of treatment in the present study were more likely to have been ambivalent about changing their problem drinking behaviour, and were less likely to have been at a stage where they were preparing to bring about a change in their problem drinking, at the time when they commenced treatment. It would, therefore, be interesting to examine carefully the factors which influenced the patients' arriving for treatment, possibly remaining in treatment for a while, and to examine more closely the factors which influenced the patients' termination of treatment.

The results obtained in the present study were also interesting in that they differed in part from the results obtained by Heather, Luce, James, Peck and Dunbar (1996) when the RCQ (TV) was developed. These authors found that none of their study patients occupied the PC stage of change. They accepted this result as being due to the fact that patients who are in treatment for problem drinking can be expected to recognise that an alcohol problem exists. Yet the present study provides evidence to support the fact that even in patients who are in treatment for problem drinking it cannot be assumed that they are necessarily all at a stage where they are ready to bring about a change in their problem drinking (Baekeland and Lundwall, 1975). These patients could still be in a position to terminate their treatment before the treatment was completed. It is, however, interesting that, contrary to most expectations and the results of Heather, Luce, James, Peck and Dunbar (1996), some patients in treatment should be in the Precontemplation stage of change and, therefore, not quite ready to consider effecting a change in their behaviour. An examination of the reasons for the patients' being in treatment might be able to clarify this

situation. For example, it was the experience of the researcher that one patient was threatened with separation from a spouse if he did not attend the Rehabilitation Programme. Another patient had been threatened with legal action by his wife into attending the Rehabilitation Programme. It would thus be possible that these patients would be in treatment even though they might not be ready to bring about any changes in their drinking behaviour.

However, most of the study patients were allocated to the PA, A, and M stages of change. This result provides support for the findings of Heather, Luce, James, Peck and Dunbar (1996) that most patients in treatment for problem drinking can be expected to be at a stage where they at least recognise that a problem exists with their drinking. But most of the study patients who dropped out of treatment occupied the PC stage of change when treatment was commenced. These results, therefore, appear to give credence to the research hypothesis that patients who are in the PC stage of change are more likely to drop out of treatment early; while patients who are in the PA stage of change at the beginning of treatment are more likely to comply with their treatment and remain in treatment until the completion of the treatment.

Drinking patterns and dropout from treatment

The results indicated that patients who dropped out of treatment were more likely to have preferred drinking fortified wines and spirits, and were likely to have consumed these beverages daily. It can, therefore, be concluded that amongst the present study participants the more frequent drinkers and the drinkers of alcoholic beverages with higher alcohol content were more likely to drop out of treatment. The results indicated that the large majority of patients who dropped out of the ATC Rehabilitation Programme had started drinking alcoholic beverages regularly between the ages of 11 and 19 years (90%; $n = 18$). Only 30.6% ($n = 19$) of the total sample had started drinking alcohol regularly after the age of 20 years. Of these patients who started drinking alcohol after the age of 20 years, only two dropped out of the programme. It, therefore, appeared that the trend was for patients who dropped out of the programme to have started drinking alcohol at a younger age. It must be noted, however, that 69.4% of the study

sample had started drinking alcohol regularly between the ages of 11 and 19 years. Thus the chances of a dropout having started to drink alcoholic beverages between these ages would be increased. However, as mentioned in Chapter 1, Robinson (1982) found that there was a distinct tendency for dropouts from treatment to have started drinking at a younger age. This finding was, therefore, reinforced by the trends established in the present study. But no statistically significant differences were found between the number of patients who had started drinking at a younger age and subsequently dropped out of treatment, and the number of patients who had started drinking at a younger age and completed their treatment. In addition, relatively small numbers of patients had started drinking at ages greater than 20 years, making statistical comparisons between the age groups unreliable.

No statistically significant difference emerged between the number of patients who drank mostly alone and the number of patients who drank mostly in the company of others, as regarded dropout from treatment. Thus, although it appeared that a larger proportion of patients who drank mostly alone dropped out of treatment (36.4%, compared with 30.8% who drank mostly in company), this difference was not verified by statistical analyses.

Overall it appeared that the large proportion of patients who dropped out of treatment drank daily, drank more than 20 units of alcohol per day, and mostly drank alcoholic beverages other than wine. In fact, none of the patients, who indicated that wine was the alcoholic beverage that they consumed most frequently, dropped out of the Rehabilitation Programme. However, 57.9% ($n = 11$) of the patients who drank mostly fortified wines and spirits dropped out of the programme. Only nine (37.5%) of the patients who drank mostly beer dropped out of the programme. It, therefore, appeared that the drinkers of fortified wines and spirits were more likely to drop out of the Rehabilitation Programme. However, the differences in the numbers of dropouts who occupied the various categories of alcoholic beverages were not found to be statistically significant.

Subsidiary findings of the present study

The results obtained suggested that, even though the group therapy sessions at ATC were conducted in English and/or Afrikaans only, this language usage was not significantly associated with dropout from treatment. None of the primarily Xhosa-speaking patients in the study dropped out of treatment before completion of the Rehabilitation Programme. In addition, approximately equal proportions of the primarily English-speaking and primarily Afrikaans-speaking patients dropped out of the programme, suggesting that possibly language preferences on the ATC Rehabilitation Programme did not play a significant role in influencing dropout from treatment. However, the number of primarily Xhosa-speaking patients in the sample was very small, making analyses on the basis of primary home language unreliable.

Most of the patients who dropped out of the Rehabilitation Programme at ATC (80%) were male. However, the study sample consisted of mostly males. This preponderance of males in the sample could, therefore, have increased the chances of a dropout from the programme being male. In fact, one third of the males in the total sample, and 28.6% of the females in the total sample, dropped out of the Rehabilitation Programme. It can, therefore, be said that approximately equal proportions of males and females in the total sample dropped out of the programme, although the larger proportion of the dropout group was male.

Most of the patients who dropped out of the Rehabilitation programme had come to ATC either of their own volition or had been referred by a doctor. This result could possibly be explained by the fact that, in the sample as a whole, 40.3% of the study participants had come to ATC of their own volition while 29% of the patients had been referred to ATC by a doctor (either their family doctor, or a doctor at a hospital). Thus the chances of a patient who dropped out of treatment having been self-referred or referred by a doctor would be increased simply because of the nature of the sample. However, it is possible that patients who attended treatment of their own volition did not benefit from the effects of external pressures from, for example, family members, to comply with the treatment programme. This explanation would concur with the suggestion

made by Allan (1987) who proposed that, as previously mentioned, a combination of internal pressures and external pressures is required to sustain compliance with treatment. Patients who were self-referred were thus possibly more likely to drop out of treatment because of a lack of external family pressure (Hill, 1987).

The numbers of patients who dropped out of the Rehabilitation Programme and had been referred by sources other than themselves or a doctor were very small. For example, only two of the 27 employed study participants had been referred for treatment by their employers. Neither of the two patients who had been referred for treatment by friends had dropped out of the programme. The one patient who had been referred to ATC by the Department of Correctional Services had dropped out of the programme on the day he had been admitted. This patient did not attend any aspects of the programme before dropping out. But, as is obvious, the numbers of patients who occupied these categories of referral sources were extremely small. Thus, regarding referral sources and dropout from treatment, trends were definitely apparent. However, due to the small sample size the statistical significance of the differences in the numbers of patients who dropped out of treatment and the numbers who completed treatment could not be established.

A similar situation prevailed with respect to the living arrangements, highest educational level, marital status, and employment status of the study patients. The results indicated that, with regard to the latter patient factors, there were no statistically significant differences between the numbers of patients who completed the Rehabilitation Programme and the numbers of patients who dropped out of treatment before completing the programme. However, once again, some trends were evident. For example, a larger proportion of patients with secondary school education (35.7%) dropped out of treatment when compared with the proportion of patients with only primary school education who dropped out of treatment (26.9%). Although there was no statistically significant difference between the number of dropouts and the number of patients who completed treatment when comparing those who were married and those who were not married, four of the five patients (80%) who were separated from their spouses, while only 24%

(n = 6) of the married and not separated patients, and 31.6% (n = 6) of the single patients, dropped out of the Rehabilitation Programme. This result suggested that possibly married patients were less likely to drop out of treatment if they were not separated from their spouses than were single or separated patients. Similarly, 29.6% (n = 8) of the employed patients dropped out of the programme, while 17.9% (n = 12) of the unemployed patients dropped out of the programme. These results tend to suggest that unemployed patients were more likely to complete their treatment. This might be due to the fact that unemployed patients had no job to return to and had time to complete their treatment. In contrast, employed patients might have had to terminate their treatment due to work obligations. In addition, 37.5% (n = 12) of the patients who were qualified to do unskilled work dropped out of the programme, while 26.7% (n = 8) of those patients who were qualified for professional, managerial, or skilled work, dropped out of the programme. This result might have been due to the study sample consisting largely of patients who were qualified to do only unskilled work, thereby making the chances greater for a dropout being qualified to do only unskilled work. It is evident, therefore, that certain trends emerged from the data. However, a larger sample size would probably have been able to magnify those trends, possibly to the extent of indicating statistically significant differences between dropouts from treatment and completers of treatment.

Patients who dropped out of treatment for problem drinking were found to have been more likely to have had previous treatment for their problem drinking. Although the circumstances which surrounded the previous admission were not specifically elicited, it would be interesting to determine how, or if, they differed from the circumstances of the present admission. In addition, it would be enlightening to discover which factors influenced drinking behaviour in the period between the previous and present admissions, and to examine these factors in relation to the present admission.

Most of the patients in the present study were admitted as inpatients rather than as daypatients. It is possible that most of the patients admitted to the Rehabilitation Programme

preferred to remain in residence at ATC during treatment because this arrangement was convenient, despite the greater cost associated with their hospital stay. While in residence during treatment, patients avoided having to commute to ATC each morning of treatment, and back to their abodes at the end of the treatment day. The cost of daily transport, the unreliability of public transport in Cape Town, the personal risk involved in commuting via public transport recognised for its crime statistics, and the great distances between ATC and some patients' homes could all have contributed to the preference patients had for being inpatients rather than daypatients. In addition, some patients indicated that remaining in residence at ATC while in treatment provided them with an alcohol-free environment, giving them a "break" from the kind of environment which existed at or around their homes. These patients probably associated an alcohol-free environment with increased chances of their being able to reduce, alter, or cease their own drinking of alcoholic beverages, thereby increasing their chances of benefiting from the ATC Rehabilitation Programme.

In particular, the results obtained in the present study at ATC appeared to reflect the population profile obtained from patients who were treated for problem drinking and drug abuse at treatment centres in greater Cape Town (Medical Research Council, 1998). For example, the majority of patients admitted for treatment were male, had their highest educational level being secondary schooling, were largely self-referred, had a mean age of approximately 40 years, and had started their use of alcohol and/or other drugs before the age of 20 years. In both studies, very few patients were referred for treatment by the Department of Correctional Services. In the present study, more than half of the patients was unemployed at the time of the research interview. However, the results of the study conducted by the Medical Research Council (1998) indicated that the proportion of employed patients in treatment for alcohol or drug use increased over greater Cape Town in the months succeeding the present study. But unemployment is a widely recognised problem in the areas bordering on the ATC facility in particular. In addition, loss of manpower hours is a common problem amongst problem drinkers (Parry, 1994). Thus job

losses and subsequent unemployment amongst problem drinkers can probably be expected, accounting for the higher proportion of unemployed patients in the present sample. In addition, as previously mentioned, patients who were unemployed were better suited to attend the daily Rehabilitation Programme at ATC, because they had the time to attend the programme. Thus unemployed individuals would have been more likely to be able to attend the treatment programme.

Approximately half of the study sample (51.6%) was qualified to do unskilled work only, while 35.5% was qualified to do skilled work. This relatively large proportion of patients who were equipped to perform unskilled tasks only and at most skilled tasks, can probably be explained by considering that ATC was a State institution where the cost of treatment was less than that offered by privately-administered treatment facilities. Avalon Treatment Centre would, therefore, attract patients from income groups that would be unable to afford the costs of private care and treatment for problem drinking. Since workers in the lower income groups would be more likely to be employed as unskilled or skilled labour, this would explain the preponderance of patients from these groups in treatment at ATC.

Most of the study participants drank wine or beer most frequently. This result can probably be explained in terms of wine and beer being the cheaper alcoholic beverages and, therefore, more accessible and affordable to individuals in the lower income brackets. Most of the study participants drank in the company of others. The researcher got the impression that patients saw the drinking of alcoholic beverages as largely a social activity. As such, drinking occurred mainly with friends and other drinkers in an atmosphere where the limited available finances would be shared. The drinking would occur mostly daily, usually at the same venue each day, and the participants would continue to drink either until the alcohol was used up or the participants collapsed or lost consciousness. A common description by patients of how much alcohol would be consumed at any one sitting was "a lot".

It was interesting to note that none of the married female patients were separated from their spouses and families. Instead, all married patients who were separated from their spouses at the time of the research were male. This can probably be explained by the fact that the married female patients were usually unemployed and had a low educational level. These females would, therefore, be unable to support themselves when separating from their husbands and families because this would mean separating from their source of income. The results also indicated that, in the cases where spouses became separated, the wife and children usually remained in the original home while the husband moved out. In cases where the male patients were separated from their spouses, their wives were usually employed and self-supporting, regardless of the employment status of the husband.

The societal traditions of male breadwinners and wives being primarily homemakers, especially amongst the patients interviewed in the present study, can also probably be used to explain the larger proportion of males in the sample. It is possible that, since the females were usually employed in the home and caring for the children, even females who experienced problems with their drinking of alcohol would not have sufficient time available to attend a daily treatment programme regularly as was required by the Rehabilitation Programme offered at ATC. In contrast, employed males were usually working in jobs outside of the home, while unemployed males would spend less of their time as homemakers, than would the females. Therefore, males would be more likely to be able to take official time off from their daily work duties in order to attend a daily treatment programme for four weeks.

For most of the study participants, the admission examined in the present study had been their first. These patients were, therefore, often unfamiliar with the details of the rehabilitation programme to which they had been admitted. Still, two of the study participants dropped out of the programme before completing the first day of treatment, making it necessary to examine the reasons for dropout from the programme.

One particular conclusion could be drawn from the results of the present study with respect to dropout from treatment. This was that patients terminated their treatment for a large variety of reasons. In the study, reasons for patient discharge were grouped under umbrella headings such as, for example, termination of treatment on their own volition. This was done largely for sake of simplification of the data. However, the results indicated that each patient who terminated his/her treatment, or had his/her treatment terminated, had reasons for the termination that pertained to only his/her set of circumstances. It was, therefore, clearly evident that the notion of treatment termination was, at least, a complex issue, often not deserving of the simplistic and understated term 'dropout'. Instead, the circumstances of each individual, who experienced termination of his/her treatment before completion of the treatment, needed to be identified and explored in order to understand the phenomenon of premature termination of treatment in its entirety. Since most of the patients who discontinued their treatment before completion of the Rehabilitation Programme in the present study, did so after a weekend's leave, the policy of allowing patients to leave the treatment institution for 'home' while still in treatment, has been drawn into question. Thus management via daypatient treatment programmes versus inpatient treatment programmes needs to be considered seriously. The present study also found that males dropped out of treatment sooner than did females. It can, therefore, be suggested that the viability of inpatient gender-specific treatment programmes for problem drinkers are explored. However, since this result was not verified statistically in the present study, it might be worthwhile and necessary to replicate these details of the study in order to generalise the suggested differences between males and females to the population at large.

Issues and limitations

This section describes the possible limitations of the study, and suggests ways in which the study might be improved on replication. The areas of the study that are addressed relate primarily to the

study sample, the Readiness to Change Questionnaire (Treatment Version), and the study procedure.

Sample

One of the major features that marked the present study was that the sample size ($n = 62$) was smaller than had been anticipated for the six months during which the study had been conducted. It had been predicted that, judging by the number of patients which had been regularly admitted to Avalon Treatment Centre (ATC) during the year preceding the present study (approximately four to seven patients per week) it would have been possible to interview at least 100 to 120 inpatients and daypatients during a period of four consecutive months for the purpose of the present study. However, it appeared that the year 1997 signaled the start of great uncertainty and turmoil at ATC regarding the provision of its services. The structural changes at ATC were, unfortunately for the present study, accompanied by a decrease in the patient intake at the treatment centre. According to the results of a Medical Research Council investigation (1998), the decrease in patient intake continued after completion of the present study. The Rehabilitation Programme at ATC, to which the patients were admitted in the present study, was restructured to accommodate only daypatients, and only three times per week in 1997, resulting in an early completion of sampling for the present study. The Rehabilitation Programme at ATC was eventually discontinued for both inpatients and daypatients in 1998 when ATC was closed because of a reduced State health budget (See Appendix 2 for the relevant newspaper article).

In addition to the sample size being smaller than had been anticipated, the sample also consisted largely of male patients (74%). It is, therefore, possible that the results of the study had been affected by female problem drinkers not being adequately represented in the study. But, as mentioned in Chapter 4, the larger study which was conducted by the Medical Research Council (1998) at about the same time as the present study, also found that the majority of patients who

were admitted for treatment of alcohol and drug abuse were male. Therefore, although the number of females in the present study was small relative to the number of males, and also smaller than would have been preferred for the purposes of statistical analyses, it is possible that amongst problem drinkers males are more likely to be in treatment for the problem drinking. The reasons for this might relate to the greater opportunities and available time which males have to attend treatment. For example, as mentioned earlier in this chapter, males are often less involved than females in household activities such as child-minding and domestic chores, even when they are unemployed. It is thus possible that the domestic responsibilities of female problem drinkers would keep them from attending a rehabilitation programme such as that offered by ATC from 8am to 3pm daily over a period of four consecutive weeks. It might also be that males are more likely to become problem drinkers than are females, although the study does not provide evidence for such a conclusion.

Despite the relatively small sample size and the preponderance of males, the results obtained in the study indicated distinctly that differences exist between patients who drop out of treatment for problem drinking and patients who complete their treatment for problem drinking, as regarded selected patient factors. The results also clearly indicated that there are patient factors that can be used to predict dropout from, and completion of, treatment in problem drinkers. In addition, the results suggested emerging trends, which could be compared to the results of other similar studies.

The Readiness to Change Questionnaire (Treatment Version) [RCQ (TV)]

A further limitation could have been placed on the results elicited by the present study due to the nature of the Readiness to Change Questionnaire [RCQ (TV)]. This section describes the possible limitations of the study as a result of the wording and the reliability of the RCQ (TV).

The results of the present study indicated that the responses to the Precontemplation items were largely negatively skewed. Responses of the patients to the Contemplation, Preparation-

Action, Action, and Maintenance stages of change were largely positively skewed. Significant correlations between the items indicated the possible existence of patterns in the responses of patients to the items. These patterns would account for the distinct directional skewness of the responses to items within each scale. However, as mentioned in Chapter 3, the items of the PC scale are all phrased negatively in the RCQ (TV). Disagreement with the PC items (resulting in negative scores) thus indicated movement towards effecting a change in problem drinking patterns. It was, however, the experience of the researcher that the patients often experienced difficulty with items that were phrased negatively. Such patients indicated that they would have preferred to agree or disagree with items that were phrased positively because they found the positively phrased items easier to understand. This preference could possibly be understood in light of the fact that several of the study participants had English [the language of the RCQ (TV)] as their second language. Thus, even though the patients were largely able to read, write and speak English, the situation of having to mentally unravel negatively-phrased items under research conditions in the unfamiliar environment of a treatment institution to which they had just been admitted, proved somewhat challenging. These circumstances and their consequences became particularly pertinent when considering item 22, a Contemplation scale item. As previously mentioned, this item (namely, "I am uncertain whether or not I drink too much") appeared to have posed a particularly challenging situation to some patients. On some occasions, the study participants preferred to score item 22 only after having completed the rest of the questionnaire. It appeared that item 22 was on occasion thought to be negatively phrased. Patients who viewed this item as being negatively phrased (majority of study participants) scored this item negatively. This response to item 22 would then be equivalent to a positive response to a statement that was phrased positively. It was, therefore, concluded, that the responses to the C-scale items were equivalent in indicating movement towards effecting changes in problem drinking. Responses to item 22 were, therefore, not anomalous. As a result, all the items of the C-scale were retained in the subsequent analyses.

However, internal consistency analyses revealed that the C-scale overall was not sufficiently reliable. Even when items of the C-scale were systematically deleted from the scale, the alpha coefficient did not improve sufficiently for the C-scale to be considered to be acceptably reliable. These results concurred with the results of Heather, Luce, James, Peck and Dunbar (1996). These authors suggested that the Contemplation scale be reconsidered using new items. It would be the opinion of the present researcher that further developments of the RCQ (TV) strongly consider replacing the C-scale items as they presently exist, to improve the internal consistency of this scale. The decision was, however, taken to include the items of the C-scale in the subsequent analyses of the research (namely, the Principal Components Analysis and the Discriminant Function Analysis). This decision was taken to explore the performance of the C-scale in these analyses in relation to the performance of the other scales of the RCQ (TV). In addition, it had been the expectation that, in the present study, a scale such as the C-scale that had insufficiently high reliability, would not emerge as a good predictor of dropout from treatment. Inclusion of the C-scale in the discriminant function analysis was, therefore, decided upon to explore this expectation. The expectation that the C-scale would not emerge as a good predictor of dropout from treatment was confirmed in the present study.

The principal components analysis of the 30 RCQ (TV) items suggested the emergence of two distinct components which were internally consistent and well defined by their items. These components corresponded to the Maintenance and Precontemplation stages of change. Two further components emerged. These components corresponded to the Action and Preparation-action stages of change. However, the Action and Preparation-Action stages emerged as being less internally consistent and not as well defined by their items when compared with the Maintenance and Precontemplation stages of change. The Contemplation stage emerged as not being internally consistent and was not well defined by the items in the scale. The C-scale items loaded highly on several components indicating the heterogeneity of the C-scale items.

The principal components analysis reaffirmed the results which indicated the reliability of the Maintenance, Precontemplation, Preparation-Action and Action stages of change. The principal components analysis also clearly reflected the deficient internal consistency of the Contemplation scale. This analysis confirmed the need for a re-examination of the items of the C-scale, and strengthened the suggestion made by Heather, Luce, James, Peck and Dunbar (1996) that the C-scale items be replaced with items which would improve the internal consistency of the scale.

Study procedure

Generalisation of the results of the present study to the larger population of problem drinkers would be limited because the study examined the prediction of dropout from a specific rehabilitation programme only, namely, the Avalon Treatment Centre Rehabilitation Programme. This programme was a specific, structured programme in which all attending patients were exposed to all aspects of the programme. It is possible that aspects of the programme might have been instrumental in effecting dropout from the programme. Some of the ATC programme factors might be instrumental in influencing dropout from treatment for problem drinking generally. But it is possible that the ATC programme contained aspects that influenced dropout from that programme specifically. For example, most of the ATC Rehabilitation Programme contents were conducted with groups of patients. The discomfort experienced with discussing personal problems with a group of strangers (MacNair and Corazzini, 1994), who might have been unfamiliar with this therapeutic format, might have been a strong contributor to dropout from the programme. Thus, although discomfort in group sessions was not cited as a reason for dropout by any of the patients, its possible influence cannot be ignored. Attempts to address possible feelings of discomfort in groups with patients individually could have influenced the potential dropout of patients. In the next section of this chapter, therefore, the implications of the study findings in

relation to the management of problem drinkers will be discussed, and suggestions will be made for future research.

Implications for the management of problem drinkers

The results of the study indicated that more daypatients were likely to drop out of treatment than were inpatients. The results also suggested that dropouts from the treatment for problem drinking were unlikely to consume wine most often, were likely to drink daily, were likely to be living alone, were likely to be separated from their spouses, were likely to have had previous treatment for problem drinking, and were unlikely to be in the Preparation-Action stage of change.

Since daypatients are more likely to drop out of treatment, it would appear necessary that patient status as inpatients or daypatients be considered when attempting to reduce dropout rates from treatment for problem drinking. In the present study, those patients who remained in residence at Avalon Treatment Centre while attending the Rehabilitation Programme were more likely to complete their treatment. If prospective problem drinking patients can be encouraged and supported to enter treatment as inpatients, their chances of completing their treatment could, therefore, possibly be improved. However, if these patients are to be encouraged to become inpatients, the treatment facilities should be able to accommodate them, thus possibly necessitating an increase in the number of in-residence treatment facilities (as suggested by Naude, 1995) and an increase in the bed-space and supervisory staff at existing facilities. To encourage the admission of parents (and especially female parents) as inpatients, it would possibly also be an advantage if the treatment facilities could provide child-care facilities for the young children of these inpatients. Knowing that the young children for whom they are responsible are safe and cared for could possibly allow these parents, and especially the inpatients

who are mothers, greater peace of mind. Such provision could provide less reason for these patients to drop out of treatment as a result of their child-minding responsibilities.

The employment of trained social workers at ATC to assess patient requirements and assist with alleviating obstacles to admission for treatment could also have improved compliance with treatment. It is thus most unfortunate that an established service such as that provided by Avalon Treatment Centre, which could have been improved to provide an even better service and fulfill a great societal need, was instead closed down.

The results of the present study clearly indicated six patient factors which predicted dropout from treatment for problem drinking. In particular, it was found that patients who dropped out of treatment were not likely to drink wine most frequently. Instead, dropouts were most likely to drink fortified wines and spirits, and drink daily. If information about the kind and frequency of drinks consumed can be elicited from patients, the patients at higher risk for dropout could be identified, based on the results of the present study. These patients could then be provided with greater support to reduce their chances of dropout from the treatment. For example, patients could have increased access to individual sessions with their case managers, and be more actively discouraged from terminating treatment, or be increasingly encouraged to continue treatment. Patients who fail to return for treatment before completion of their treatment might be able to benefit from home-visits, by being encouraged to return to treatment. These visits might also establish the reasons for dropout from treatment, and increase understanding of the phenomenon.

Patients who dropped out of treatment were also found to be more likely to be in the Precontemplation stage of change, and less likely to be in the Preparation-Action stage of change. This result supports the use of the RCQ (TV) as an instrument which can be used to predict dropout from treatment. Assessment of the patient's readiness to change drinking behaviour on entering treatment could provide a useful indicator of the patient's risk for dropout from treatment. Support structures for potential dropouts could then be implemented, for example by

having the patient attend as an outpatient until the patient reaches a stage of change where he/she will be able to effect a change in problem drinking. It might, therefore, be useful for the therapeutic environment to include access to motivational interviewing to this end. Access to motivational interviewing throughout the Rehabilitation programme might be advantageous in reducing the risk for dropout from treatment by accommodating the possibility of patients' vacillating between stages of change while in treatment.

Similar support sessions might also benefit those patients who are identified as being at risk for dropout from treatment by living alone at the time of admission, being separated from a spouse on admission, or by having had previous treatment for problem drinking. Structuring of the management of patients, who are identified as being at high risk for dropout from treatment, with consideration of their high potential for dropout could, therefore, result in a greater compliance with treatment and a reduced chance of their dropping out of treatment.

Suggestions for future research

The results of the present study indicated that there are differences between dropouts and completers of treatment and that dropout from treatment can be reliably predicted from patient characteristics. These results, therefore, indicated that the patient factors that were selected for examination in relation to dropout from treatment contained strong predictors of dropout from the Avalon Treatment Centre Rehabilitation Programme for problem drinking. Specifically, there was a significant difference in the number of dropouts who were inpatients and the number of dropouts who were daypatients. But patient status as inpatient or daypatient did not emerge as a reliable predictor of dropout from treatment. A possible explanation for this could be that the predictive role of patient status was accounted for by another factor in the discriminant function analysis equation. It would be interesting to examine the details of this result more carefully in a replication of the present study with an increased sample size.

It is also possible that an increased sample size might have resulted in more patient factors emerging as being significantly pertinent to dropout. It would, therefore, be the opinion of the researcher that the study be replicated with an equivalent population and a sample size closer to 200 patients. An increased sample size might lead to more strong predictors of dropout being identified. This would facilitate identification of potential dropouts from treatment. Mechanisms can then be prepared to manage these potential dropouts in a manner that would reduce the possibility of their dropping out of treatment.

It is encouraging to note that, despite the sample size being smaller than would have been preferred, the study was able to identify six reliable predictors of dropout from treatment for problem drinking. Recognition of the role that these predictors can play in identifying potential dropouts could go a long way towards designing attempts to stem dropout rates. It is hoped that future research will be embarked upon to examine further the predictive role of patient characteristics in dropout from treatment for problem drinking. In particular, it would be interesting to examine the role that a revision of the RCQ (TV), and motivational interviewing, could play in the management and potential for dropout of problem drinkers who seek treatment in the greater Cape Town area. It would also be interesting to ascertain the role of predictive factors in dropout from various modes of treatment for problem drinking. Comparisons of the results of such research could further enhance understanding of the phenomenon of dropout in general, and dropout from treatment for problem drinking in particular.

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APPENDIX 1

6.HIGHEST EDUCATIONAL LEVEL:

Did you attend

school?.....

Yes 1

No 2

No schooling 2

If yes, What was the highest standard that you passed or the highest level of education that you reached?.....

Sub A-Std.2.....1

Std.3-Std.5 2

Std.6-Std.7 3

Std.8-Std.9 4

Std.10 5

Tertiary 6

Specify

Tertiary.....

7. REFERRAL SOURCE:

Who referred you to Avalon?.....

Self.....1 Doctor/Professional group:.....2 Family.....3

Correctional Services.....4 Employer.....5 Friend.....6

Other.....7 Specify Other.....

8. PATIENT'S REASONS FOR BEING AT AVALON:

What would you say are your reasons for coming to Avalon?

.....

.....

Now I want to ask you a few questions regarding your social life and work.

B. SOCIAL VARIABLES**1. CURRENT MARITAL STATUS:**

Are you married?

Yes.....1

No.....2

Single in no steady relationship.....3 Single in steady relationship.....4

Married.....5

Divorced.....6

Separated.....7

Widowed.....8

2.LIVING ARRANGEMENTS:

Who do you live with?

Alone?.....1

With Immediate Family?.....2

With other family?.....3

With Others?.....4

Specify.....

3.TYPE OF ACCOMMODATION:

What type of dwelling/place do you live in?

Own house..... 1

Rented house..... 2

Own flat 3

Rented flat..... 4

Hostel..... 5

Informal dwelling..... 6

Other.....7 Specify.....

4.EMPLOYMENT STATUS:

Are you working?

Yes..... 1

No..... 2

Unemployed..... 2

Employed..... 1 Specify position/type.....

Comments:.....

.....

.....

10. NATURE OF EMPLOYMENT:

What kind of work do you usually do?.....

Professional 1

Managerial 2

Skilled 3

Unskilled 4

6. Have you previously been treated for a drinking problem?

No.....2

Yes.....1

Where?.....

When were you last treated?.....

In past year..... 1

In past 2 years..... 2

>2yrs ago..... 3

7. When you were previously treated for your drinking, did you complete the treatment programme?

Yes.....1

No.....2

We have now come to the last section of this interview. I would like you to complete this section yourself. If you feel it is necessary, I will assist you.

TREATMENT VERSION

The following questionnaire is designed to identify how you personally feel about your drinking right now. Please think about your current situation and drinking habits, even if you have given up drinking completely. Read each question below carefully, and then decide whether you agree or disagree with the statements. Please tick the answer of your choice to each question. If you have any problems please ask the questionnaire administrator.

Your answers are completely private and confidential.

Key: SD = Strongly Disagree D = Disagree U = Unsure

A = Agree

SA = Strongly Agree

[illegible]

[illegible]

E. OUTCOME VARIABLES

1. Patient dropped out of inpatient programme.....1
2. After how many days did patient drop out of in patient programme?.....days
3. Patient dropped out of daypatient programme.....2
4. After how many days did patient drop out of daypatient programme?.....days
5. Patient remained in the rehabilitation programme and completed the programme 3.
6. Patient was discharged prematurely from the programme.....4
7. After how many days was patient discharged prematurely from the programme?.....days
8. Staff/folder reason(s) for patient's premature discharge?.....

.....

.....

LETTER OF CONSENT

I,.....

hereby grant my permission to be a subject in the study conducted by AMINA SABAN for the purposes of her Masters degree in Research Psychology. She has explained that she will need to ask me some questions about myself, my past, and my drinking, and I intend to give her my full cooperation by answering each question truthfully and to the best of my ability. She has reassured me that everything I say, during the course of my completing the interview and questionnaire, will be treated with the utmost confidentiality, and will not in any way affect my treatment and management at Avalon Treatment Centre. I also understand that my participation in her study is voluntary, and that I can withdraw from the study at any stage without in any way affecting my management and treatment here at Avalon Treatment Centre.

Signed.....Date.....

LETTER OF CONSENT TO BE CONTACTED AFTER FIRST INTERVIEW

I,.....

hereby grant permission to AMINA SABAN to:

1. Obtain any information, relevant to her study, from my file/folder at Avalon

Treatment Centre

2. Contact me by telephone, personally, or by mail, after our interview, and/or after I

have left Avalon Treatment Centre

for the purposes of completing her research.

I intend to give her my full cooperation when I am contacted again, and will answer each question truthfully and to the best of my ability. She has reassured me that all the information gathered by her about me will be treated with the utmost confidentiality. I also understand that my participation in her study is voluntary and that my withdrawal from the study at any stage will not affect my treatment at Avalon Treatment Centre in any way.

After I leave Avalon Treatment Centre, I may be contacted at:

1. **ADDRESS:**.....

TELEPHONE:.....

2. **ADDRESS:**.....

TELEPHONE:.....

Signed.....Date.....

APPENDIX 2

Argus 1/8/98

Centre closes despite anti-booze pledge

ADELE BAILEY

A Cape Town centre that has treated alcoholics for over two decades has closed down just days after the Government promised to declare war on alcohol abuse.

Desperate appeals from staff and patients to Peter Marais, the provincial health minister, failed to save the Avalon Treatment Centre in Athlone from closure this week. The centre has been at the forefront of fighting alcohol abuse in disadvantaged communities on the Cape Flats for 22 years.

Ironically, the centre was shut down in spite of national Health Minister Nkosazana Zuma's proposed anti-booze plan to fight South

Africa's growing alcohol problem. Compulsory health warnings on bottles and restricted advertising are in the pipeline.

Avalon's greatest strength was its accessibility to people in poor areas where alcohol misuse is high.

Its closure yesterday, mainly because of budget cuts, is a crushing blow to the community and is also contrary to a health policy that aims to take health care to the people who need it most.

Another irony is that a shebeen operates within metres of the two-storey centre.

A thin wire fence separates Avalon from the rest of Manenberg, which had the highest proportion of residents in the Cape Metropole being treated for alcohol misuse

(2,76 for every 1 000 people) in the last six months of 1997, according to the Medical Research Council.

Heldeveld (2,65 for every 1 000) comes second, followed by Guguletu (1,65 for every 1 000).

Alcohol is the most abused and the most dangerous drug - more so than heroin and crack - in the country.

The South African National Council on Alcoholism and Drug Dependence estimates there are more than one million alcoholics in South Africa. That represents 5,8% of the population over 15.

Alarming statistics have shown that alcohol abuse often leads to a breakdown in family relations, domestic violence, accidents and crime.

The atmosphere this week at Avalon

was sad and depressing.

Staff were packing the last of the boxes while still trying to make sense of an apparently senseless decision.

The wards and common areas, devoid of the usual chatter and hustle and bustle of nurses and patients, were cold and bleak.

Psychologist Mona Roper said a "unique" centre had closed and people who needed care were being deprived.

Avalon was the only fully Government subsidised treatment centre in the southern area and the only facility in the Western Cape that had a comprehensive out-patients programme.

It also offered an in-patient service, individual counselling and fol-

low-up visits to homes.

The nurses ran outreach clinics and the centre played an important role in teaching and training mental health professionals.

Avalon's consultant, Robert Bothwell, said stringent cuts to the province's health budget and the loss of staff through voluntary severance packages had led to the centre's demise.

In addition, highly qualified and experienced nurses had been transferred to Groote Schuur Hospital to plug staffing gaps in psychiatric services there.

The salaries of nursing staff at Avalon were paid from Groote Schuur's budget.

Some personnel would be absorbed into psychiatric units at

Groote Schuur and a very limited out-patient service for alcohol abuse would operate from the hospital.

But Dr Bothwell said that would in no way compensate for the loss of Avalon.

There were nine treatment centres in the Western Cape, only three of which were fully state funded.

Dr Bothwell said studies showed that Avalon treated the vast majority of patients.

Stikland in Bellville and De Novo in Kraaifontein are the only fully state-funded and run institutions with units dedicated to alcohol abuse.

The closure of Avalon is not an isolated occurrence. Although the Reconstruction and Development Programme and the national and

provincial health departments have supposedly prioritised alcohol abuse, other drug units have been closed in recent years.

The adolescent drug unit at Avalon closed down a few years ago as did the adult in-patient drug unit at Lentegeur Psychiatric Hospital.

Dr Linda Hering, acting chief superintendent of psychiatric hospitals, said Avalon had been mothballed and would be reopened when more posts became available.

She said it was not the health department's intention to close the "vital" service; however, the lack of nursing staff made it impossible to keep it open.

She said psychiatric services were under review and Avalon was part of the process.

APPENDIX 3

STATISTICA: Basic Statistics and Tables

STAT.	Correlations									
BASIC	Marked correlations are significant at $p < .05000$									
STATS	N=62 (Casewise deletion of missing data)									
Variable	RTC1PC	RTC2C	RTC3PA	RTC4A	RTC5M	RTC6PC	RTC7C	RTC8PA	RTC9A	RTC10M
RTC6PC	.28*	.03	-.12	-.10	.04	1.00	-.03	-.14	-.17	.10
RTC7C	-.17	.01	.20	.40*	.26*	-.03	1.00	.33*	.22	.31*
RTC8PA	-.38*	-.13	.39*	.27*	.11	-.14	.33*	1.00	.69*	.23
RTC9A	-.13	-.13	.39*	.22	.06	-.17	.22	.69*	1.00	.16
RTC10M	-.16	-.26*	.18	.35*	.63*	.10	.31*	.23	.16	1.00
RTC11PC	.55*	.11	-.20	.04	.12	.51*	-.12	-.24	-.26*	.06
RTC12C	.09	.16	.03	.26*	.24	.28*	.28*	.13	.22	.23
RTC13PA	-.13	-.08	.05	.16	.22	-.04	.51*	.09	.20	.22
RTC14A	-.33*	-.08	.25	.25	.20	-.22	.21	.55*	.48*	.26*
RTC15M	-.23	-.26*	.16	.42*	.72*	.11	.35*	.27*	.18	.83*
RTC16PC	.26*	.08	-.11	.11	.12	.37*	.13	-.15	-.12	.02
RTC17C	.07	.24	.07	.06	.16	.11	.30*	.06	-.01	.17
RTC18PA	-.03	.10	.37*	.05	-.12	-.23	.13	.48*	.55*	.01
RTC19A	-.21	-.27*	.23	.39*	.34*	-.21	.22	.37*	.42*	.44*
RTC20M	-.31*	-.26*	.28*	.39*	.54*	.10	.13	.33*	.18	.74*
RTC21PC	.50*	.19	-.06	-.12	-.26*	.24	-.11	-.22	-.26*	-.17
RTC22C	.25*	.04	-.13	.03	.14	.27*	.03	-.07	-.17	.03
RTC23PA	-.15	.13	.28*	.25	-.01	-.19	.38*	.35*	.35*	.14
RTC24A	-.38*	-.22	.26*	.70*	.34*	-.16	.41*	.43*	.34*	.47*
RTC25M	-.11	-.29*	.25	.56*	.51*	.06	.28*	.39*	.35*	.66*
RTC26PC	.32*	.09	-.16	-.16	-.05	.54*	-.05	-.18	-.31*	-.13
RTC27C	-.18	.15	.16	.08	.06	-.21	.37*	.42*	.30*	-.00
RTC28PA	-.12	.19	.11	-.02	-.05	-.32*	.29*	.30*	.42*	.11
RTC29A	-.15	-.36*	.18	.54*	.36*	-.02	.37*	.21	.27*	.53*
RTC30M	-.24	-.26*	.15	.38*	.52*	.07	.19	.24	.16	.66*

STAT.	Correlations									
BASIC	Marked correlations are significant at $p < .05000$									
STATS	N=62 (Casewise deletion of missing data)									
Variable	RTC11P C	RTC12C	RTC13P A	RTC14A	RTC15M	RTC16P C	RTC17C	RTC18P A	RTC19A	RTC20M
RTC1PC	.55*	.09	-.13	-.33*	-.23	.26*	.07	-.03	-.21	-.31*
RTC2C	.11	.16	-.08	-.08	-.26*	.08	.24	.10	-.27*	-.26*
RTC3PA	-.20	.03	.05	.25	.16	-.11	.07	.37*	.23	.28*
RTC4A	.04	.26*	.16	.25	.42*	.11	.06	.05	.39*	.39*
RTC5M	.12	.24	.22	.20	.72*	.12	.16	-.12	.34*	.54*
RTC6PC	.51*	.28*	-.04	-.22	.11	.37*	.11	-.23	-.21	.10
RTC7C	-.12	.28*	.51*	.21	.35*	.13	.30*	.13	.22	.13
RTC8PA	-.24	.13	.09	.55*	.27*	-.15	.06	.48*	.37*	.33*
RTC9A	-.26*	.22	.20	.48*	.18	-.12	-.01	.55*	.42*	.18
RTC10M	.06	.23	.22	.26*	.83*	.02	.17	.01	.44*	.74*
RTC11PC	1.00	.14	-.08	-.12	.05	.36*	.10	-.24	-.21	-.02
RTC12C	.14	1.00	.31*	-.01	.32*	.19	.26*	.16	-.05	.11
RTC13PA	-.08	.31*	1.00	.14	.28*	-.06	.24	.07	.09	-.08
RTC14A	-.12	-.01	.14	1.00	.21	-.17	.09	.35*	.44*	.27*
RTC15M	.05	.32*	.28*	.21	1.00	.14	.19	.02	.37*	.79*
RTC16PC	.36*	.19	-.06	-.17	.14	1.00	.20	-.15	-.14	-.07
RTC17C	.10	.26*	.24	.09	.19	.20	1.00	-.04	.12	.06
RTC18PA	-.24	.16	.07	.35*	.02	-.15	-.04	1.00	.22	.12
RTC19A	-.21	-.05	.09	.44*	.37*	-.14	.12	.22	1.00	.46*
RTC20M	-.02	.11	-.08	.27*	.79*	-.07	.06	.12	.46*	1.00
RTC21PC	.44*	.14	-.12	-.29*	-.18	.15	.09	-.17	-.32*	-.22
RTC22C	.24	.31*	-.05	-.10	.12	.50*	.24	-.25	-.09	-.03
RTC23PA	-.15	.10	.24	.32*	.14	-.09	.12	.45*	.30*	.17
RTC24A	-.14	.24	.27*	.52*	.40*	-.14	.18	.20	.53*	.42*
RTC25M	.10	.24	.06	.28*	.62*	-.02	.08	.14	.65*	.74*

STAT.	Correlations									
BASIC	Marked correlations are significant at $p < .05000$									
STATS	N=62 (Casewise deletion of missing data)									
Variable	RTC11P C	RTC12C	RTC13P A	RTC14A	RTC15M	RTC16P C	RTC17C	RTC18P A	RTC19A	RTC20M
RTC26PC	.61*	.06	-.19	-.22	-.13	.46*	.04	-.27*	-.37*	-.11
RTC27C	-.21	.15	.15	.34*	-.02	-.08	.26*	.23	.23	-.12
RTC28PA	-.29*	.08	.18	.40*	.01	-.17	.11	.29*	.27*	.02
RTC29A	.08	.18	.38*	.39*	.49*	.01	.18	.03	.50*	.31*
RTC30M	.05	.07	.19	.24	.66*	-.21	.05	-.08	.40*	.68*

STAT.	Correlations									
BASIC	Marked correlations are significant at $p < .05000$									
STATS	N=62 (Casewise deletion of missing data)									
Variable	RTC21P C	RTC22C	RTC23P A	RTC24A	RTC25M	RTC26P C	RTC27C	RTC28P A	RTC29A	RTC30M
RTC1PC	.50*	.25*	-.15	-.38*	-.11	.32*	-.18	-.12	-.15	-.24
RTC2C	.19	.04	.13	-.22	-.29*	.09	.15	.19	-.36*	-.26*
RTC3PA	-.06	-.13	.28*	.26*	.25	-.16	.16	.11	.18	.15
RTC4A	-.12	.03	.25	.70*	.56*	-.16	.08	-.02	.54*	.38*
RTC5M	-.26*	.14	-.01	.34*	.51*	-.05	.06	-.05	.36*	.52*
RTC6PC	.24	.27*	-.19	-.16	.06	.54*	-.21	-.32*	-.02	.07
RTC7C	-.11	.03	.38*	.41*	.28*	-.05	.37*	.29*	.37*	.19
RTC8PA	-.22	-.07	.35*	.43*	.39*	-.18	.42*	.30*	.21	.24
RTC9A	-.26*	-.17	.35*	.34*	.35*	-.31*	.30*	.42*	.27*	.16
RTC10M	-.17	.03	.14	.47*	.66*	-.13	-.00	.11	.53*	.66*
RTC11PC	.44*	.24	-.15	-.14	.10	.61*	-.21	-.29*	.08	.05
RTC12C	.14	.31*	.10	.24	.24	.06	.15	.08	.18	.07
RTC13PA	-.12	-.05	.24	.27*	.06	-.19	.15	.18	.38*	.19
RTC14A	-.29*	-.10	.32*	.52*	.28*	-.22	.34*	.40*	.39*	.24
RTC15M	-.18	.12	.14	.40*	.62*	-.13	-.02	.01	.49*	.66*
RTC16PC	.15	.50*	-.09	-.14	-.02	.46*	-.08	-.17	.01	-.21
RTC17C	.09	.24	.12	.18	.08	.04	.26*	.11	.18	.05
RTC18PA	-.17	-.25	.45*	.20	.14	-.27*	.23	.29*	.03	-.08
RTC19A	-.32*	-.09	.30*	.53*	.65*	-.37*	.23	.27*	.50*	.40*
RTC20M	-.22	-.03	.17	.42*	.74*	-.11	-.12	.02	.31*	.68*
RTC21PC	1.00	.23	-.24	-.28*	-.09	.44*	-.23	-.32*	-.20	-.33*
RTC22C	.23	1.00	-.18	-.09	-.00	.31*	-.13	-.18	-.02	-.19
RTC23PA	-.24	-.18	1.00	.48*	.21	-.32*	.26*	.55*	.35*	.06
RTC24A	-.28*	-.09	.48*	1.00	.53*	-.36*	.11	.18	.62*	.41*
RTC25M	-.09	-.00	.21	.53*	1.00	-.09	.07	.14	.56*	.62*
RTC26PC	.44*	.31*	-.32*	-.36*	-.09	1.00	-.24	-.35*	-.27*	-.12
RTC27C	-.23	-.13	.26*	.11	.07	-.24	1.00	.55*	.20	-.02
RTC28PA	-.32*	-.18	.55*	.18	.14	-.35*	.55*	1.00	.18	.03
RTC29A	-.20	-.02	.35*	.62*	.56*	-.27*	.20	.18	1.00	.44*
RTC30M	-.33*	-.19	.06	.41*	.62*	-.12	-.02	.03	.44*	1.00

APPENDIX 4

marked loadings are .7755555

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
RTC1PC	-.219258	.015761	-.122178	-.073427	-.064112	-.766172*	-.037667	.208201
RTC2C	-.252786	.019831	.023831	-.007932	-.200373	-.138883	.079992	.778496*
RTC3PA	.112682	-.013617	.612306	-.010329	.328877	.178908	-.163691	.117220
RTC4A	.308243	.170200	.202828	.151895	.766047*	.103786	-.139251	-.066212
RTC5M	.710578*	.247782	-.099507	.195661	.133831	.154860	.021957	-.178951
RTC6PC	.207006	.319745	-.022653	.140257	-.282486	-.560080	-.177511	-.088261
RTC7C	.155785	.185957	.144849	.615981	.288787	.122883	.225251	.125814
RTC8PA	.201891	.078384	.733494*	.057504	.079027	.190425	.355854	-.151413
RTC9A	.100920	-.121157	.727544*	.142618	.099014	.049388	.382987	-.166787
RTC10M	.864727*	-.003299	.018397	.149485	.166352	-.019671	.082335	.026473
RTC11PC	.104955	.211182	-.187445	-.013501	.030827	-.830863*	-.071705	-.044535
RTC12C	.204448	.273645	.271710	.570041	-.008920	-.190101	-.077772	.248601
RTC13PA	.069807	-.151714	-.040780	.867255*	.121320	.054012	.118530	-.074775
RTC14A	.190794	-.020165	.361792	-.036284	.252820	.119216	.575232	-.169025
RTC15M	.877186*	.134293	.067666	.245091	.110963	.072786	-.021269	.015163
RTC16PC	-.023845	.755564*	-.074514	.045039	.021393	-.254929	-.022101	.033012
RTC17C	.143253	.359511	-.118464	.259542	.119569	-.028544	.245101	.490402
RTC18PA	-.057636	-.242268	.757618*	.035954	.025286	.033776	.179554	.152684
RTC19A	.434131	-.094083	.143921	-.175516	.484193	.126301	.421988	-.091839
RTC20M	.897535*	-.010358	.229081	-.178409	.114565	.088715	-.072077	.046349
RTC21PC	-.243460	.139628	-.003816	-.018652	.037163	-.586339	-.366241	.194619
RTC22C	.009091	.767580*	-.110372	.009750	.014169	-.139650	-.054297	.071807
RTC23PA	.031472	-.229944	.321240	.182830	.404691	.054106	.350952	.338360
RTC24A	.353723	-.053524	.211775	.196513	.705534*	.179445	.144037	-.031813
RTC25M	.727132*	-.009627	.240604	-.054556	.407321	-.156094	.133327	-.066143
RTC26PC	-.054192	.473412	-.055603	-.056326	-.276282	-.560504	-.188741	-.131972
RTC27C	-.088230	.096042	.179858	.207896	.010711	.214414	.683221	.141000
RTC28PA	.000777	-.210798	.170197	.106288	.025972	.151953	.734173*	.293741
RTC29A	.382215	-.066258	-.050679	.303401	.639041	-.098301	.307805	-.213513
RTC30M	.817215*	-.230228	-.018074	.088943	.099614	.016299	.048930	-.136037
Expl.Var	5.011255	2.177238	2.728916	2.017095	2.643481	2.696559	2.486812	1.498854
Prp.Totl	.167042	.072575	.090964	.067237	.088116	.089885	.082894	.049962

STAT.	Factor Loadings (Varimax normalized)				
FACTOR	Extraction: Principal components				
ANALYSIS	(Marked loadings are > .700000)				
Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
RTC1PC	-.255457	.620904	-.040381	-.077690	-.182367
RTC2C	-.331369	.204854	.116652	.248721	-.515962
RTC3PA	.080370	-.040694	.554836	-.051140	.309656
RTC4A	.320948	.046176	.251889	.197044	.734769*
RTC5M	.738065*	.005570	-.124219	.215619	.205903
RTC6PC	.187116	.664425	-.161190	-.032221	-.117207
RTC7C	.155158	-.001856	.199888	.693965	.235418
RTC8PA	.226241	-.139789	.742498*	.090585	.051398
RTC9A	.116936	-.151440	.773107*	.095404	.065674
RTC10M	.858563*	.028970	.084431	.180042	.092000
RTC11PC	.097335	.757388*	-.140599	-.064728	.016200
RTC12C	.151835	.405344	.170191	.485436	.042767
RTC13PA	.061600	-.140399	-.051374	.665023	.249898
RTC14A	.248101	-.241457	.561182	.161681	.067515
RTC15M	.865948*	.068270	.043017	.232619	.125286
RTC16PC	-.003842	.617512	-.129667	.220535	.039785
RTC17C	.124495	.224702	.017830	.600790	-.145553
RTC18PA	-.092869	-.115469	.774303*	-.011735	-.072640
RTC19A	.484441	-.263667	.401629	.075211	.225802
RTC20M	.880414*	-.006341	.228882	-.153551	.050126
RTC21PC	-.296345	.638885	-.070918	-.127911	.061816
RTC22C	.027790	.545048	-.176170	.214763	.027041
RTC23PA	.011921	-.188629	.549361	.376199	.092212
RTC24A	.374094	-.196091	.368767	.301164	.567257
RTC25M	.736993*	.105003	.371294	.010796	.269964
RTC26PC	-.055038	.726438*	-.198017	-.151894	-.115105
RTC27C	-.051582	-.245384	.379470	.523008	-.235712
RTC28PA	.015062	-.360045	.463725	.438138	-.349636
RTC29A	.429372	-.070815	.173676	.378694	.519459
RTC30M	.818448*	-.142657	.030559	.001410	.098141
Expl.Var	5.204011	3.784640	3.863598	2.816294	2.106801
Prp.Totl	.173467	.126155	.128787	.093876	.070227

APPENDIX 5

Demographic factors

- Inpatient status
- Daypatient status
- Inpatient who changed to daypatient status while in treatment
- Daypatient who changed to inpatient status while in treatment
- English, the preferred home language
- Afrikaans the preferred home language
- Xhosa, the preferred home language
- Age of patient at the time of the research interview
- Gender

Socioeconomic factors

- Highest educational level
- Self-referred
- Referred by doctor
- Referred by family member
- Referred by correctional services
- Referred by employer
- Referred by friend
- Married
- Single, and not in steady relationship
- Single, but in a steady relationship
- Divorced
- Separated from spouse
- Widowed
- Living with immediate family
- Living alone
- Living with extended family
- Living with non-family
- Living in a rented home
- Living in own home
- Employed/Unemployed
- Qualified to do skilled work
- Qualified to do unskilled work
- Qualified to do professional work
- Qualified to do managerial work

Drinking patterns and personal history factors

- Age at which patient started to drink alcoholic beverages fairly regularly
- Drinks mostly alone/in company of others
- Beer most commonly consumed when drinking
- Wine most commonly consumed
- Fortified wine most commonly consumed
- Spirits most commonly consumed
- Usual number of drink units consumed
- Drank daily
- Drank a few times per week
- Drank only on weekends
- Had/not had previous treatment
- Previous treatment occurred in year preceeding the study
- Previous treatment was >1 year before the study
- Previous treatment had/had not been completed

APPENDIX 6

RAW DATA

SUBJ_NO_	Subject Number; position of subject in sampling
FILENO_	Patient's ATC folder number
IN_DAYPT	Inpatient or daypatient
LANG_	Primary home language
ENGLISH	English, primary home language
AFRIKNS	Afrikaans, primary home language
XHOSA	Xhosa, primary home language
SCHOOL	Did patient attend school
STD_	Highest educational level
REFERRAL	Referral source
SELF/DOCTOR/FAMILY/ LAW/EMPLOYER/FRIEND	Kinds of referral sources
MARRIED	Marital status
MARRY	Married
STEADY	In a steady relationship
SEPARATE	Separated from spouse
LIVARRAN	Living arrangements
IMMEDFAM	Living with immediate family
ALONE	Living alone
OTHERFAM	Living with extended family members
NONFAM	Living with non-family
ACCOMMOD	Kind of accommodation
RENT	Living in rented accommodation
OTHERHOM	Living in accommodation other than own house or rented home
WORKSTAT	Work status (employed/unemployed)
WORKIND	Kind of work qualified for
SKILLED	Qualified to do skilled work
UNSKILL	Qualified for unskilled work
PROFESNL	Qualified for professional work
MANAGERL	Qualified for managerial work
AGEONSET	Age at which patient started drinking alcohol fairly regularly
DRNKALON	Patient drank mostly alone/in company
KINDRINK	Alcoholic beverage consumed most frequently
FORTWINE	Fortified wines
DRNKUNIT	Amount of alcohol usually consumed when drinking starts
DRNKFREQ	Drinking frequency
DRNKDAY	Drinks per day

DRINKFEW	Drink a few times per week
WEEKENDS	Drink only on weekends
PREVRX	Did patient have previous treatment for problem drinking?
LASTRX	When was the last treatment?
RXPASTYR	Last treatment was in the past year
RXMORAGO	Last treatment was more than a year ago
COMPLTRX	Patient completed the last treatment
RTC1-30	Readiness to Change Questionnaire items 1 – 30
PC/C/PA/A/M	Precontemplation/Contemplation/Preparation-Action/Action/Maintenance stages of change
PCTOT-MTOT	Total scale scores for each of the stages of change
STAGE	Stage of change on which highest total score was obtained
FWDRULE	Allocation to stage of change according to the forward rule for tied scores
BACKWD	Allocation to stage of change according to the backward rule for tied scores
RXDAYS	After how many treatment days did patient drop out of the programme?
KINDISCH	Reasons for early discharge from treatment

1	2	3	4	5	6	7	8	9	
SUBJ_NO_	FILENO_	IN_DAYPT	INPT	DAYPT	IN_DAY	DAY_IN	LANG_	ENGLISH	
1	1.000	18464.00	daypt	no	yes	no	no	afrik	no
2	2.000	15801.00	inpt	yes	no	no	no	afrik	no
3	3.000	18292.00	inpt	yes	no	no	no	afrik	no
4	4.000	18485.00	inpt	yes	no	no	no	afrik	no
5	5.000	13893.00	inpt	yes	no	no	no	english	yes
6	6.000	18477.00	inpt	yes	no	no	no	afrik	no
7	7.000	18504.00	inpt	yes	no	no	no	english	yes
8	8.000	13267.00	inpt	yes	no	no	no	afrik	no
9	9.000	18520.00	inpt	yes	no	no	no	english	yes
10	10.000	18300.00	inpt	yes	no	no	no	xhosa	no
11	11.000	18436.00	inpt	yes	no	no	no	english	yes
12	12.000	11364.00	inpt	yes	no	no	no	english	yes
13	13.000	10780.00	inpt	yes	no	no	no	english	yes
14	14.000	18525.00	inpt	yes	no	no	no	english	yes
15	15.000	18468.00	inpt	yes	no	no	no	english	yes
16	16.000	12762.00	inpt	yes	no	no	no	english	yes
17	17.000	17915.00	inpt	yes	no	no	no	xhosa	no
18	18.000	18523.00	inpt	yes	no	no	no	english	yes
19	19.000	17213.00	inpt	yes	no	no	no	english	yes
20	20.000	18516.00	inpt	yes	no	no	no	afrik	no
21	21.000	18529.00	inpt	yes	no	no	no	afrik	no
22	22.000	18508.00	inpt	yes	no	no	no	english	yes
23	23.000	18556.00	inpt	yes	no	no	no	xhosa	no
24	24.000	12565.00	daypt	no	yes	no	no	english	yes
25	25.000	18569.00	daypt	no	yes	no	no	english	yes
26	26.000	18570.00	daypt	no	yes	no	no	afrik	no
27	27.000	18550.00	daypt	no	yes	no	no	afrik	no
28	28.000	18575.00	daypt	no	yes	no	no	english	yes
29	29.000	18579.00	daypt	no	yes	no	no	afrik	no
30	30.000	18584.00	daypt	no	yes	no	no	xhosa	no
31	31.000	18350.00	daypt	no	yes	no	no	english	yes
32	32.000	18345.00	day/inpt	no	no	no	yes	afrik	no
33	33.000	18579.00	daypt	no	yes	no	no	afrik	no
34	34.000	18603.00	daypt	no	yes	no	no	afrik	no
35	35.000	18603.00	daypt	no	yes	no	no	afrik	no
36	36.000	18359.00	inpt	yes	no	no	no	afrik	no
37	37.000	18571.00	inpt	yes	no	no	no	afrik	no
38	38.000	18598.00	inpt	yes	no	no	no	english	yes
39	39.000	18347.00	inpt	yes	no	no	no	afrik	no
40	40.000	9586.000	in/daypt	no	no	yes	no	english	yes
41	41.000	18537.00	inpt	yes	no	no	no	afrik	no
42	42.000	18576.00	day/inpt	no	no	no	yes	afrik	no
43	43.000	18577.00	inpt	yes	no	no	no	afrik	no
44	44.000	18269.00	inpt	yes	no	no	no	xhosa	no
45	45.000		inpt	yes	no	no	no	english	yes
46	46.000	18622.00	inpt	yes	no	no	no	afrik	no
47	47.000	18621.00	inpt	yes	no	no	no	afrik	no
48	48.000		inpt	yes	no	no	no	english	yes
49	49.000	18604.00	in/daypt	no	no	yes	no	afrik	no
50	50.000	18638.00	inpt	yes	no	no	no	afrik	no
51	51.000	18650.00	inpt	yes	no	no	no	afrik	no
52	52.000	10955.00	in/daypt	no	no	yes	no	english	yes
53	53.000	18654.00	inpt	yes	no	no	no	afrik	no
54	54.000		inpt	yes	no	no	no	afrik	no
55	55.000	16086.00	inpt	yes	no	no	no	afrik	no
56	56.000	13519.00	daypt	no	yes	no	no	english	yes
57	57.000	15858.00	in/daypt	no	no	yes	no	english	yes
58	58.000	18674.00	in/daypt	no	no	yes	no	english	yes
59	59.000	18111.00	in/daypt	no	no	yes	no	afrik	no
60	60.000	18674.00	in/daypt	no	no	yes	no	afrik	no

	1	2	3	4	5	6	7	8	9
	SUBJ_NO_	FILENO_	IN_DAYPT	INPT	DAYPT	IN_DAY	DAY_IN	LANG_	ENGLISH
0	61.000	18536.00	in/daypt	no	no	yes	no	afrik	no
1	62.000	18700.00	daypt	no	yes	no	no	afrik	no
2	63.000	16365.00	daypt	no	yes	no	no	english	yes

	10	11	12	13	14	15	16	17	18
	AFRIKNS	XHOSA	AGE	GENDER	SCHOOL	STD_	REFERRAL	SELF	DOCTOR
1	yes	no	26.000	female	yes	7.000	employer	no	no
2	yes	no	49.000	male	yes	5.000	self	yes	no
3	yes	no	39.000	male	yes	10.000	employer	no	no
4	yes	no	38.000	male	yes	1.000	employer	no	no
5	no	no	44.000	male	yes	11.000	doctor	no	yes
6	yes	no	42.000	male	yes	4.000	employer	no	no
7	no	no	30.000	male	yes	6.000	self	yes	no
8	yes	no	43.000	male	yes	8.000	doctor	no	yes
9	no	no	52.000	female	yes	4.000	self	yes	no
0	no	yes	39.000	female	yes	8.000	self	yes	no
1	no	no	44.000	male	yes	11.000	doctor	no	yes
2	no	no	43.000	male	yes	8.000	self	yes	no
3	no	no	40.000	male	yes	7.000	family	no	no
4	no	no	36.000	male	yes	11.000	self	yes	no
5	no	no	38.000	male	yes	6.000	family	no	no
6	no	no	55.000	female	yes	8.000	doctor	no	yes
7	no	yes	42.000	male	yes	9.000	doctor	no	yes
8	no	no	36.000	male	yes	8.000	doctor	no	yes
9	no	no	22.000	male	yes	4.000	self	yes	no
0	yes	no	35.000	male	yes	3.000	doctor	no	yes
1	yes	no	23.000	female	yes	8.000	self	yes	no
2	no	no	41.000	male	yes	11.000	self	yes	no
3	no	yes	39.000	female	yes	9.000	family	no	no
4	no	no	48.000	female	yes	10.000	self	yes	no
5	no	no	53.000	male	yes	7.000	self	yes	no
6	yes	no	26.000	male	yes	8.000	employer	no	no
7	yes	no	42.000	female	yes	8.000	friend	no	no
8	no	no	35.000	male	yes	7.000	employer	no	no
9	yes	no	39.000	male	yes	6.000	doctor	no	yes
0	no	yes	34.000	male	yes	8.000	self	yes	no
1	no	no	33.000	male	yes	11.000	self	yes	no
2	yes	no	34.000	female	yes	6.000	doctor	no	yes
3	yes	no	39.000	male	yes	6.000	self	yes	no
4	yes	no	37.000	male	yes	8.000	self	yes	no
5	yes	no	47.000	male	yes	1.000	doctor	no	yes
6	yes	no	24.000	male	yes	7.000	self	yes	no
7	no	no	45.000	male	yes	11.000	friend	no	no
8	yes	no	41.000	male	yes	6.000	self	yes	no
9	no	no	62.000	male	yes	4.000	doctor	no	yes
0	yes	no	45.000	female	yes	4.000	doctor	no	yes
1	yes	no	32.000	female	yes	5.000	self	yes	no
2	yes	no	37.000	female	yes	5.000	doctor	no	yes
3	no	yes	38.000	female	yes	7.000	doctor	no	yes
4	no	no	62.000	male	yes	4.000	doctor	no	yes
5	yes	no	44.000	male	yes	5.000	doctor	no	yes
6	yes	no	26.000	male	yes	remedial	self	yes	no
7	no	no	36.000	male	yes	5.000	doctor	no	yes
8	yes	no	34.000	male	yes	9.000	employer	no	n/a
9	yes	no	37.000	male	yes	7.000	employer	no	n/a
0	yes	no	45.000	male	yes	5.000	family	no	n/a
1	no	no	40.000	male	yes	7.000	family	no	n/a
2	yes	no	52.000	male	yes	6.000	self	yes	n/a
3	yes	no	39.000	male	yes	11.000	self	yes	n/a
4	yes	no	45.000	male	yes	6.000	employer	no	n/a
5	no	no	36.000	male	yes	10.000	law	no	n/a
6	no	no	31.000	female	yes	5.000	doctor	no	yes

	10	11	12	13	14	15	16	17	18
	AFRIKNS	XHOSA	AGE	GENDER	SCHOOL	STD_	REFERRAL	SELF	DOCTOR
7	no	no	35.000	male	yes	10.000	self	yes	n/a
8	yes	no	42.000	male	yes	3.000	self	yes	n/a
9	yes	no	37.000	male	yes	5.000	employer	no	n/a
0	yes	no	43.000	male	yes	8.000	self	yes	n/a
1	yes	no	32.000	male	yes	8.000	self	yes	n/a
2	no	no	37.000	male	yes	8.000	employer	no	n/a

	19	20	21	22	23	24	25	26	27
	FAMILY	LAW	EMPLOYER	FRIEND	MARRIED	MARRY	SINGLE	STEADY	DIVORCED
1	no	no	yes	no	married	yes	no	no	no
2	no	no	no	no	married	yes	no	no	no
3	no	no	yes	no	separate	no	no	no	no
4	no	no	yes	no	married	yes	no	no	no
5	no	no	no	no	single	no	yes	no	no
6	no	no	yes	no	widowed	no	no	no	no
7	no	no	no	no	married	yes	no	no	no
8	no	no	no	no	divorced	no	no	no	yes
9	no	no	no	no	divorced	no	no	no	yes
0	no	no	no	no	single	no	yes	no	no
1	no	no	no	no	steady	no	no	yes	no
2	no	no	no	no	divorced	no	no	no	yes
3	yes	no	no	no	divorced	no	no	no	yes
4	no	no	no	no	separate	no	no	no	no
5	yes	no	no	no	married	yes	no	no	no
6	no	no	no	no	married	yes	no	no	no
7	no	no	no	no	married	yes	no	no	no
8	no	no	no	no	divorced	no	no	no	yes
9	no	no	no	no	single	no	yes	no	no
0	no	no	no	no	single	no	yes	no	no
1	no	no	no	no	single	no	yes	no	no
2	no	no	no	no	divorced	no	no	no	yes
3	yes	no	no	no	single	no	yes	no	no
4	no	no	no	no	divorced	no	no	no	yes
5	no	no	no	no	married	yes	no	no	no
6	no	no	yes	no	steady	no	no	yes	no
7	no	no	no	yes	steady	no	no	yes	no
8	no	no	yes	no	single	no	yes	no	no
9	no	no	no	no	married	yes	no	no	no
0	no	no	no	no	married	yes	no	no	no
1	no	no	no	no	married	yes	no	no	no
2	no	no	no	no	single	no	yes	no	no
3	no	no	no	no	married	yes	no	no	no
4	no	no	no	no	separate	no	no	no	no
5	no	no	no	no	married	yes	no	no	no
6	no	no	no	no	single	no	yes	no	no
7	no	no	no	yes	divorced	no	no	no	yes
8	no	no	no	no	married	yes	no	no	no
9	no	no	no	no	married	yes	no	no	no
0	no	no	no	no	married	yes	no	no	no
1	no	no	no	no	widowed	no	no	no	no
2	no	no	no	no	divorced	no	no	no	yes
3	no	no	no	no	steady	no	no	yes	no
4	no	no	no	no	single	no	yes	no	no
5	no	no	no	no	married	yes	no	no	no
6	no	no	no	no	single	no	yes	no	no
7	no	no	no	no	single	no	yes	no	no
8	no	no	yes	no	married	yes	no	no	no
9	no	no	yes	no	single	no	yes	no	no
0	yes	no	no	no	married	yes	no	no	no
1	yes	no	no	no	divorced	no	no	no	yes
2	no	no	no	no	married	yes	no	no	no
3	no	no	no	no	single	no	yes	no	no

19	20	21	22	23	24	25	26	27
FAMILY	LAW	EMPLOYER	FRIEND	MARRIED	MARRY	SINGLE	STEADY	DIVORCED
no	no	yes	no	married	yes	no	no	no
no	yes	no	no	separate	no	no	no	no
no	no	no	no	married	yes	no	no	no
no	no	no	no	married	yes	no	no	no
no	no	no	no	married	yes	no	no	no
no	no	yes	no	married	yes	no	no	no
no	no	no	no	steady	no	no	yes	no
no	no	no	no	separate	no	no	no	no
no	no	yes	no	divorced	no	no	no	yes

28	29	30	31	32	33
SEPARATE	WIDOWED	LIVARRAN	IMMEDFAM	ALONE	OTHERFAM
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
yes	no	alone	no	yes	no
no	no	immedfam	yes	no	no
no	no	otherfam	no	no	yes
no	yes	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	alone	no	yes	no
no	no	nonfam	no	no	no
no	no	immedfam	yes	no	no
no	no	nonfam	no	no	no
no	no	immedfam	yes	no	no
yes	no	nonfam	no	no	no
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	alone	no	yes	no
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	alone	no	yes	no
no	no	otherfam	no	no	yes
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	otherfam	no	no	yes
no	no	otherfam	no	no	yes
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	alone	no	yes	no
no	no	immedfam	yes	no	no
yes	no	alone	no	yes	no
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	alone	no	yes	no
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	alone	no	yes	no
no	no	immedfam	yes	no	no
no	no	immedfam	yes	no	no
no	no	otherfam	no	no	yes
no	no	immedfam	yes	no	no
no	no	nonfam	no	no	no
no	no	immedfam	yes	no	no

	28	29	30	31	32	33
	SEPARATE	WIDOWED	LIVARRAN	IMMEDFAM	ALONE	OTHERFAM
51	no	no	immedfam	yes	no	no
52	no	no	immedfam	yes	no	no
53	no	no	alone	no	yes	no
54	no	no	immedfam	yes	no	no
55	yes	no	immedfam	yes	no	no
56	no	no	immedfam	yes	no	no
57	no	no	immedfam	yes	no	no
58	no	no	immedfam	yes	no	no
59	no	no	immedfam	yes	no	no
60	no	no	alone	no	yes	no
61	yes	no	immedfam	yes	no	no
62	no	no	immedfam	yes	no	no

	34	35	36	37	38	39	40	41
	NONFAM	ACCOMMOD	OWNHOUSE	RENT	OTHERHOM	WORKSTAT	WORKIND	SKILLED
1	no	renthous	no	yes	no	employed	skilled	yes
2	no	ownhouse	yes	no	no	employed	unskill	no
3	no	other	no	no	yes	unemploy	skilled	yes
4	no	ownhouse	yes	no	no	employed	skilled	yes
5	no	other	no	no	yes	unemploy	skilled	yes
6	no	renthous	no	yes	no	employed	unskill	no
7	no	rentflat	no	yes	no	unemploy	skilled	yes
8	no	informal	no	no	yes	unemploy	unskill	no
9	no	ownhouse	yes	no	no	unemploy	skilled	yes
10	yes	other	no	no	yes	employed	unskill	no
11	no	renthous	no	yes	no	employed	managerl	no
12	yes	other	no	no	yes	employed	skilled	yes
13	no	other	no	no	yes	unemploy	skilled	yes
14	yes	other	no	no	yes	unemploy	managerl	no
15	no	other	no	no	yes	unemploy	skilled	yes
16	no	ownhouse	yes	no	no	unemploy	unskill	no
17	no	other	no	no	yes	employed	unskill	no
18	no	informal	no	no	yes	employed	skilled	yes
19	no	other	no	no	yes	unemploy	unskill	no
20	no	rentflat	no	yes	no	employed	unskill	no
21	no	ownhouse	yes	no	no	unemploy	unskill	no
22	no	ownhouse	yes	no	no	unemploy	skilled	yes
23	no	renthous	no	yes	no	unemploy	unskill	no
24	no	rentflat	no	yes	no	unemploy	unskill	no
25	no	ownhouse	yes	no	no	unemploy	skilled	yes
26	no	rentflat	no	yes	no	employed	unskill	no
27	no	ownflat	yes	no	no	employed	skilled	yes
28	no	ownhouse	yes	no	no	employed	unskill	no
29	no	ownhouse	yes	no	no	unemploy	unskill	no
30	no	ownhouse	yes	no	no	unemploy	managerl	no
31	no	ownhouse	yes	no	no	employed	managerl	no
32	no	informal	no	no	yes	unemploy	unskill	no
33	no	ownhouse	yes	no	no	unemploy	unskill	no
34	no	ownhouse	yes	no	no	employed	skilled	yes
35	no	renthous	no	yes	no	employed	unskill	no
36	no	ownhouse	yes	no	no	employed	unskill	no
37	no	rentflat	no	yes	no	employed	managerl	no
38	no	rentflat	no	yes	no	unemploy	skilled	yes
39	no	ownhouse	yes	no	no	unemploy	skilled	yes
40	no	renthous	no	yes	no	unemploy	unskill	no
41	no	renthous	no	yes	no	unemploy	unskill	no
42	no	rentflat	no	yes	no	unemploy	unskill	no
43	no	ownhouse	yes	no	no	unemploy	unskill	no
44	no	informal	no	no	yes	unemploy	unskill	no
45	no	ownhouse	yes	no	no	unemploy	skilled	yes
46	no	renthous	no	yes	no	unemploy	unskill	no
47	no	other	no	no	yes	unemploy	unskill	no

	34	35	36	37	38	39	40	41
	NONFAM	ACCOMMOD	OWNHOUSE	RENT	OTHERHOM	WORKSTAT	WORKIND	SKILLED
48 no		ownhouse yes	no	no	employed	skilled	yes	
49 yes		renthous no	yes	no	employed	unskill	no	
50 no		renthous no	yes	no	employed	unskill	no	
51 no		ownhouse yes	no	no	employed	skilled	yes	
52 no		ownhouse yes	no	no	unemploy	unskill	no	
53 no		ownhouse yes	no	no	unemploy	profesnl	no	
54 no		informal	no	yes	employed	skilled	yes	
55 no		other	no	yes	unemploy	skilled	yes	
56 no		ownhouse yes	no	no	employed	unskill	no	
57 no		rentflat	yes	no	unemploy	managerl	no	
58 no		renthous	yes	no	unemploy	unskill	no	
59 no		ownhouse yes	no	no	employed	unskill	no	
60 no		hostel	no	no	employed	profesnl	no	
61 no		renthous	yes	no	unemploy	unskill	no	
62 no		rentflat	yes	no	employed	skilled	yes	

	42	43	44	45	46	47	48	49	50
	UNSKILL	PROFESNL	MANAGERL	AGEONSET	DRNKALON	KINDRINK	BEER	WINE	FORTWINE
1	no	no		16.000	company	beer	yes	no	no
2 yes	no	no		18.000	alone	wine	no	yes	no
3	no	no		22.000	company	wine	no	yes	no
4	no	no		18.000	company	beer	yes	no	no
5	no	no		11.000	alone	wine	no	yes	no
6 yes	no	no		23.000	company	wine	no	yes	no
7	no	no		15.000	company	beer	yes	no	no
8 yes	no	no		18.000	company	wine	no	yes	no
9	no	no		14.000	alone	spirits	no	no	no
10 yes	no	no		17.000	company	spirits	no	no	no
11	no	yes		13.000	alone	fortwine	no	no	yes
12	no	no		20.000	alone	spirits	no	no	no
13	no	no		16.000	company	wine	no	yes	no
14	no	yes		14.000	alone	spirits	no	no	no
15	no	no		14.000	company	wine	no	yes	no
16 yes	no	no		16.000	alone	beer	yes	no	no
17 yes	no	no		21.000	company	beer	yes	no	no
18	no	no		28.000	company	fortwine	no	no	yes
19 yes	no	no		14.000	alone	fortwine	no	no	yes
20 yes	no	no		18.000	alone	beer	yes	no	no
21 yes	no	no		15.000	alone	fortwine	no	no	yes
22	no	no		14.000	company	spirits	no	no	no
23 yes	no	no		19.000	alone	beer	yes	no	no
24 yes	no	no		28.000	company	fortwine	no	no	yes
25	no	no		18.000	alone	fortwine	no	no	yes
26 yes	no	no		15.000	company	beer	yes	no	no
27	no	no		27.000	company	beer	yes	no	no
28 yes	no	no		22.000	company	beer	yes	no	no
29 yes	no	no		16.000	company	fortwine	no	no	yes
30	no	yes		20.000	company	fortwine	no	no	yes
31	no	yes		16.000	alone	fortwine	no	no	yes
32 yes	no	no		23.000	company	beer	yes	no	no
33 yes	no	no		16.000	company	fortwine	no	no	yes
34	no	no		16.000	company	fortwine	no	no	yes
35 yes	no	no		20.000	alone	wine	no	yes	no
36 yes	no	no		12.000	company	beer	yes	no	no
37	no	yes		17.000	company	beer	yes	no	no
38	no	no		15.000	company	beer	yes	no	no
39	no	no		20.000	company	wine	no	yes	no
40 yes	no	no		20.000	company	wine	no	yes	no
41 yes	no	no		18.000	company	beer	yes	no	no
42 yes	no	no		16.000	company	beer	yes	no	no
43 yes	no	no		20.000	company	wine	no	yes	no
44 yes	no	no		18.000	company	wine	no	yes	no

	42	43	44	45	46	47	48	49	50
	UNSKILL	PROFESNL	MANAGERL	AGEONSET	DRNKALON	KINDRINK	BEER	WINE	FORTWINE
45		no	no	17.000		wine	no	yes	no
46 yes		no	no	18.000	company	beer	yes	no	no
47 yes		no	no	15.000	alone	fortwine	no	no	yes
48		no	no	19.000	company	beer	yes	no	no
49 yes		no	no	13.000	company	wine	no	yes	no
50 yes		no	no	21.000	alone	wine	no	yes	no
51		no	no	15.000	alone	beer	yes	no	no
52 yes		no	no	21.000	alone	wine	no	yes	no
53 no		yes	no	18.000	alone	wine	no	yes	no
54 no		no	no	22.000	company	wine	no	yes	no
55 no		no	no	18.000	company	fortwine	no	no	yes
56 yes		no	no	17.000	company	beer	yes	no	no
57 no		no	yes	17.000	company	fortwine	no	no	yes
58 yes		no	no	14.000	alone	wine	no	yes	no
59 yes		no	no	16.000	alone	beer	yes	no	no
60 no		yes	no	26.000	alone	beer	yes	no	no
61 yes		no	no	15.000	company	beer	yes	no	no
62 no		no	no	22.000	company	beer	yes	no	no

	51	52	53	54	55	56	57	58	59
	SPIRITS	DRNKUNIT	DRNKFREQ	DRINKDAY	DRINKFEW	WEEKENDS	PREVRX	LASTRX	RXPASTYR
1 no		2.000	weekends	no	no	yes	no	n/a	no
2 no		5.000	daily	yes	no	no	yes	inpastyr	yes
3 no		1.000	feweekly	no	yes	no	no	n/a	no
4 no		5.000	daily	yes	no	no	yes	>yrago	no
5 no		5.000	daily	yes	no	no	no	n/a	no
6 no		5.000	daily	yes	no	no	no	n/a	no
7 no		2.000	daily	yes	no	no	no	n/a	no
8 no		5.000	daily	yes	no	no	no	n/a	no
9 yes		5.000	feweekly	no	yes	no	no	n/a	no
10 yes		5.000	daily	yes	no	no	no	n/a	no
11 no		5.000	daily	yes	no	no	no	n/a	no
12 yes		5.000	daily	yes	no	no	yes	inpastyr	yes
13 no		5.000	daily	yes	no	no	yes	>yrago	no
14 yes		5.000	other	no	no	no	yes	>yrago	no
15 no		4.000	daily	yes	no	no	no	n/a	no
16 no		5.000	daily	yes	no	no	yes	>yrago	no
17 no		2.000	daily	yes	no	no	yes	inpastyr	yes
18 no		5.000	daily	yes	no	no	no	n/a	no
19 no		5.000	daily	yes	no	no	no	n/a	no
20 no		5.000	daily	yes	no	no	no	n/a	no
21 no		5.000	daily	yes	no	no	no	n/a	no
22 yes		5.000	daily	yes	no	no	no	n/a	no
23 no		4.000	daily	yes	no	no	no	n/a	no
24 no		5.000	feweekly	no	yes	no	yes	>yrago	no
25 no		5.000	daily	yes	no	no	no	n/a	no
26 no		5.000	daily	yes	no	no	no	n/a	no
27 no		5.000	daily	yes	no	no	no	n/a	no
28 no		5.000	feweekly	no	yes	no	no	n/a	no
29 no		5.000	daily	yes	no	no	no	n/a	no
30 no		5.000	weekends	no	no	yes	no	n/a	no
31 no		2.000	feweekly	no	yes	no	no	n/a	no
32 no		5.000	weekends	no	no	yes	yes	inpastyr	yes
33 no		5.000	daily	yes	no	no	yes	inpastyr	yes
34 no		5.000	daily	yes	no	no	no	n/a	no
35 no		5.000	daily	yes	no	no	no	n/a	no
36 no		5.000	daily	yes	no	no	no	n/a	no
37 no		2.000	daily	yes	no	no	no	n/a	no
38 no		5.000	daily	yes	no	no	no	n/a	no
39 no		3.000	daily	yes	no	no	no	n/a	no
40 no		5.000	daily	yes	no	no	no	n/a	no
41 no		5.000	daily	yes	no	no	no	n/a	no

	51	52	53	54	55	56	57	58	59
	SPIRITS	DRNKUNIT	DRNKFREQ	DRINKDAY	DRINKFEW	WEEKENDS	PREVRX	LASTRX	RXPASTYR
42	no	5.000	daily	yes	no	no	no	n/a	no
43	no	2.000	daily	yes	no	no	no	n/a	no
44	no	5.000	daily	yes	no	no	no	n/a	no
45	no	5.000	daily	yes	no	no	no	n/a	no
46	no	5.000	daily	yes	no	no	no	n/a	no
47	no	5.000	daily	yes	no	no	no	n/a	no
48	no	5.000	weekends	no	no	yes	no	n/a	no
49	no	5.000	feweekly	no	yes	no	no	n/a	no
50	no	5.000	daily	yes	no	no	no	n/a	no
51	no	4.000	feweekly	no	yes	no	yes	inpastyr	yes
52	no	2.000	daily	yes	no	no	no	n/a	no
53	no	5.000	daily	yes	no	no	yes	>yrago	no
54	no	5.000	daily	yes	no	no	no	n/a	no
55	no	5.000	daily	yes	no	no	no	n/a	no
56	no	2.000	daily	yes	no	no	yes	>yrago	no
57	no	4.000	daily	yes	no	no	no	n/a	no
58	no	5.000	daily	yes	no	no	yes	inpastyr	yes
59	no	5.000	daily	yes	no	no	no	n/a	no
60	no	5.000	daily	yes	no	no	no	n/a	no
61	no	5.000	daily	yes	no	no	no	n/a	no
62	no	2.000	daily	yes	no	no	yes	>yrago	no

	60	61	62	63	64	65	66	67	68
	RXMORAGO	COMPLTRX	RTC1PC	RTC2C	RTC3PA	RTC4A	RTC5M	RTC6PC	RTC7C
1	no	n/a	-2.000	2.000	2.000	2.000	1.000	-2.000	2.000
2	no	yes	-2.000	2.000	2.000	2.000	2.000	2.000	2.000
3	no	n/a	-1.000	1.000	2.000	2.000	1.000	-2.000	2.000
4	yes	yes	-2.000	-1.000	2.000	2.000	1.000	-2.000	1.000
5	no	n/a	-2.000	-1.000	2.000	2.000	1.000	-2.000	1.000
6	no	n/a	1.000	2.000	2.000	2.000	1.000	-1.000	1.000
7	no	n/a	-2.000	2.000	2.000	1.000	-2.000	1.000	2.000
8	no	n/a	-2.000	2.000	2.000	2.000	2.000	-2.000	2.000
9	no	n/a	-1.000	1.000	1.000	1.000	2.000	-1.000	1.000
10	no	n/a	1.000	1.000	2.000	2.000	-1.000	-2.000	2.000
11	no	n/a	-2.000	-2.000	2.000	2.000	2.000	-2.000	2.000
12	no	yes	-2.000	2.000	2.000	2.000	1.000	-2.000	2.000
13	yes	yes	-2.000	1.000	2.000	2.000	-2.000	-2.000	-2.000
14	yes	yes	-2.000	1.000	2.000	1.000	-2.000	-2.000	2.000
15	no	n/a	1.000	2.000	2.000	2.000	-2.000	2.000	-1.000
16	yes	yes	-1.000	2.000	2.000	2.000	1.000	-2.000	2.000
17	no	yes	-2.000	1.000	2.000	2.000	2.000	-1.000	1.000
18	no	n/a	-1.000	2.000	2.000	-1.000	-2.000	0.000	1.000
19	no	n/a	-2.000	2.000	2.000	2.000	1.000	-1.000	1.000
20	no	n/a	1.000	1.000	1.000	1.000	1.000	0.000	1.000
21	no	n/a	-1.000	1.000	1.000	0.000	-2.000	-1.000	1.000
22	no	n/a	-1.000	1.000	1.000	1.000	-1.000	-1.000	-1.000
23	no	n/a	-2.000	-2.000	2.000	2.000	2.000	2.000	2.000
24	yes	yes	-2.000	2.000	1.000	1.000	1.000	0.000	1.000
25	no	n/a	-2.000	2.000	2.000	2.000	-1.000	-2.000	1.000
26	no	n/a	-1.000	1.000	1.000	1.000	-2.000	-2.000	1.000
27	no	n/a	-2.000	2.000	2.000	2.000	-2.000	-2.000	2.000
28	no	n/a	-2.000	1.000	1.000	1.000	-2.000	-1.000	1.000
29	no	n/a	-2.000	1.000	2.000	2.000	2.000	2.000	2.000
30	no	n/a	-2.000	-2.000	2.000	2.000	2.000	-2.000	2.000
31	no	n/a	2.000	2.000	2.000	2.000	1.000	-1.000	2.000
32	no	no	-2.000	1.000	2.000	2.000	2.000	-1.000	2.000
33	no	no	-2.000	-2.000	2.000	2.000	2.000	-1.000	1.000
34	no	n/a	-2.000	2.000	2.000	2.000	1.000	-2.000	2.000
35	no	n/a	-1.000	-1.000	2.000	2.000	2.000	2.000	2.000
36	no	n/a	1.000	2.000	2.000	-2.000	-2.000	-2.000	-2.000
37	no	n/a	-2.000	1.000	2.000	2.000	2.000	-2.000	2.000
38	no	n/a	-2.000	-1.000	2.000	2.000	2.000	-2.000	2.000

	60 RXMORAGO	61 COMPLTRX	62 RTC1PC	63 RTC2C	64 RTC3PA	65 RTC4A	66 RTC5M	67 RTC6PC	68 RTC7C
39	no	n/a	-2.000	2.000	2.000	2.000	2.000	-2.000	2.000
40	no	n/a	-1.000	2.000	2.000	2.000	2.000	-2.000	2.000
41	no	n/a	-1.000	-1.000	2.000	2.000	1.000	-2.000	1.000
42	no	n/a	-2.000	2.000	2.000	1.000	-2.000	-2.000	2.000
43	no	n/a	-2.000	-1.000	2.000	2.000	2.000	-2.000	2.000
44	no	n/a	-2.000	2.000	1.000	1.000	-2.000	-2.000	1.000
45	no	n/a	-1.000	2.000	2.000	1.000	2.000	-1.000	1.000
46	no	n/a	-1.000	2.000	1.000	1.000	1.000	1.000	1.000
47	no	n/a	-2.000	1.000	2.000	2.000	1.000	-2.000	2.000
48	no	n/a	-1.000	1.000	1.000	1.000	1.000	-1.000	1.000
49	no	n/a	-1.000	1.000	1.000	1.000	1.000	-1.000	1.000
50	no	n/a	1.000	1.000	2.000	2.000	-2.000	-1.000	2.000
51	no	yes	1.000	1.000	1.000	1.000	1.000	1.000	1.000
52	no	n/a	1.000	1.000	1.000	1.000	1.000	-1.000	1.000
53	yes	yes	2.000	2.000	2.000	1.000	-2.000	2.000	2.000
54	no	n/a	-2.000	1.000	2.000	1.000	1.000	-1.000	1.000
55	no	n/a	-2.000	-2.000	2.000	2.000	2.000	-1.000	-1.000
56	yes	yes	-1.000	1.000	1.000	1.000	1.000	-1.000	1.000
57	no	n/a	-2.000	1.000	2.000	1.000	2.000	-1.000	0.000
58	no	yes	-2.000	2.000	2.000	2.000	-2.000	-2.000	2.000
59	no	n/a	-2.000	-1.000	1.000	1.000	1.000	-1.000	2.000
60	no	n/a	-2.000	-2.000	2.000	1.000	1.000	-1.000	1.000
61	no	n/a	-2.000	2.000	2.000	1.000	1.000	-1.000	2.000
62	yes	yes	-2.000	2.000	2.000	2.000	1.000	-1.000	1.000

	69 RTC8PA	70 RTC9A	71 RTC10M	72 RTC11PC	73 RTC12C	74 RTC13PA	75 RTC14A	76 RTC15M	77 RTC16PC
1	2.000	2.000	2.000	-2.000	2.000	2.000	1.000	2.000	1.000
2	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
3	2.000	2.000	2.000	-2.000	2.000	2.000	1.000	2.000	-1.000
4	1.000	1.000	2.000	-2.000	-2.000	1.000	2.000	1.000	1.000
5	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000	-2.000
6	2.000	2.000	2.000	2.000	1.000	1.000	2.000	1.000	-1.000
7	2.000	2.000	2.000	-2.000	2.000	2.000	2.000	2.000	-2.000
8	2.000	2.000	0.000	-2.000	2.000	2.000	2.000	1.000	-1.000
9	2.000	1.000	1.000	2.000	2.000	2.000	2.000	2.000	-1.000
10	1.000	2.000	2.000	-1.000	2.000	2.000	1.000	1.000	-1.000
11	2.000	2.000	2.000	-2.000	-1.000	2.000	2.000	2.000	-2.000
12	2.000	2.000	1.000	-2.000	2.000	2.000	2.000	2.000	-2.000
13	2.000	2.000	-2.000	-2.000	-2.000	-2.000	2.000	-2.000	-2.000
14	2.000	2.000	1.000	-2.000	-1.000	1.000	1.000	1.000	0.000
15	1.000	1.000	-2.000	2.000	1.000	1.000	0.000	0.000	2.000
16	1.000	1.000	-1.000	-1.000	-1.000	1.000	1.000	1.000	-1.000
17	2.000	2.000	2.000	1.000	-1.000	1.000	2.000	1.000	-2.000
18	2.000	1.000	-1.000	-2.000	-2.000	1.000	1.000	-1.000	-1.000
19	1.000	1.000	0.000	-1.000	1.000	2.000	1.000	1.000	-2.000
20	1.000	2.000	-2.000	1.000	2.000	2.000	1.000	0.000	2.000
21	1.000	1.000	-1.000	-2.000	-2.000	2.000	1.000	-1.000	0.000
22	1.000	1.000	1.000	-2.000	1.000	2.000	1.000	1.000	-2.000
23	2.000	2.000	2.000	-2.000	2.000	2.000	1.000	2.000	-2.000
24	1.000	1.000	1.000	-1.000	1.000	1.000	1.000	1.000	-1.000
25	2.000	2.000	1.000	-2.000	2.000	1.000	1.000	1.000	-1.000
26	1.000	1.000	-1.000	0.000	-2.000	2.000	2.000	-2.000	-2.000
27	2.000	2.000	-1.000	-2.000	-2.000	2.000	2.000	1.000	-1.000
28	2.000	2.000	1.000	-1.000	2.000	2.000	2.000	2.000	-1.000
29	2.000	2.000	2.000	-2.000	2.000	2.000	2.000	2.000	0.000
30	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000	2.000
31	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	-1.000
32	2.000	2.000	2.000	-2.000	2.000	2.000	2.000	2.000	2.000
33	2.000	2.000	2.000	-2.000	1.000	1.000	2.000	2.000	0.000
34	2.000	1.000	2.000	-2.000	-2.000	1.000	2.000	2.000	-1.000
35	1.000	1.000	1.000	2.000	1.000	2.000	1.000	1.000	1.000

	RTC8PA	RTC9A	RTC10M	RTC11PC	RTC12C	RTC13PA	RTC14A	RTC15M	RTC16PC
36	1.000	2.000	-2.000	-2.000	-2.000	1.000	1.000	-2.000	-2.000
37	2.000	2.000	2.000	-2.000	2.000	2.000	2.000	2.000	-1.000
38	2.000	2.000	2.000	-2.000	2.000	2.000	2.000	2.000	-2.000
39	2.000	2.000	2.000	-1.000	2.000	2.000	2.000	2.000	2.000
40	2.000	2.000	2.000	-2.000	2.000	2.000	2.000	2.000	-1.000
41	2.000	2.000	2.000	-2.000	2.000	2.000	2.000	2.000	-2.000
42	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000	-2.000	-2.000
43	2.000	2.000	1.000	-2.000	-2.000	2.000	1.000	2.000	-2.000
44	2.000	2.000	-2.000	-2.000	-2.000	2.000	2.000	-2.000	-2.000
45	1.000	2.000	2.000	-2.000	1.000	2.000	2.000	2.000	-2.000
46	2.000	2.000	1.000	-1.000	1.000	1.000	2.000	2.000	2.000
47	2.000	2.000	-1.000	-2.000	2.000	2.000	2.000	2.000	2.000
48	1.000	1.000	1.000	-1.000	1.000	1.000	1.000	1.000	1.000
49	2.000	2.000	1.000	-1.000	1.000	1.000	1.000	2.000	1.000
50	2.000	2.000	-2.000	-2.000	1.000	2.000	1.000	-2.000	0.000
51	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
52	1.000	1.000	1.000	1.000	-1.000	1.000	1.000	1.000	1.000
53	2.000	2.000	2.000	2.000	2.000	1.000	2.000	1.000	2.000
54	2.000	1.000	1.000	-1.000	1.000	1.000	1.000	1.000	-1.000
55	2.000	2.000	2.000	1.000	-1.000	2.000	2.000	2.000	-1.000
56	1.000	1.000	1.000	-1.000	1.000	1.000	1.000	1.000	-1.000
57	2.000	2.000	2.000	-2.000	2.000	2.000	2.000	2.000	-2.000
58	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000	-2.000	-1.000
59	2.000	2.000	1.000	-1.000	2.000	2.000	1.000	1.000	-2.000
60	2.000	2.000	-1.000	-1.000	1.000	1.000	2.000	1.000	-1.000
61	2.000	2.000	2.000	-1.000	-2.000	2.000	2.000	2.000	-2.000
62	1.000	1.000	1.000	0.000	2.000	2.000	1.000	1.000	1.000

	78 RTC17C	79 RTC18PA	80 RTC19A	81 RTC20M	82 RTC21PC	83 RTC22C	84 RTC23PA	85 RTC24A	86 RTC25M
1	1.000	2.000	2.000	1.000	-2.000	0.000	2.000	2.000	2.000
2	2.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
3	1.000	1.000	1.000	1.000	-2.000	-2.000	2.000	1.000	2.000
4	1.000	0.000	2.000	1.000	-1.000	2.000	1.000	1.000	1.000
5	-2.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
6	2.000	2.000	2.000	1.000	-1.000	-2.000	2.000	2.000	2.000
7	0.000	2.000	1.000	2.000	-2.000	-1.000	2.000	1.000	1.000
8	0.000	2.000	2.000	1.000	-1.000	-2.000	2.000	2.000	1.000
9	1.000	1.000	1.000	1.000	2.000	1.000	1.000	1.000	2.000
10	2.000	2.000	2.000	1.000	2.000	-2.000	2.000	2.000	2.000
11	-1.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
12	2.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
13	-1.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
14	-1.000	2.000	1.000	2.000	-1.000	-1.000	2.000	1.000	1.000
15	0.000	1.000	0.000	0.000	2.000	2.000	1.000	0.000	0.000
16	1.000	1.000	1.000	1.000	-2.000	0.000	2.000	1.000	0.000
17	-2.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
18	1.000	2.000	0.000	1.000	-1.000	-1.000	1.000	-1.000	-1.000
19	1.000	1.000	0.000	1.000	1.000	0.000	1.000	1.000	1.000
20	-1.000	2.000	0.000	-1.000	-2.000	0.000	1.000	-1.000	1.000
21	-1.000	1.000	1.000	-2.000	-2.000	-2.000	2.000	1.000	-1.000
22	1.000	2.000	1.000	2.000	-2.000	-1.000	2.000	2.000	0.000
23	1.000	1.000	2.000	2.000	-2.000	-2.000	1.000	2.000	2.000
24	1.000	1.000	1.000	1.000	-1.000	-1.000	1.000	1.000	1.000
25	1.000	2.000	1.000	1.000	-2.000	-1.000	1.000	1.000	1.000
26	1.000	2.000	1.000	-2.000	-2.000	-2.000	2.000	1.000	-1.000
27	2.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
28	1.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
29	2.000	2.000	2.000	2.000	-2.000	1.000	2.000	2.000	2.000
30	2.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
31	2.000	2.000	2.000	2.000	-1.000	2.000	2.000	2.000	2.000
32	2.000	2.000	2.000	2.000	-2.000	2.000	2.000	2.000	2.000

	78 RTC17C	79 RTC18PA	80 RTC19A	81 RTC20M	82 RTC21PC	83 RTC22C	84 RTC23PA	85 RTC24A	86 RTC25M
33	0.000	2.000	2.000	2.000	-2.000	0.000	0.000	2.000	2.000
34	2.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
35	2.000	1.000	1.000	1.000	-1.000	-1.000	2.000	2.000	1.000
36	1.000	2.000	1.000	-2.000	-1.000	-2.000	1.000	-2.000	-2.000
37	2.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
38	1.000	2.000	2.000	2.000	-2.000	2.000	2.000	2.000	2.000
39	2.000	2.000	2.000	2.000	-2.000	2.000	2.000	2.000	2.000
40	2.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
41	-2.000	2.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
42	1.000	2.000	-2.000	-2.000	-1.000	-2.000	2.000	2.000	-2.000
43	1.000	2.000	2.000	2.000	-2.000	-2.000	2.000	1.000	2.000
44	1.000	1.000	2.000	-2.000	-1.000	-1.000	1.000	1.000	-1.000
45	1.000	2.000	2.000	2.000	-2.000	-1.000	2.000	2.000	2.000
46	1.000	1.000	1.000	2.000	-2.000	2.000	2.000	1.000	1.000
47	2.000	2.000	1.000	-1.000	-2.000	2.000	2.000	2.000	-2.000
48	1.000	1.000	1.000	1.000	-2.000	2.000	1.000	1.000	1.000
49	1.000	2.000	1.000	1.000	0.000	-1.000	2.000	1.000	1.000
50	1.000	2.000	2.000	-2.000	-1.000	1.000	2.000	2.000	2.000
51	1.000	1.000	1.000	1.000	-1.000	1.000	1.000	1.000	1.000
52	1.000	1.000	1.000	1.000	-1.000	1.000	1.000	1.000	1.000
53	2.000	2.000	1.000	1.000	2.000	2.000	2.000	1.000	2.000
54	1.000	2.000	1.000	1.000	-1.000	1.000	2.000	1.000	1.000
55	1.000	1.000	1.000	2.000	-2.000	-1.000	1.000	2.000	2.000
56	1.000	1.000	1.000	1.000	-1.000	-2.000	1.000	1.000	1.000
57	2.000	2.000	2.000	2.000	-2.000	1.000	2.000	2.000	2.000
58	1.000	2.000	2.000	-1.000	-1.000	-1.000	2.000	2.000	1.000
59	2.000	1.000	2.000	1.000	-2.000	2.000	2.000	2.000	2.000
60	1.000	2.000	2.000	2.000	-1.000	-1.000	2.000	1.000	2.000
61	2.000	1.000	2.000	2.000	-2.000	-2.000	2.000	2.000	2.000
62	1.000	1.000	1.000	1.000	-2.000	-1.000	2.000	1.000	1.000

	87 RTC26PC	88 RTC27C	89 RTC28PA	90 RTC29A	91 RTC30M	92 PCTOT	93 CTOT	94 PATOT	95 ATOT
1	-1.000	2.000	2.000	2.000	1.000	-8.000	9.000	12.000	11.000
2	2.000	2.000	2.000	2.000	2.000	4.000	8.000	12.000	12.000
3	-2.000	2.000	2.000	2.000	2.000	-10.000	6.000	11.000	9.000
4	0.000	1.000	2.000	2.000	1.000	-6.000	2.000	7.000	10.000
5	-2.000	-2.000	1.000	2.000	2.000	-12.000	-8.000	11.000	12.000
6	-2.000	2.000	2.000	2.000	2.000	-2.000	6.000	11.000	12.000
7	-2.000	1.000	2.000	2.000	2.000	-9.000	6.000	12.000	9.000
8	-2.000	2.000	2.000	0.000	0.000	-10.000	6.000	12.000	10.000
9	1.000	1.000	1.000	2.000	2.000	2.000	7.000	8.000	8.000
10	-2.000	0.000	2.000	2.000	0.000	-3.000	5.000	11.000	11.000
11	-2.000	2.000	2.000	2.000	2.000	-12.000	-2.000	12.000	12.000
12	-2.000	2.000	2.000	2.000	2.000	-12.000	8.000	12.000	12.000
13	-1.000	1.000	2.000	1.000	0.000	-11.000	-5.000	8.000	11.000
14	-1.000	-2.000	2.000	1.000	0.000	-8.000	-2.000	11.000	7.000
15	0.000	-2.000	-2.000	1.000	-2.000	9.000	2.000	4.000	4.000
16	-1.000	1.000	1.000	1.000	0.000	-8.000	5.000	8.000	7.000
17	-2.000	2.000	2.000	2.000	2.000	-8.000	-1.000	11.000	12.000
18	1.000	1.000	1.000	-1.000	-1.000	-4.000	2.000	9.000	-1.000
19	-1.000	1.000	1.000	1.000	1.000	-6.000	6.000	8.000	6.000
20	1.000	1.000	2.000	1.000	0.000	3.000	4.000	9.000	4.000
21	-2.000	2.000	2.000	2.000	-2.000	-8.000	-1.000	9.000	6.000
22	-2.000	-2.000	1.000	1.000	1.000	-10.000	-1.000	9.000	7.000
23	-2.000	2.000	2.000	2.000	2.000	-8.000	3.000	10.000	11.000
24	-1.000	1.000	1.000	1.000	0.000	-6.000	5.000	6.000	6.000
25	-2.000	2.000	2.000	1.000	1.000	-11.000	7.000	10.000	8.000
26	-2.000	2.000	2.000	2.000	-2.000	-9.000	1.000	10.000	8.000
27	-2.000	2.000	2.000	2.000	2.000	-11.000	4.000	12.000	12.000
28	-2.000	2.000	2.000	2.000	2.000	-9.000	5.000	11.000	11.000
29	-2.000	2.000	2.000	2.000	2.000	-6.000	10.000	12.000	12.000

	87 RTC26PC	88 RTC27C	89 RTC28PA	90 RTC29A	91 RTC30M	92 PCTOT	93 CTOT	94 PATOT	95 ATOT
30	-2.000	2.000	2.000	2.000	2.000	-8.000	0.000	12.000	12.000
31	-1.000	2.000	2.000	2.000	2.000	0.000	12.000	12.000	12.000
32	-2.000	2.000	2.000	2.000	-1.000	-7.000	11.000	12.000	12.000
33	-1.000	0.000	-2.000	2.000	2.000	-8.000	0.000	5.000	12.000
34	-2.000	2.000	2.000	2.000	1.000	-11.000	4.000	11.000	11.000
35	1.000	-1.000	-1.000	2.000	2.000	4.000	2.000	7.000	9.000
36	-2.000	2.000	2.000	0.000	-2.000	-8.000	-1.000	9.000	0.000
37	-2.000	2.000	2.000	2.000	2.000	-11.000	7.000	12.000	12.000
38	-2.000	2.000	2.000	2.000	-1.000	-12.000	8.000	12.000	12.000
39	-2.000	2.000	2.000	2.000	-1.000	-7.000	12.000	12.000	12.000
40	-2.000	2.000	2.000	2.000	2.000	-10.000	8.000	12.000	12.000
41	-2.000	2.000	2.000	2.000	2.000	-11.000	0.000	12.000	12.000
42	-1.000	2.000	2.000	1.000	-2.000	-10.000	7.000	12.000	6.000
43	-1.000	2.000	1.000	2.000	2.000	-11.000	0.000	11.000	10.000
44	-1.000	1.000	1.000	1.000	-1.000	-10.000	2.000	8.000	9.000
45	-2.000	-2.000	2.000	2.000	2.000	-10.000	2.000	11.000	11.000
46	-1.000	1.000	2.000	1.000	2.000	-2.000	8.000	9.000	8.000
47	-2.000	2.000	2.000	2.000	-1.000	-8.000	11.000	12.000	11.000
48	-1.000	1.000	1.000	1.000	1.000	-5.000	7.000	6.000	6.000
49	-1.000	1.000	1.000	1.000	-2.000	-3.000	4.000	9.000	7.000
50	-2.000	2.000	2.000	2.000	-1.000	-5.000	8.000	12.000	11.000
51	1.000	-1.000	1.000	1.000	-1.000	4.000	4.000	6.000	6.000
52	-1.000	-1.000	1.000	1.000	1.000	0.000	2.000	6.000	6.000
53	2.000	2.000	2.000	2.000	-1.000	12.000	12.000	11.000	9.000
54	-1.000	1.000	1.000	1.000	1.000	-7.000	6.000	10.000	6.000
55	-1.000	-1.000	1.000	2.000	2.000	-6.000	-5.000	9.000	11.000
56	-2.000	2.000	1.000	2.000	1.000	-7.000	4.000	6.000	7.000
57	-2.000	2.000	2.000	2.000	1.000	-11.000	8.000	12.000	11.000
58	-1.000	2.000	2.000	1.000	-2.000	-9.000	8.000	12.000	11.000
59	-1.000	1.000	2.000	2.000	2.000	-9.000	8.000	10.000	10.000
60	-2.000	1.000	2.000	2.000	-1.000	-8.000	1.000	11.000	10.000
61	-2.000	2.000	2.000	2.000	2.000	-10.000	4.000	11.000	11.000
62	-1.000	1.000	2.000	2.000	1.000	-5.000	6.000	10.000	8.000

	96 MTOT	97 STAGE	98 FWDRULE	99 PCFWD	100 CFWD	101 PAFWD	102 AFWD	103 MFWD	104 BACKWD
1	9.000	PA	PA	no	no	yes	no	no	PA
2	12.000	PA/A/M	M	no	no	no	no	yes	PA
3	10.000	PA	PA	no	no	yes	no	no	PA
4	7.000	A	A	no	no	no	yes	no	A
5	11.000	PC/A	A	no	no	no	yes	no	PC
6	9.000	A	A	no	no	no	yes	no	A
7	7.000	PA	PA	no	no	yes	no	no	PA
8	5.000	PA	PA	no	no	yes	no	no	PA
9	10.000	M	M	no	no	no	no	yes	M
10	5.000	PA/A	A	no	no	no	yes	no	PA
11	12.000	PCPA/A/M	M	no	no	no	no	yes	PC
12	10.000	PC/PA/A	A	no	no	no	yes	no	PC
13	-2.000	PC/A	A	no	no	no	yes	no	PC
14	3.000	PA	PA	no	no	yes	no	no	PA
15	-6.000	PC	PC	yes	no	no	no	no	PC
16	2.000	PA	PA	no	no	yes	no	no	PA
17	11.000	A	A	no	no	no	yes	no	A
18	-5.000	PA	PA	no	no	yes	no	no	PA
19	5.000	PA	PA	no	no	yes	no	no	PA
20	-1.000	PA	PA	no	no	yes	no	no	PA
21	-9.000	PA/M	M	no	no	no	no	yes	PA
22	4.000	PC	PC	yes	no	no	no	no	PC
23	12.000	M	M	no	no	no	no	yes	M
24	5.000	PC/PA/A	A	no	no	no	yes	no	PC
25	4.000	PC	PC	yes	no	no	no	no	PC
26	-10.000	PA/M	M	no	no	no	no	yes	PA

	MTOT	STAGE	FWDRULE	PCFWD	CFWD	PAFWD	AFWD	MFWD	BACKWI
27	4.000	PA/A	A	no	no	no	yes	no	PA
28	7.000	PA/A	A	no	no	no	yes	no	PA
29	12.000	PA/A/M	M	no	no	no	no	yes	PA
30	12.000	PA/A/M	M	no	no	no	no	yes	PA
31	11.000	A	A	no	no	no	yes	no	A
32	9.000	PA/A	A	no	no	no	yes	no	PA
33	12.000	A/M	M	no	no	no	no	yes	A
34	10.000	PC/PA/A	A	no	no	no	yes	no	PC
35	8.000	A	A	no	no	no	yes	no	A
36	-12.000	M	M	no	no	no	no	yes	M
37	12.000	PA/A/M	M	no	no	no	no	yes	PA
38	9.000	PC/PA/A	A	no	no	no	yes	no	PC
39	9.000	C/PA/A	A	no	no	no	yes	no	C
40	12.000	PA/A/M	M	no	no	no	no	yes	PA
41	11.000	PA/A	A	no	no	no	yes	no	PA
42	-12.000	PA/M	M	no	no	no	no	yes	PA
43	11.000	PC/PA/M	M	no	no	no	no	yes	PC
44	-10.000	PC/M	M	no	no	no	no	yes	PC
45	12.000	M	M	no	no	no	no	yes	M
46	9.000	PA/M	M	no	no	no	no	yes	PA
47	-2.000	PA	PA	no	no	yes	no	no	PA
48	6.000	C	C	no	yes	no	no	no	C
49	4.000	PA	PA	no	no	yes	no	no	PA
50	-7.000	PA	PA	no	no	yes	no	no	PA
51	4.000	PA/A	A	no	no	no	yes	no	PA
52	6.000	PA/A/M	M	no	no	no	no	yes	PA
53	3.000	PC/C	C	no	yes	no	no	no	PC
54	6.000	PA	PA	no	no	yes	no	no	PA
55	12.000	M	M	no	no	no	no	yes	M
56	6.000	PC/A	A	no	no	no	yes	no	PC
57	11.000	PA	PA	no	no	yes	no	no	PA
58	-8.000	PA	PA	no	no	yes	no	no	PA
59	8.000	PA/A	A	no	no	no	yes	no	PA
60	4.000	PA	PA	no	no	yes	no	no	PA
61	11.000	PA/A/M	M	no	no	no	no	yes	PA
62	6.000	PA	PA	no	no	yes	no	no	PA

	105	106	107	108	109	110	111	112
	PCBCKWD	CBCKWD	PABCKWD	ABCKWD	MBCKWD	DROPOUT	RX DAYS	KINDISCH
1	no	no	yes	no	no	no		
2	no	no	yes	no	no	no		
3	no	no	yes	no	no	no		
4	no	no	no	yes	no	yes	1.000	work
5	yes	no	no	no	no	no		
6	no	no	no	yes	no	no		
7	no	no	yes	no	no	no		
8	no	no	yes	no	no	no		
9	no	no	no	no	yes	no		
10	no	no	yes	no	no	no		
11	yes	no	no	no	no	yes	10.000	work
12	yes	no	no	no	no	yes	5.000	ownvoln
13	yes	no	no	no	no	no		
14	no	no	yes	no	no	yes	16.000	work
15	yes	no	no	no	no	no		
16	no	no	yes	no	no	yes	10.000	ownvoln
17	no	no	no	yes	no	no		
18	no	no	yes	no	no	no		
19	no	no	yes	no	no	yes	5.000	dismiss
20	no	no	yes	no	no	no		
21	no	no	yes	no	no	no		
22	yes	no	no	no	no	no		
23	no	no	no	no	yes	no		

	105	106	107	108	109	110	111	112
	PCBCKWD	CBCKWD	PABCKWD	ABCKWD	MBCKWD	DROPOUT	RX DAYS	KINDISCH
24	yes	no	no	no	no	yes	0.000	inconv
25	yes	no	no	no	no	yes	4.000	ownvoln
26	no	no	yes	no	no	yes	14.000	dismiss
27	no	no	yes	no	no	no		
28	no	no	yes	no	no	no		
29	no	no	yes	no	no	yes	2.000	dismiss
30	no	no	yes	no	no	no		
31	no	no	no	yes	no	no		
32	no	no	yes	no	no	no		
33	no	no	no	yes	no	yes	5.000	ownvoln
34	yes	no	no	no	no	yes	15.000	work
35	no	no	no	yes	no	no		
36	no	no	no	no	yes	yes	15.000	drink
37	no	no	yes	no	no	no		
38	yes	no	no	no	no	no		
39	no	yes	no	no	no	no		
40	no	no	yes	no	no	no		
41	no	no	yes	no	no	no		
42	no	no	yes	no	no	yes	15.000	domestic
43	yes	no	no	no	no	no		
44	yes	no	no	no	no	no		
45	no	no	no	no	yes	no		
46	no	no	yes	no	no	yes	7.000	ownvoln
47	no	no	yes	no	no	yes	7.000	dismiss
48	no	yes	no	no	no	no		
49	no	no	yes	no	no	no		
50	no	no	yes	no	no	no		
51	no	no	yes	no	no	yes	15.000	ownvoln
52	no	no	yes	no	no	no		
53	yes	no	no	no	no	no		
54	no	no	yes	no	no	no		
55	no	no	no	no	yes	yes	0.000	ownvoln
56	yes	no	no	no	no	yes	16.000	ownvoln
57	no	no	yes	no	no	no		
58	no	no	yes	no	no	no		
59	no	no	yes	no	no	no		
60	no	no	yes	no	no	no		
61	no	no	yes	no	no	yes	10.000	work
62	no	no	yes	no	no	no		