

Influencing Factors in the Course of Alcohol Treatment Careers.

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Declaration

This thesis entitled 'Influencing Factors in the Course of Alcohol Treatment Careers' is based on work conducted by the author in the Department of Clinical Psychology at the University of Leicester between September 2004 and June 2007. All content is original unless indicated by reference to other sources.

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Whole Thesis Abstract

Influencing Factors in the Course of Alcohol Treatment Careers.

By Chris Hodgkins

The current thesis contains three sections. First is a literature review. This is a theoretical and research based review of models of alcohol addiction and differential treatment effectiveness. Second is a research report of the current study which investigates the effect of variables identified from past research and literature upon individuals' alcohol treatment careers presenting for treatment. Finally, the third section is a critical reflection of the process of undertaking the current study as described in the research report.

- 1) **Literature Review.** Examines the background of alcohol addiction work and summaries the main models, dominant theories and evidence for differential treatment effectiveness. The difficulties of unclear and mixed definitions within the area are highlighted and explored together with the lack of longitudinal studies, small samples and low follow up rates. Finally, directions for future research based on the evidence covered are outlined.
- 2) **Research Report.** Describes the current study which utilised existing service data to investigate the impact of identified variables upon the dependent variables of 'mean time between multiple referrals' and 'number of referrals' to treatment services in individuals' alcohol treatment careers. The results, gained from multiple regression analyses, indicated that the identified variables were not predictive of the dependent variables. However, a number of interesting secondary findings suggested that those who go on to have multiple referrals to treatment services have notably more chaotic lives at the point of first referral. The current study also suggests avenues for further research and, indirectly, changes to both future data collection and treatment in the host service.
- 3) **Critical Reflection.** Reflections are included on the origins of the study, its development, the treatment of the secondary data utilised and the process of writing up. An overall critique of the current study is also included together with the authors overall reflections and summary.

Section 1: Literature Review

A Review of the Current Theoretical Understanding of Alcohol Addiction and Treatment Effectiveness

Abstract

Background. Alcohol addiction is a growing problem with associated health and social consequences. Recognition of the problem is increasing and recent years have seen the introduction of government guidelines on sensible drinking.

Aims. This review aims to summarise the existing knowledge base regarding alcohol addiction and the associated problems of its definition and reporting. Major models and theories of alcohol addiction are covered and the evidence for differential treatment effectiveness and its implications are considered. Finally, future research directions are explored as suggested by the literature.

Findings. Past research has provided a number of useful psychological explanations for the occurrence of alcohol addiction. However, inconsistencies in the use of terms, mixed samples, and a shortage of longitudinal studies has lead to difficulties in the building of a complete understanding regarding variables in its course.

Conclusions. Despite the large number of psychological theories the area of alcohol addiction is full of inconsistencies and contradictions. There are however many areas for future research especially regarding the long-term course of alcohol addiction and the variables thought to affect it.

A Review of the Current Theoretical Understanding of Alcohol Addiction and Treatment Effectiveness

1.0 Background, Context and Conceptualisation

The sheer volume of literature available regarding alcohol addiction dictates that any review must be targeted rather than attempt to cover the area as a whole. This narrative review firstly looks at the level of the problem of alcohol addiction in the United Kingdom (UK) and the associated problems of its definition and reporting. Following this, major models and theories of alcohol addiction are covered and the evidence for differential treatment effectiveness and its implications are considered in order to offer an overview of the area. Finally, future research directions are explored as suggested by the literature.

Figure 1 below outlines the systematic literature search strategy undertaken and databases interrogated together with the identifiers used. This revealed a range of articles covering general theoretical models, predictive factors, and treatments types and effectiveness. Entries before 1960 were excluded as psychological explanations became more accepted alongside the traditional disease model at that time. The review focuses on larger studies and reviews. Smaller studies without follow-up were excluded. In addition to the summarised identifiers, reference lists from review articles were also examined, articles followed up and the suggestions of researchers in the field were incorporated. Finally, supporting information regarding prevalence and population information was obtained from UK government sources and publications. This systematic search strategy resulted in the current narrative review.

Figure 1: Search terms used to identify relevant literature.

Databases Interrogated	Dates Covered	Individual Identifiers
PsychARTICLES	1894 – Present (Pre 1960 excluded)	'Alcohol' and 'addiction', 'treatment effectiveness', 'treatment careers', alcohol careers', 'models', 'theories' 'psychological factors', 'psychological variables', 'abstinence'
PsychINFO	1887 – Present (Pre 1960 excluded)	Alcohol', and 'addiction', 'treatment effectiveness', 'theories', 'treatment careers', alcohol careers', 'models', 'factors', 'variables'
Medline	1950 – Present (Pre 1960 excluded)	Alcohol', and 'addiction', 'treatment effectiveness', 'treatment careers', alcohol careers', 'models', 'factors', 'variables', 'cravings', 'consumption', 'abstinence'
Embase	1974 – Present	Alcohol', and 'addiction', 'treatment effectiveness', 'treatment careers', alcohol careers', 'models', 'factors', 'variables', 'cravings', 'consumption', 'abstinence'

1.0.1 Definitions of Alcohol Addiction and Associated Terms

Present day terms such as 'alcoholism', 'alcohol dependence' and 'problem drinking' are now widely accepted by members of the helping professions and the lay public. It has been argued that those who have the most first hand knowledge of alcohol addiction include close family members of the individuals affected. Those 'concerned and affected others' (p.6) may include parents, partners, children and wider family members such as aunts, uncles, nephews and nieces (Orford *et al.*, 1998a).

McMurran (1997) defined alcohol addiction as 'a degree of involvement in a behaviour that can function both to produce pleasure and to provide relief from discomfort, to the point where the costs outweigh the benefits' (p.1). Additionally, this behaviour was thought to be motivated by short-term gains and involved a degree

of diminished control. It has also been described by Orford (2001), around the notion of 'excessive appetite'. Orford (2001) suggested that this appetite is for 'objects and activities, which are particularly risky for humans, who are liable to develop such strong attachment that they then find their ability to moderate their behaviour significantly diminished' (p.15). Further definitions from Cottler (1993), Rounsaville *et al.* (1993) and Heather (1998) focused on a notion of 'impaired control' leading to harmful consequences (p.3). Heather (1998) further argued that, as the addiction 'violates the individual's freedom of choice', it is 'appropriate to consider it to be a form of psychiatric disorder' (p.3).

Associated to the defined construct of addiction are the notions of relapse, cravings, alcohol dependence, heavy drinking and the term alcoholic, which is referred to throughout the current review. Miller (1996) described relapse as '...a reoccurrence of previously unacceptable or damaging [drinking] behaviour' (p.8). Cravings are defined by Jellinek (1960) as an urgent and overwhelming desire to drink. Although an old definition, it will be used in this review as Anton (1999) noted that researchers have not yet developed a common, valid definition of the phenomenon. The current review utilises the definition of alcohol dependence from the UK's 2004 Alcohol Needs Assessment Research Project (ANNARP). This stated that an individual is alcohol dependent if they are drinking above sensible government guidelines: that men should drink no more than three or four units per day and women no more than two to three units per day. Furthermore, the report defined men drinking over eight units a day and women drinking six units a day on at least one day during the previous week as 'heavy drinkers'. In the current review the term 'alcohol problem' is used as an umbrella term for problem, dependent and heavy drinking as is the (DSM) definition of an alcoholic. The DSM specifies that four markers must all be present

for a diagnosis of 'alcoholic': cravings; a loss of control; physical dependence with withdrawal symptoms such as nausea, sweating, shaking and anxiety; and an increased tolerance to alcohol and requiring larger amounts to achieve the same intoxicating effect.

Despite this apparently well ordered and specific definition there are other definitions of addiction within the reviewed literature that contradict this and are somewhat unspecific, as they refer to traits and types of behaviour that may be indicative of an 'addictive' level of behaviour. Additionally, no quantifiable amount or frequency of consumption beyond which individuals are said to be addicted is readily apparent in the literature. This absence is perhaps understandable when we consider that addiction is not necessarily just about quantity and/or frequency of drinking. With regard to these problems of definition, West (2006) commented that, as 'addiction is socially defined... people get caught up in the debate about "true" definition' (p.11). He further argued that notions of addiction such as craving and increased consumption are, as such, markers to addiction but should not be part of the definition of it.

Clearly some agreement exists in the literature regarding the issues of what may constitute addiction. The allied notions of control and appetite in those who seek help for difficulties with alcohol also seem important. Based on these notions of consumption and appetite the literature identifies the prevalence of alcohol difficulties amongst the general population of the United Kingdom.

1.0.2 Level of the Problem, Population and Detection

The UK Governments' sensible drinking benchmarks, first set out in the Health of the Nation White Paper, (DOH, 1992), recommended that men should consume no more than 21 and women no more than 14 units of alcohol per week. These benchmarks were later refocused to reflect *daily* drinking in the Government report 'Sensible Drinking' (1995) to acknowledge concern that 'weekly consumption can have little relation to single [binge] drinking episodes and may indeed mask short term episodes which ... often correlate strongly with both medical and social harm' (p.12). These daily benchmarks were based on between three and four units per day for men and two to three units per day for women.

Latest figures available (2006) from the Office of National Statistics website indicated that 'the number of men in Great Britain regularly exceeding the Government's daily sensible drinking benchmarks fell from 39 per cent in 2004 to 35 per cent in 2005'. In comparison, only a fifth of women were reported to drink more than the recommended maximum amount on any day during the previous week. Younger people were identified as being 'more likely than older people to exceed the recommended daily benchmarks'. Specifically, 'two fifths (42 per cent) of young men aged 16 to 24 years had exceeded four units on at least one day during the previous week...[compared] with only '16 per cent of men aged 65 and over'. Figures for women indicated that over a third '...had exceeded three units of alcohol on at least one day compared with only 4 per cent of those aged 65 and over'.

Heavy drinking was found to be twice as common in men as in women. Furthermore, heavy drinking was found to be more frequent among young people, as over one third of men and over one fifth of women aged 16 to 24 had drunk heavily on at least one day during the previous week'. In those aged 65 and over these proportions were just 4 percent and one percent respectively.

The 2004 Alcohol Needs Assessment Research Project (ANNARP) stated that the overall prevalence of alcohol 'dependence' in the UK was 3.6%. This equated to 6% of men and 2% of women, or an alcohol dependent population of 1.1 million nationally. Alcohol dependents were defined by the report as individuals who were 'drinking above "sensible" [guideline] levels' (p.6). Furthermore, the alcohol dependent population was not evenly distributed with 'considerable regional variation in alcohol related need' (p.3), yet levels of alcohol dependence were found to be similar for both white and ethnic minority groups.

A treatment gap analysis undertaken as part of the ANNARP project (2004) estimated that those individuals presenting for treatment represented 'only 5.6 per cent of the... alcohol dependent population per annum, or 1 in 18' (p.4). The report suggested that many potential service users were not referred by GPs due to perceived long waiting times and users preference not to be engaged with specialist alcohol services. It is perhaps, from a service pressure perspective, somewhat fortunate that a relatively large part of the alcohol dependent population does not choose to access services as the report notes that 86 per cent of community alcohol teams in the UK report that alcohol service budgets are far lower than the budgets of drug services in the same areas. This does not appear to be representative of the relative need.

Finally, a report by the organisation Alcohol Concern (2002) stated that alcohol-related health problems cost the NHS around £3 billion a year and rising. Furthermore, it stated that deaths from liver cirrhosis in 35-44 year olds had increased eight-fold over the last 30 years amongst men, and seven-fold amongst women. Figures quoted by the ANNARP report (2004) indicated that alcohol misuse accounted for 'almost 10% of the disease burden' (p.2) on the NHS and accounted for '150,000 hospital episodes annually' (p.3). The report estimated that the annual spend on specialist treatment, delivered by workers working in specialist teams, was £217 million. Waiting times for alcohol assessment varied from 3 to 6 weeks from referral.

1.0.3 Summary

Clearly problematic alcohol use above recommended levels is a longstanding and significant problem with serious service, health and social consequences. However, as Saunders (1999) notes, large numbers of individuals recover without formal help even though relapse and re-referral to treatment services is common. As a result of the attendant pressure on services, we need to better understand the observed phenomenon of alcohol addiction. With this in mind the current review will now examine the major theoretical approaches and models have been proposed in the literature. These approaches and models will form a context against which we will later explore treatment effectiveness and its links back to the underlying theory.

1.1 General Theoretical Conceptualisations of Alcohol Addiction

According to the literature reviewed, addiction has been conceptualised in terms of: biological (Betz *et al.*, 2000; Volkow & Fowler, 2000), social and behavioural (Bejorot 1980; O'Brien *et al.*, 1992; Acker, 1993); and psychological processes (Orford, 1992; Heather, 1998; Tiffany *et al.*, 2000); or an interaction of one or more of these. This has led to more recent bio-psychosocial and synthetic models (see Orford 2001; West 2006) that illustrate how seemingly disparate viewpoints are being synthesized together to give a more holistic and integrated understanding of alcohol difficulties. Further to this, the major addiction treatments can also be seen to have their basis in one or more of these overall conceptualisations. In support of this, McCusker (2001) maintained that 'current psychological interventions such as those pertaining to relapse prevention (see Marlatt & Gordon, 1985) or motivational interviewing (Miller & Rollnick, 2002) have arguably had their roots in social learning theory' (p.47). Furthermore, as West (2006) pointed out, 'addiction is a socially defined construct that one may expect the definition to vary across culture and time' (p.5).

A search of the literature revealed a wide range of theoretical viewpoints and associated models available to explain and assist the understanding of alcohol addiction. The reader should also note that there was no all-encompassing theory of addiction and as such, the following models do not exclusively explain the condition. Indeed, as West (2006) noted 'each theory seems to stem from an innovative idea that accounts for selected aspects of the problem but not account for other features that others already cater for quite well' (p.1). Thus, these models should be seen as

complimentary to our understanding of alcohol addiction rather than exhaustively explanatory.

The following sections briefly summarize models of addiction within their wider theoretical approaches. It is not an exhaustive evaluation of every model related to addiction by individual authors. However, specific authors will however be mentioned to illuminate description or critique. Also, the reader should note that the research regarding genetics and biological theory has been deliberately omitted as it is beyond the scope of the current review.

1.1.0 Social Learning and Behavioural Theory

Social Learning Theory (SLT) (Bandura, 1977) is an interactionist theory that views addiction as a product of the person, their environment and behaviour. This, according to Abrams and Niaura (1987), manifests itself as a failure of coping due to a combination of inappropriate conditioning, reinforcement contingencies, modelling of inappropriate behaviours, failure to model appropriate coping skills and reduced self-efficacy with regard to behaviours that enhance coping. SLT theorists see the occurrence, continuation and change of addiction behaviours as being explained through the mechanisms of classical conditioning, operant conditioning and psychological modelling. However, this implies that addiction is merely a learned behaviour and largely ignores the role of biological and cognitive factors investigated and illuminated by other theorists and models discussed within this review.

Also of importance within the literature is the notion of craving and relapse. The Behavioural theory explanation of craving (see Deutsch, 1977; Drummond, 1995; Li, 2000) is rooted in the observed ability of alcohol to elevate mood or relieve unpleasant mental states such as stress or anger. Positive reinforcement leads to repetition of the behaviour (drinking), which produces the positive experience. Zironi *et al.* (2006) noted that the context, objects, environments or emotions consistently linked with alcohol consumption then produce a response as powerful as alcohol itself. These stimuli may include being in a public house, alcohol advertisements, seeing drinking companions or exposure to alcohol itself. According to this classical conditioning theory, an abstinent individual exposed to appropriate cues will experience an increased urge to drink, or craving that may lead to a relapse.

With regard to craving, social learning theory suggests that individuals are instructed in cultural norms and copy the behaviours of both parents and peers. Cue-elicited craving during or after treatment can trigger conscious coping strategies aimed at maintaining abstinence. The success of coping depends on the drinker's confidence in his/her ability and levels of self-efficacy to resist the urge to drink. Social learning theory acknowledges craving as only one of many factors contributing to relapse or a resistance to change.

1.1.1 Cognitive Theories

A wide variety of cognitive models of addiction have been proposed and evaluated (e.g., Marlatt 1978, 1985; McDermut, Haaga & Shayne, 1991; Tiffany, 1990; Wilson, 1987a, 1987b and McCusker, 2001). Overall, cognitive theorists have proposed four

processes related to addiction: self-efficacy (common with SLT); outcome expectancy; attributions of causality; and decision-making processes.

Marlatt (1985) maintained that low levels of self-efficacy (e.g., individuals' beliefs about coping without alcohol) are associated with relapse whilst high levels of self-efficacy are associated with sustained abstinence from alcohol. Furthermore, Bandura (1997) stated that how people behave is better explained by their individual beliefs about their capabilities than by what they are *actually* capable of accomplishing. Thus self-efficacy beliefs act as a foundation for human motivation, well-being, and personal accomplishment and assist individuals in deciding what they do with the knowledge and skills they have. Pajares (1997) also noted the importance of vicarious experience and social persuasion by others. Social persuasion from significant others may act to cultivate positive beliefs in their capabilities and increase an individuals' motivation that the envisioned success is attainable. Vicarious experiences might include simply seeing others reduce their alcohol intake or achieve abstinence. Simply put, if an individual expects, or is motivated to expect, that they can cope without alcohol, they are more likely to do so.

The notions of outcome expectancies are the central tenants of "expectancy theory". (see Goldman, 1989; Brown *et al.*, 1987; Reich *et al.*, 2004). This theory states that outcome expectancy is the knowledge of the relationship between behaviour and its perceived outcome. An example would be "*If I drink at this party, then I will have a good time*". With regard to this, McMurran (2003) stated that the 'anticipatory if-then relationship...is the defining feature of an outcome expectancy' (p.44). Furthermore, this relationship is viewed as both circumstance specific and due to variation because

of other variables. For example, an individual's expectation that drinking leads to heightened mood, whilst true at a party, may not hold true for solitary drinking. Furthermore, as McMurran (2003) pointed out, 'this theory is not incompatible with biological theory in that some may be physically unable to tolerate alcohol... and so will not develop positive outcome expectancies' (p.45). More recently Goldman and Darkes (2004) suggested that, rather than just being largely conscious beliefs, expectancies form part of the unconscious memory structure that organise input to the central nervous system. Furthermore they suggest that an individual's developed expectancies are the catalyst that may increase the impact of genetic predisposition, social and cultural factors, affective state and personality.

The above notions are compatible with the general theory of attribution, which refers to the internal and external factors to which the individual ascribes the addictive behaviour. Internal attributions may include, 'my body cannot survive without alcohol' whereas external attributions may refer to environmental factors such as, 'everyone in our family drinks as much as I do'. Finally, decision-making processes are influenced by social, peer and availability factors. A recovering alcoholic may be more likely to have a drink and run the risk of relapse by meeting a drinking friend in a pub. That is to say, his/her decision-making process about whether to drink or not may be swayed towards a relapse by virtue of association.

McCusker (2001) proposed that addictive behaviour is maintained by a biased belief system. In support of this position he put forward the notion that 'levels of alcohol consumption have been shown to vary as a function of positive belief biases (e.g., regarding enhancement of personal and social functioning)'. As a result of the model's standpoint, cognitive-based therapies have focussed on restructuring these

biased belief systems that are thought to affect the individual's motivation to engage in the drinking behaviour.

With reference to the above and, in terms of craving, cognitive processing theory (Tiffany & Conklin, 2000) postulates that alcohol use becomes an unconscious habit that requires little conscious effort or attention. Based on this, Tiffany and Conklin (2000) concluded that self reported (conscious) cravings might not always be at the motivational core of alcoholism. This seems to fit well with Goldman and Darke's (2004) notions of rehearsed unconscious cognitions and positive memories mentioned earlier. Furthermore, Tiffany and Conklin (2000) stated that alcohol craving and consumption are only weakly correlated. Physiological functions thought to accompany craving, such as changes in heart rate, blood pressure, or sweat gland activity are arguably not specific to craving and have not correlated consistently with self-reported urges to drink. It would seem then that the significance of craving in alcohol addiction is variable dependent upon the model considered. However, Lowman *et al.* (2000) argued that the cognitive processing model requires more testing in alcoholic populations before any conclusions about automatic and non-automatic processes can be reached.

1.1.2 Problem Behaviour Theory

Problem Behaviour Theory (Jessor & Jessor, 1977) is an integrationist, social and psychological framework that was developed to account for problem behaviours (including alcohol use) in adolescence. The theory focuses on three systems of psychosocial influence: personality, environment and behaviour. These provide both instigators and controls within individuals and produce a level of 'proneness' to the

behaviour. This level of proneness, together with the notion of risk and the individual's behaviour patterns, places the individual on a continuum of conventionality-unconventionality. In terms of clinical utility for our understanding of how to influence behaviour, Donovan *et al.* (1991) pointed out that in order to change the behaviour we must focus on the individual's personal, environmental and behavioural expectations. These notions would seem to be compatible with expectancy theory as discussed earlier.

1.1.3 Biopsychosocial Models and Approaches

More recently developed approaches theoretically link together the other separatist aspects of addiction theory into a more cohesive and transtheoretical view. The biopsychosocial approach, originating from the work of Engel (1960), represents an attempt to draw together the accepted knowledge that the observable phenomenon of alcohol addiction is due to a number of factors working together (Chermack & Giancola, 1997). West (2006) noted, as in the work of Orford (2001), that these factors may 'include features of personality...ecological, socio-economic or cultural determinants [and] opportunities for activity and the normative influence of friends' (p.114). Orford (2001) incorporated learning theory to explain the development of uncontrollable levels of consumption and the development of strong attachment to this behaviour within the confines of socially controlled norms. In terms of recovery from alcohol addiction, Orford (2001) borrowed from Prochaska and DiClemente's (1992) work and proposed two stages of change: The first of these was cognitive in its genesis and centred on the individual making a conscious decision, and being motivated, towards change; the second was a behavioural action-orientated stage

whereby the individual makes conscious changes to his or her identified patterns of behaviour. Additionally, West (2006) noted that 'social and spiritual responses may also be important...including the responses of concerned and affected others' (p.116). Finally, Orford (2001) included motivational issues as an important element in the process of recovery along with both psychological and pharmacological treatments. Although this transtheoretical approach was radical in scope it had yet, at the time of writing, to generate a large body of research. West (2006) noted that, although the model is strong in its accounting for the wide diversity in addiction, it is perhaps 'difficult for researchers working in the conventional tradition of behavioural science to connect with it' (p.118). This is perhaps because it does not lend itself to simple behavioural-based experiments. Despite the relative paucity of research, others such as Maisto and Connors (2006) have highlighted 'the need for taking a biopsychosocial approach to the study of relapse and the major difficulties across addictive behaviours' (p.2).

1.1.4 Synthetic Theory Model

West (2006), whose work is largely based on that of Orford (2001), sees addiction as 'a social construct...[and] primarily a chronic condition of the motivation system in which reward seeking behaviour is out of control' (p.174). He continued that activities become so addictive that they 'undermine the normal checks and balances that operate to prevent undesirable behaviour patterns from developing' (p.175). However, as Robinson and Berridge (2003) pointed out, the rewarding properties of alcohol alone are not enough to singularly explain addiction. In addition to the rewarding properties of alcohol and attached positive expectancies, West (2006) pointed to biological

heredity (see also Han *et al.*, 1999) and factors such as impulsivity, depression and antisocial behaviour (Burt *et al.*, 2000). Finally, he also included differing metabolic responses as a mediating factor. This notion leads back to expectancy theory and the notion that individuals with a lower tolerance to alcohol will be less likely to build positive expectancies and be less motivated to engage in heavy drinking behaviour. Environmental conditions are also seen as a factor in that poor conditions will 'create distress that will promote addictive behaviours that provide escape or reduce the mental resources available for the exercise of self-control' (p.177). In terms of the cessation of the addiction, West (2006) proposed that addiction is most likely to be overcome when the individual becomes aware of: the harmful effects of their behaviour; a change in circumstances that make the behaviour less attractive; and social pressure from other significant individuals or a new personal relationship. This said, West (2006) noted that individuals rarely overcome their addiction on the first try.

1.1.5 Summary

Based on the biological and psychological models outlined above, several key implications relating to alcohol addiction emerge. Firstly, addiction is seen as theoretically reversible. All of the psychological theories outlined move away from the historical notion of a progressive disease process from which there is no solution other than total abstinence. Although it is interesting to note that some treatments, such as the traditional 'twelve-step model' used by Alcoholics Anonymous (Alcoholics Anonymous, 2006) still treasure total abstinence as its goal rather than a return to controlled drinking. The theoretical notion of reversibility implies a

theoretical basis for meaningful intervention using the social, individual and environmental factors identified in the models as tools to assist individuals to return to socially controlled drinking *or* total abstinence if that is their wish. These factors, as outlined later in the current review, map on to and are utilised by a myriad of treatment approaches that offer the possibility of effective outcomes in alcohol addiction treatment.

Secondly, it is clear that the theories outlined are generalist in their mechanism and not exclusively applicable to alcohol 'addiction'. This lack of specific theory perhaps reflects the difficulty in defining what exactly addiction is and fits with the identified difficulty of definition and interchangability of terms such as 'addiction', 'dependency' and 'heavy drinker', alluded to elsewhere in this review.

Thirdly, it would appear that there is no single universally accepted causal/maintaining model of alcohol addiction that can explain the observed phenomenon of alcohol addiction in its entirety. Based on the models reviewed, biological, psychological and cultural/social elements all appear to play a significant role in the occurrence, maintenance or reduction of addictive behaviour. Furthermore, the complexity of alcohol problems extends beyond the observable drinking behaviour into the realm of personal expectations, perceived benefits and individual differences of tolerance and levels of self-efficacy and coping. Thus, it is perhaps unsurprising that there appears to be a gradual emergence of more transtheoretical standpoints, which take the best elements from established doctrine and combines them to give a more holistic explanation of the alcohol addiction.

Finally, the effect of craving seems important and it is explored within more than one theoretical area. Some researchers have incorporated the role of craving in the maintenance of alcohol addiction. Lowman *et al.* (2000) cited cravings as ‘a formidable obstacle to recovery’ (p.47). Li (2000) maintained that craving ‘...is considered to be a probable contributor to dependence and relapse’ (p.55). Despite its apparent importance for understanding addiction, no single model seems able to account for all aspects of craving. Indeed, this is symptomatic of the area of alcohol addiction in that there seems to be no agreed etiology or method of treatment among addiction theorists. Despite this, each model has elements that might eventually contribute to an overall, comprehensive model of the function that craving plays in the maintenance of addictive behaviours.

More recent biopsychosocial models (e.g., Orford, 2001; West, 2006) reflect an emerging ideological fusion of the theoretical standpoints outlined above. In support of this, McMurrin (1997) maintained that these biological, psychological and cultural/social factors ‘interact with each other to determine the exact nature and degree of the addictive behaviour in any person’ (p.46). Thus it seems our current general understanding, informed by the literature, is that the specific occurrence, course and cessation of an individual’s addiction is determined by an interaction of individual, social, biological and environmental factors that act upon them and vary over time.

The next logical narrative step is to consider how these transtheoretical theories relate to treatment effectiveness and how they may be useful in predicting which treatment should be more effective for alcohol problems. With this in mind the current review

will examine the evidence for differential treatment effectiveness. To assist clarity, this will be achieved by examination and critique of the larger studies and the treatments included within them.

1.2 Evidence for Differential Treatment Effectiveness

1.2.0 Background

The notion of treatment approaches mapping onto affective factors suggested by general theoretical models, and supported by research, was highlighted earlier (McCusker, 2001). For example, both brief intervention and motivational interviewing are characterised as being rooted in Social Learning Theory (SLT).

Motivational Interviewing (MI) (Miller, 1992) is a therapeutic treatment, which assists individuals to enter into a collaborative problem-solving process to address their addiction (including alcohol) difficulties. The process aims to identify and build upon a sense of the possibility of change and increases the individual's self-coping/efficacy skills to maintain change after treatment conclusion.

Brief intervention (BI) treatments are generally restricted to a maximum of four sessions. Each session can last anything from a few minutes to 1 hour, and can be undertaken by a wide range of health professionals who do not specifically specialise in addiction treatment. Moderation of drinking rather than total abstinence is usually the goal of such interventions. It is also important to note that the content and approach of brief intervention vary widely, depending on the level of the patient's

drinking and the professional background of the 'therapist'. A potential criticism of BI is centred on its poorly defined structure that makes it difficult to compare its efficacy with other better-defined interventions such as MI.

McMurran (1997) noted that both MI and BI encourage the individual to recognise risk factors that may prompt episodes of use, increase alternative coping skills and self-efficacy in order that the new skills may be effectively applied. In a review of Brief Intervention studies ranging from 1966 to 1995, Wilk *et al.* (1997) provided no conclusive evidence for or against the use of Brief Interventions with alcohol dependent patients. In addition, Moyer *et al.* (2002), in a review of 56 Brief Intervention studies, concluded that the treatment was only useful for those with less severe drinking problems. Dunn *et al.* (2001) in a review of Motivational Interviewing concluded that it was most effective when used as an enhancement to more intensive psychosocial treatment.

Behavioural Self Control Training (BSCT) is linked to cognitive-behavioural theory and includes: goal setting; advice on how to refuse alcoholic drinks; the identification of events that trigger the urge to drink; and ways of preventing relapse. BSCT aims to assist the individual to replace the automatic thoughts about drinking with planned adapted cognitions that facilitate strategies for the client to increase control over his/her drinking habits rather than to completely abstain. In a review of randomised controlled trials of BSCT with alcohol clients, Walters (2000) determined a highly significant treatment effect. However, the reviewed studies combined samples of both alcohol dependent (addicted) and heavy, though not addicted, drinkers. Thus,

conclusions regarding the treatment effectiveness of BSCT with alcohol dependent individuals are inconclusive.

With reference to the differing underpinning theory and identified factors in different types of intervention, there has been discussion for a number of years regarding the possibility of a 'matching hypothesis' (e.g., Mattson and Allen, 1991). This proposes that treatment choice will have directly measurable effects on the success of outcome and that different treatment approaches will be more appropriate than others for specific groups of people, with one approach judged as superior in terms of efficacy. Indeed, with reference to this, Eisenburg (2000) stated that 'clinicians... and managed health providers... all believe that there is something about the assignment of treatment given to a patient that will improve outcomes' (p.3). (see also Miller & Hester, 1986). Despite large-scale research projects from the United States such as 'Project MATCH' (1993) and 'Mesa Grande' (Miller & Wilbourne, 2002), which compared (amongst others) 12 step approaches, motivational interviewing techniques and Cognitive-Behavioural Therapy interventions, contradictory conclusions abound as to the clinical effectiveness of assigning particular treatments to particular individuals.

1.2.1 Project MATCH

This large multi centre American study aimed to demonstrate the so called 'matching hypothesis' that alcoholics with different drinking profiles can be matched and will respond better to different types of treatment. The study recruited volunteer alcohol dependent patients. These patients, based on assessed personal characteristics including conceptual level, motivation, psychiatric severity and gender, were matched

to treatment type and given a small number of outpatient sessions. These sessions comprised of one of three different types of therapy (Coping Skills, Motivational Enhancement, and 12 Step approach) with a highly trained and monitored staff. For example, those who were assessed to have lower levels of psychiatric severity were offered the 12-step treatment. Those with low levels of motivation were offered motivational enhancement therapy. These interventions aimed to assist the patients to reduce their drinking substantially over a year period. However, the results failed to support the matching hypothesis in that it showed no evidence that patients matched to treatments based on their characteristics had an improved outcome.

Thus, Project MATCH (1993) concluded that treatment matching was not the key to successful treatment outcomes and that each of the three treatment types, with some minor variations, was equally effective in producing substantial and enduring drinking reductions. The study has however attracted much criticism: Glaser (1999) and Drummond (1999) criticised how the treatments were delivered and argued that the therapists and interventions used were too highly structured and therefore not representative of those used in the field. Additionally, the therapists were highly trained to use custom-designed, manual-based treatments, which did not parallel real world practice. With regard to this last point, Drummond (1999) pointed out that the 12-step approach was carried out on a one-to-one basis rather than a traditional group model.

In addition to the above criticisms, some effort to explain why Project MATCH failed to highlight differential treatment effects has been made. This apparent failure is especially puzzling when other smaller but well designed studies (e.g., Brown *et al.*,

2001) continue to report improved outcomes when matching particular individuals to particular treatments. The main explanations for Project MATCH's apparent failure focus on the rigor of the methodologies employed to ensure the validity of the results. Brown *et al.* (2001) maintained that this may have 'compromised the very usefulness of the findings...and prevented any actual client-treatment interactions from emerging' (p.17).

Although the above criticisms may cast some doubt on the findings of Project MATCH, they perhaps leave the matching hypothesis open to further investigation. Indeed other studies and reviews continue to find evidence to support it. (see Brown *et al.*, 2001; Glaser, 1999).

1.2.2 The Mesa Grande Project

The Mesa Grande Project (Miller & Wilbourne, 2002), although not an outcome study, reviewed 360 treatment trials involving some 72,000 clients. This ongoing review, based on field studies, indicated that some treatments do appear to work better than others. Mesa Grande concluded that the most effective treatments were those that have a significant psychosocial emphasis and regard the problem drinker within a social context, seeking to place him/her in a supported environment of friends, family and community. The strongest evidence for efficacy was found for Brief Intervention therapy (including motivational components), Social Skills Training and Behavioural Marital Therapy. The least successful methods were relaxation training, community therapy, general counselling and compulsory Alcoholics Anonymous attendance.

The ongoing Mesa Grande findings (Miller & Wilbourne 2002) that point to the client being considered in context are given further support by Moos and Moos (2003). Moos and Moos (2003) proposed seven principles of effective alcohol treatment and cited the importance of: social context; consistency; continuity (over intensity); mental health specialist involvement (over primary care or non-specialty providers); empathy/good therapeutic alliance; consideration of life circumstances; and client motivation. Murphy (2003) also stated the importance of the individual being offered treatment at 'a time when (they) are most likely to mobilise behaviour change' (p.9). This fits in with trans-theoretical models of change such as Prochaska and DiClemente (1992), which maintained that individuals would change once they are aware of, and believe in, the possibility of change and are motivated towards it. These ideas also firm up the idea of the clinical utility of interventions that include motivational components.

1.2.3 Health Technology Board for Scotland

The Scottish Health Technology Assessment report (Slattery *et al.*, 2003) was a literature review of others work which set out in part to determine which psychosocial interventions would be most effective in the recovery of individuals with alcohol dependence. The report concluded that four psychosocial treatments were found to be both effective and cost effective in the prevention of relapse in alcohol dependent patients: Behavioural Self-Control Training; Motivational Enhancement Therapy; Marital and Family Therapy; and Social Skills Training.

The number of interventions recommended by Slattery *et al.* (2003) for drinking was perhaps unsurprising, as an earlier report by the Health Technology Board for Scotland (2002) noted that differential analysis of effectiveness between those treatments based in psychosocial principles was problematic. This was due to the identification of:

‘more than forty nominally distinguishable psychosocial methods each of which generally included several different components whose precise application would require a detailed written protocol’ (p.62).

Simply put, as all psychosocial interventions have a high level of theoretical overlap and are administered in a similar fashion, they are all thought to be effective. These findings are in keeping with, and may partially explain, the results of project MATCH that failed to find significant differences between three psychosocial treatments. Although as Berglund, Thelander and Jonsson (2003) and others maintain that the evidence for a treatment matching to client characteristics is generally weak, Project MATCH demonstrated that there is ‘a wealth of effective alternatives available for treatment in specialist services’ (Miller *et al.*, 1998).

1.2.4 United Kingdom Alcohol Treatment Trials (UKATT)

The UKATT evidence (UKATT Research Team, 2005a) offered support to Project MATCH findings that different psychosocial treatment approaches appear to produce similar outcomes regardless of their apparently differing theoretical underpinnings. A review by Raistrick, Heather and Godfrey (2006) supported this so called ‘dodo bird verdict’, and stated that ‘...there are potent ingredients common to all of these therapies’ (p.31). This commonality, identified by Bergin and Garfield (1994) and

more recently by Luborsky *et al.* (2002), offered the inference that the wide range of treatments on offer, in addition to their commonalities and similar outcomes, may have shared components in their delivery that contribute to the observed effect. With regard to this Raistrick *et al.* (2006) set out several factors, which may 'contribute to the [observed] equivalence of treatments' (p.31). These trans-theoretical factors included: pre-treatment motivation, therapist effects, shared ingredients, matching effects and post treatment events.

Motivational 'readiness to change' has been theorized to be an important determinant of treatment outcome for patients with alcohol use disorders (Miller & Rollnick, 2002; Prochaska, DiClemente, & Norcross, 1992). In terms of pre-treatment motivation, Raistrick, Heather and Godfrey (2006) stated that 'up to 20% of individuals entering treatment have already achieved abstinence or begun to make changes...' (p.32). (see also Bischof *et al.*, (2001); Tober *et al.*, 2000; Rosengren, Downey & Donovan, 2000). Furthermore they maintained that 'it is reasonable to assume that a much higher number of help seekers... are moving towards [positive] action... before ever connecting with treatment services'. (p.32). Simply put, an individual's pre-existing motivation towards positive change is more important than the type of therapy they receive.

Similarly, there is a wide body of literature that places high value upon the therapeutic alliance and therapist effects. Raistrick, Heather and Godfrey (2006) noted that therapeutic alliance 'account(s) for 9-40 per cent of outcome variance' (p.32). Karno (2005) noted that 'confronting by therapists increased [client] non-compliance' and

‘...was associated with an increase in post intervention drinking’ (p.262). (see also Miller *et al.*, 1993).

Clearly, from the evidence reviewed earlier, there are some contradictions as to the usefulness of treatment matching. It is however interesting to note that whilst the review by Raistrick, Heather and Godfrey (2006) advocates the positive and equivalent outcomes of a wide range of therapies, they still include treatment matching as a contributory factor in this observed effect.

1.2.5 Service Implications

The scientific literature to date has pointed to service implications of the contradictory conclusions of relative treatment effectiveness on alcohol problems. Brooks (2002) pointed out that ‘serious disservice will be done to optimal resource allocation ... if decisions are made on treatment type without considering the economic implications’ (p.420). Furthermore, Brooks (2002) cited ‘weak or contradictory’ scientific evidence for the differential effectiveness of alcohol treatments that makes it difficult to know where funding should be directed (p.20). Brooks (2002) also maintained that a large amount of the evidence base for effectiveness of alcohol treatments is made up of studies that are based on far too few individuals, often with very short follow up times, in most studies of less than a year.

1.2.6 A Stepped Care Model

Raistrick, Heather and Godfrey (2006) noted the findings of Project MATCH, which indicated that ‘a briefer treatment, MET, was no less effective than two more intensive [longer] treatments, CBT and TSF’ (p.38). These findings of equivalent treatment effectiveness and outcome were replicated by the UKATT study. If then, as research has suggested, that core psychological interventions have largely similar outcomes, we need to pay attention to additional factors in the delivery of these treatments. In these financially difficult times, and based on the fact that some interventions take longer and are more expensive to administer than others, a stepped care model has been suggested (Sobell & Sobell, 2000).

The Stepped Care Model for alcohol problems as originally proposed by Sobell and Sobell (2000) is based on the premise that, based on a client’s assessed and agreed level of need, the least intensive treatment that is felt likely to be effective is offered first. If this initial treatment fails, the client is offered a more intensive and longer treatment until some improvement is shown. Research by Drummond *et al.* (2003) employed a three-step model based on Sobell and Sobell (2000) and demonstrated that this approach can be applied to clients presenting to existing healthcare structures. Furthermore, Drummond *et al.* (2003) demonstrated that by using this model ‘...results in improvements [are] equivalent to published meta-analyses of trials of brief intervention with less severe cases’ (p.29). Further analysis by Bland (2006) on the assessment methods required for the implementation of a stepped approach indicated that a client’s level of problematic alcohol use can be accurately determined by psychometric testing at referral. Scores on the specially developed

Alcohol Use Disorders Identification Test (AUDIT) ‘...indicated a significant correlation between alcohol consumption and the client score [obtained] on the test’ (p.2). These scores allowed Drummond *et al.* (2003) to allocate clients to one of the three steps: simple structured advice on alcohol use; the use of brief interventions and finally, referral to specialist alcohol services for longer-term work. Although this research is promising Raistrick, Heather and Godfrey (2006) point out that ‘...more research is urgently required to investigate the advantages of a stepped care approach compared with non stepped approaches’ (p.29).

1.2.7 Therapist Effects

Despite the contradictory evidence regarding the matching hypothesis between treatment types and individuals characteristics, Beutler (2000) described a number of promising avenues of future research regarding therapist effects on treatment outcome. Based upon secondary analyses of Project MATCH data, Beutler (2000) drew some interesting conclusions. Most important were that client-therapist matching, based on aspects of background, cognitive conceptual level and the willingness/ability to accept the therapists’ value system rather than client-treatment matching might assist to uncover the common mechanisms of successful therapeutic experiences. It could perhaps be speculated that these common mechanisms, and others as outlined earlier by Raistrick, Heather and Godfrey (2006), may have obscured any differential treatment effects and thus influenced the failure of Project MATCH to indicate evidence in favour of a matching hypothesis. This notion is supported by Messer and Wampold (2002) who stated that the findings of large Meta studies such as Project MATCH and the later UKATT study, that indicate treatment

type equivalence, might be due to common therapist characteristics rather than the treatment type employed. Literature, including meta analyses, shows the extent of outcome variance accounted for by therapist characteristics as ranging from 9-50% (Raistrick, Heather & Godfrey, 2006).

On a more general level, the literature to date may offer more evidence to support the more widely held belief that the therapeutic relationship is a key factor in any psychological treatment, including the treatment of alcohol problems. This leads back to the earlier conclusions of Cartwright (1981) who coined the term 'therapeutic alliance' and noted that 'An effective therapeutic alliance is most likely to occur when the therapist is able to understand, accept and encourage the client' (p.1).

In summary, it would appear that it is not only the treatment technique that is employed but how it is employed which is central to treatment effectiveness. The evidence suggests that most treatments, as long as they are structured, have a positive effect, at least in the short term. However, the picture is unclear and a number of issues within the evidence base mean that the mechanisms which generate, sustain and reduce problem alcohol use are still unclear. Thus, the current review now moves to consider what can be concluded from the research literature.

1.3 Discussion and Conclusions

The area of alcohol addiction research is well developed. A number of theoretical models have identified differing factors that may relate to the development, maintenance, and cessation of problematic alcohol use. However, methodological

issues such as mixed samples of both dependent and heavy drinking individuals make it less clear as to the severity of behaviour for which these factors are related.

Research Methodology

In terms of research methodology, samples are often opportunistically collected and relatively small which casts doubt upon the degree to which findings can be generalised to the wider alcohol dependent population. In contrast to this, the fewer large studies undertaken, such as Project MATCH, have been criticised as being so methodologically rigorous that possible treatment type differences were effectively controlled into statistical insignificance. It seems that research has yet to find a middle ground whereby practical interventions, which reflect clinical reality, are balanced with the need for sound methodological design. The short follow-up times of these samples, often less than five years, is also of concern as research suggests that the median length of drinking careers is measurable in decades, with multiple episodes of care and relapse being the norm for those who are seriously affected (Dennis *et al.*, 2005).

Despite the large number of studies cited by Dennis *et al.* (2005), they noted that outcome measures from all studies are related to single treatment episodes and generally consider only a few of the identified factors that appear to determine recovery rates. Thus there would appear to be a gap in the research in that no studies, aside from Dennis *et al.* (2005), have yet examined the durability over time of multiple factors in alcohol addiction careers. Future studies, using longitudinally collected data relating to multiple treatment presentations may offer an opportunity to

look at how changes in identified individuals and external factors, together with individual notions of expectations, vary across drinking careers.

Treatment and Theoretical Issues

Existing treatment approaches utilise both identified affective factors and theoretical perspectives to allow health professionals to intervene and assist individuals who are experiencing distress because of their drinking pattern. However, evidence is contradictory as to the differential effectiveness of available treatments and the validity of the so-called matching hypothesis. The matching hypothesis is attractive but has proved largely elusive due to the large degree of subjective opinion as to what constitutes approaches such as Brief Interventions. With regard to this, Murphy (2003) stated, as 'debates go on and the research piles up...it is unlikely that we will see the kind of consensus around alcohol treatment enjoyed by other disorders/addictions/diseases' (p.3).

The vast number of psychosocial interventions and studies with their similar hypothesised method of action also causes difficulty when trying to differentially compare different treatment types. For example, Motivational Interviewing and Brief Interventions can both be argued to have a common cognitive component. It seems unclear as to how meaningful differentiation can be made between the two in terms of treatment effectiveness when their theoretical core is common. Similarly, Copello *et al.*, (2005) noted that Network Therapy and Social Behaviour Therapy are both delivered in a motivational enhancement style and that different effective treatments will have more commonality than difference. Furthermore, this similarity of

theoretical basis poses a methodological challenge to researchers in determining which two treatments are substantially the same and should be combined in any meta review of the evidence for clinical effectiveness.

Treatment Effectiveness

With regard to the notions of varying treatment effectiveness, it should be noted from the literature that differences between European and American populations seem to remain largely unexplored. This may be important, as what is apparently the case for one population may not be entirely or even partially true in another. For example, the widespread adherence to the 12-step model in the United States of America is largely as a result of health insurance company's willingness to pay for clients to attend. Additionally, there may be unexplored differences between diverse cultural groups. This may prove to be significant in the UK with its growing multi-cultural population.

Future Research and Conclusions

Alcohol misuse extends, as the reviewed theoretical and research base suggests, into the 'social, the psychological, the relational and the cultural domains, both in its causes and effects' (Murphy, 2003 p.9). Yet it appears that much of the research base has not, until more recently, looked in detail at the interactive effects of the environmental factors upon the identified individual mechanisms of motivation, self-efficacy and expectations.

In terms of treatment effectiveness, later studies such as UKATT may signal a move away from the treatment-matching hypothesis towards a further exploration of the notion that theoretically differing therapies are equally effective and, if done at the 'right time', are likely to have good outcomes. (see Moos 2003; Murphy 2003; and Raistrick, Heather & Godfrey, 2006). Perhaps a trans-theoretical perspective, as is emerging with more recent models of addiction (see Chermack & Giancola, 1997; Orford, 2001; West, 2006) will also allow a wider consideration of factors including client motivation and therapist effects as outlined by Heather and Godfrey (2006). As Allsopp *et al.* (1997) concludes, perhaps 'our attention should extend beyond the clinic to the broad environment in which hazardous and harmful alcohol use develops and is maintained' (p.72). In short, a wider and more integrative view may be required.

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Section 2: Research Report

Influencing Factors in the Course of Alcohol Treatment Careers.

Abstract

Background. The existing evidence base offers some indication that identified demographic and drinking variables have an impact upon the occurrence, maintenance and cessation of alcohol addiction. However, little is understood regarding alcohol treatment careers and how these identified variables may affect the course of alcohol treatment careers.

Aims. The aim of the current study, by utilising existing service data, was to determine which of a myriad of identified variables were predictive of the course of individual's alcohol treatment careers in terms of the number of re-referrals and time between multiple referrals for treatment. The identification of alcohol career profiles would be clinically useful in informing clinical judgement as to which individuals may benefit most from treatment interventions.

Method. In order to undertake this, the host services database, which spans some twenty years and contains data on individuals multiple referrals to alcohol treatment services was utilised. From this database demographic and drinking variables were identified were thought, based on the research evidence base and clinicians views in the service, to have an effect upon the identified dependent variables of 'mean time between referral' and 'number of referrals' for treatment within an alcohol treatment career.

The population contained within the database was split into two groups. The combined sample size was $n=4234$. Group 1 comprised of those who had been referred only once. Group 2 consisted of those with multiple referrals to services for treatment. Multiple regression analysis was performed on the research database produced.

Results. The multiple regression analysis indicated that, using the available data, it was not possible to build sufficiently meaningful models to directly influence clinical practice or service provision.

Conclusions. Despite the unexpected outcome of the analyses the current study has several indirect implications for future data collection and service delivery. In addition, interesting additional findings point to indirect implications regarding the nature of assessment and perhaps, with further future research, implications that may change the structure of the existing service provision in the host service.

Keywords: Alcohol, Addiction and Treatment.

2.1 Introduction

In the field of alcohol addiction research a number of theoretical models and treatment approaches have identified both personal and socio-environmental factors that are thought to be involved in the development, maintenance, and cessation of problem alcohol use. The current studies introduction begins by examining these factors in the literature, which are thought to be important in the occurrence, maintenance and cessation of problem alcohol use. Following this, what is known from literature regarding problem drinking and treatment careers will be outlined. From this, the current research question was formed.

The rationale for undertaking research to investigate these identified factors is to validate their relative impact upon the course of problematic alcohol use in terms of individuals' treatment careers based on real service data. If this can be achieved there are likely to be clinically relevant implications as to future service delivery and the types of treatment that may be offered. This approach is a logical extension of the more recent biopsychosocial approaches to addiction theory (e.g., West, 2006), which places importance on the influence of variables upon the development, continuation and cessation of individuals problem alcohol use. The reader should note that for the purpose of this introduction, the term 'problem alcohol use' was used as an umbrella term to cover alcohol dependent, heavy drinking individuals and those categorised as addicted or alcoholic.

2.1.1 Personal Factors Relating to Susceptibility to Alcohol Addiction

Evidence from the scientific literature suggests that a number of personal factors can be seen to positively affect an individual's susceptibility to developing problem

alcohol use. As, problem alcohol use is largely seen by psychological theories, as condition that develops over time it is perhaps useful to consider the evidence for the role of these personal factors in the creation, maintenance, and treatment of problem alcohol use.

Gender Differences

In the research literature, the ratio of men and women presenting for problem alcohol use treatment is consistently split 2:1 in favour of men (Drummond *et al.*, 2005; Raistrick, Heather & Godfrey, 2006). Nolen-Hoeksema and Hilt (2006) noted that the underlying reasons for this might include biological differences that mean women are more likely to suffer physical consequences from drinking at an earlier stage than men, due to their relative size and body water content. Furthermore, they theorised that as a result of these negative physical consequences, women may be less likely to develop positive drinking expectancies and may encounter more perceived social sanctions for their drinking (Blume, 1991; Gomberg, 1988). In addition to this, Hernandez-Avila, Rounsaville and Kranzler (2004) cited research which indicated that those women who do develop problems entered treatment earlier than men and were arguably less entrenched in their behaviour. Nolen-Hoeksema and Hilt (2006) also noted that, 'although these findings have helped to explain some of the gender differences in alcohol use and problems, there are inconsistencies in the literature... and only a few studies have enough statistical power to detect gender differences' (p.357).

In summary, there is some evidence to suggest gender-based differences in the development of problem alcohol use. We also have some indication that differences may exist with regards to help seeking behaviours and access to treatment. However,

due to shortcomings of existing research these are not established or well documented.

Age

Longitudinal research by Valliant (1995) who followed a large sample of 660 males from adolescence into late middle life between 1940 and 1980, indicated that problem alcohol use declines with age with most returning to socially controlled drinking habits rather than abstinence. Interestingly, this is incongruent with the Alcoholics Anonymous 12-step approach, which advocates life long abstinence as being the only goal for problem drinkers. More recently, Dawson *et al.* (2006) provided evidence, which supports Valliant's earlier conclusions. They concluded that significant life events such as marriage, starting full time employment or becoming a parent increased the likelihood of a return to low risk drinking or abstinence amongst those with previous problem alcohol use. Satrel *et al.* (2004) also noted that older clients were typically retained longer in treatment programs and were less likely to have close family or friends who encouraged alcohol use. They were also more likely to report a minimum of 30 days of abstinence prior to treatment (55%) than younger clients (40%). Overall, older clients had more favourable long-term outcomes following treatment relative to a younger age group but, as Satrel *et al.* (2004) noted, these differences may be accounted for by factors such as social networks and drinking expectations. This is to say that younger drinkers have different expectations of what alcohol does for them, which are likely to be shared and endorsed by their peer group. Older drinkers may as Goldman and Darkes (2004) observed are likely to have increased commitments (career, children) and so be more likely to re-evaluate these expectations. Additionally, as noted by Valliant (2003) younger problem

drinkers are less likely to be experiencing physical health difficulties due to their relatively shorter problematic drinking career.

In summary, there is good evidence from longitudinal studies that problematic drinking is governed by different biopsychosocial factors across the age range.

Personal Reasons for and Expectations of Drinking

Past research has indicated that individual attitudes and expectations towards alcohol and its perceived effects may also be useful for determining which groups may be more vulnerable to developing future difficulties with alcohol. Beginning with Brown (1980), numerous studies have indicated an association between alcohol outcome expectancies and level of use. In simple terms, if individuals expect alcohol consumption to have positive benefits they are more likely to drink more. Southwick *et al.* (1981) and Connors *et al.* (1986) also described differences in the alcohol expectancies of individuals with various drinking styles. This included the finding that heavier drinkers reported more positive expectations. (see also Brown, Goldman and Christiansen, 1985; Christiansen and Goldman, 1983). Johnson and Gurin (1994) concluded that the co-occurrence of depressed mood and drinking problems was strongly moderated by alcohol expectancies. More specifically, the co-occurrence was strongest among those who most expected alcohol to elevate their mood. The findings of these studies appear to fit neatly with the notion of expectancy theory (see Goldman, 1989; Brown *et al.*, 1987; Reich *et al.*, 2004) which states that those who have positive expectations of the effects of alcohol are more likely to engage in problematic drinking behaviour.

Reese *et al.*, (1994) examined the role of alcohol expectancies and whether they were predictive of problem alcohol use outcomes and also investigated to see if social effects expectancies would predict "normal" alcohol consumption. Their results, using confirmatory factor analytic techniques, showed considerable overlap between personal and social effects expectancies, and found evidence to suggest that distinctiveness between these constructs may increase at higher levels of alcohol consumption. This is to say the more the individual drinks the more he or she will focus on the perceived social effects at the expense of neglecting the personal consequences. Further regression analyses supported the utility of alcohol expectancies in predicting alcohol consequences over and above pre-existing alcohol consumption. However, there was no consistent support for the hypothesis that personal and social effects expectancies predicted different types of drinking outcomes, possibly because of the young age of the sample.

In a similar study, Webb *et al.*, (1993) concluded that social factors such as peer influence and parental attitudes, together with interpersonal factors such as tolerance of deviance and sensation seeking influenced adolescent alcohol expectations. These expectations were also found to positively correlate with the level of alcohol use, however they offered little predictive value of future behaviour. Other studies from Kilbey, Downey and Breslau (1998) have indicated some predictive value of expectancies for determining the individuals likely to become alcohol dependent at follow-up.

In summary, there is evidence to suggest that personal factors have a part to play in the development, maintenance and reduction of problem drinking. The factors are mixed in their biological and social basis and appear to vary across the life span. There is also some evidence for the predictive value of these variables but this is as

yet inconclusive due to small sample sizes of the studies and a relative rarity of research of a longitudinal or retrospective nature.

2.1.2 Socio-Environmental Factors in the Development of Alcohol Addiction

In addition to the identified personal factors thought to be associated with problem alcohol use, the literature refers to the duration of drinking careers and the social-environmental factors that appear to correlate with them.

Marital and Employment Status

An important issue within alcohol research has been the relationship between social characteristics and drinking behaviour. For example, the literature describes “roles” as explaining social characteristics and drinking behaviour (see Jennison, 1992). Temple *et al.*, (1991) suggested that the stability of relations with others in an individual’s life might have an effect upon the level of alcohol consumption. Wilsnack and Cheloha (1987) maintained that multiple roles (e.g., spouse, parent, worker, etc) were accompanied by a reduction in the psychological need to use alcohol and an increase in social control. These findings suggest that the more roles an individual undertakes, the less time is available for drinking behaviour, or inversely, that drinking is a potential coping behaviour for the stress caused by role deprivation. This however seems overly simplistic as discussed below.

Several longitudinal studies have more closely examined the effects of social roles upon the individual. According to Hajema (1998), research offers limited support for the notion of drinking behaviour being affected by marital status (see Temple *et al.*, 1991). This was previously supported and elaborated upon by Hanna *et al.* (1993)

who noted that the increased stress at times of transition both to and from marital status was more closely related to changes in drinking behaviour than differences in marital status itself. However, research by Miller-Tutzauer *et al.*, (1991) concluded that those who were single had a higher frequency of heavy drinking episodes than those who were in stable marriages or longstanding relationships. It would therefore seem that, although there appears to be some evidence for marital status as an affective factor in alcohol behaviour it is, as yet, inconclusive.

Regarding employment status, Janlert and Hammerstrom (1992) concluded, in a longitudinal study, that there was a positive relationship between length of unemployment and increased alcohol consumption for both men and women. It could perhaps be speculated, based on Wilsnack and Cheloha (1987) that this is due to increased amount of time available, less roles and a reduced sense of self worth. Power and Estaugh (1990a) supported this apparent relationship amongst males but found no evidence for females. However, in contrast to the above evidence, Lahelma *et al.* (1995) determined that there was no relationship between employment status and the frequency of alcohol consumption. Regarding those individuals in employment, Vasse *et al.* (1998) suggested an interaction model based in Social Learning Theory to explain the interaction between work stress and alcohol drinking behaviour and concluded that higher work stress was related to increased drinking. Again, due to few studies, the research evidence is patchy but clearly suggests some evidence for employment factors as an affective factor in drinking behaviour.

In summary, there is some evidence for the factors of marital status and employment status as being linked to problematic alcohol consumption. However, again there is a paucity of longitudinal or retrospective studies with large sample sizes.

Families and Peer Groups

The literature suggests that families have an influence on those with problem alcohol use at all stages of change. Indeed, social learning theory suggests that individuals are instructed in cultural norms and model the behaviours of both our parents and peers. McCrady and Epstein (2006) cited a national epidemiological study of problem drinkers in America, which indicated that mothers were 'most likely to have either commented on or suggested a reduction in drinking to their offspring (43%), followed by spouses (38%), friends (26%), fathers (24%), siblings (21%), and children (12%)' (p.692). Additionally, Beckman and Amaro (1986) noted that men were less likely to encourage their spouses to seek treatment than wives were to encourage their husbands. This may be another factor in the generally observed 2:1 split of male and female presentations to alcohol treatment services as outlined earlier. McCrady (2004) noted also that family involvement in treatment has also been associated with more positive treatment outcomes in a variety of alcohol dependent populations. (see also Raistrick *et al.*, 2006).

Clapper *et al.* (1995) concluded that young adult alcohol problems based on DSM III diagnoses were predicted from a number of adolescent antisocial behaviours. Power *et al.* (2005) and Caspi (1993) gave support to the antisocial behaviour argument but indicated greater complexity than a simple cause and effect. They maintained that individuals are influenced by different factors within the longitudinal development of their problem drinking in addition to antisocial behaviour. Caspi (1993) concluded that peer selection and influence are 'complimentary processes that together form the adolescent's social context' (p.1244). This social context is dynamic in that it produces both change and facilitates continuity over time. Power *et al.* (2005) proposed a multi-stage model in which progression from 'abstainer' to 'normative

drinking' is influenced by parental attitudes toward adolescent drinking and peer involvement in antisocial behaviour. Secondly, 'normative' to 'high risk drinking' is influenced through social activity with peers. Finally, the shift to 'problem drinking' is characterised by additional emotional distress. Jessor (1992) wrote of protective factors that mitigate against risk. These factors according to McMurrin (1997) may include a 'cohesive family life, social controls, peer models for conventional behaviour, a high value on academic achievement... and a positive temperament' (p.68).

2.1.3 Summary

From the literature reviewed, there appear to be a significant number of identified personal and socio-environmental factors thought to be involved in the course and duration of individuals' problem alcohol use. Conversely, protective factors have also been identified that are thought to guard against the development of drinking problems. However, the research results are contradictory and little evidence is available regarding the relative impact of these identified factors over the course of individuals' drinking and treatment careers due to the comparatively low number of longitudinal studies. Sample sizes are often small with large drop out rates over-time. Additional, methodological issues such as mixed samples, low follow up rates and the apparent interchangeability of the terms "problem drinker", "alcoholic" and "alcohol dependent" within the literature make it unclear if the factors are actually correlated with the presence/development of addiction per se or merely high levels of alcohol use. As Valliant (1995) observed, the issues are 'rather more gray than black and white' (p.34).

Despite the shortcomings of the evidence base, some of the factors covered have been identified as having clinical utility to assist individuals to reduce their drinking behaviour. From the literature, the relative effectiveness of differing treatment approaches and good outcomes seems somewhat unclear. In addition, the relative impact of the identified factors on long-term problem alcohol use and treatment outcome is less well explored. This leads us to the aims of the current study.

2.1.4 Alcohol Treatment Careers: What do we know from the literature?

Qualitative research has identified factors that appear to differentiate between those individuals who recover without formal help and those who seek help from services. Sobell *et al.* (1993) identified that those who recovered without help were more able to re-evaluate their level of drinking in terms of its effects and consequences. These individuals were also found to be less severely dependent upon alcohol as a coping strategy and had greater levels of social support (see Tucker, 1995; George and Tucker, 1996; Granfield and Cloud, 1996). In a comparative study, Bischof (2001) noted factorial differences between those who sought treatment and those who did not. These differential factors included: being in a stable relationship; receiving less social pressure to quit from those around them; greater financial stability; and greater satisfaction at work.

Bischof *et al.* (2001) cited data from the National Longitudinal Alcoholic Epidemiological Survey (NLAES), that indicated that only 9.9% of a previously problem alcohol population received treatment during the preceding 12 months (p.1327). Additionally, in a representative Canadian sample, Sobell *et al.* (1996a) reported an absence of formal help in 75-77% of respondents to postal questionnaires who had remitted from alcohol problems. Bischof *et al.* (2001) also noted that there

were 'only a few in-depth studies on remission without formal help'. (p.1328). Unfortunately, most of those studies were not restricted to those individuals who were dependent in their problem alcohol use. This lack of specific definition, discussed previously in this review, is again problematic as differences between groups, based on severity of their problems, becomes difficult to establish. With regard to this, Bischof *et al.* (2001) noted only one study that defined alcohol dependency using DSM criteria and had a representative sample made up solely of 'alcohol dependent' individuals. (see Russell *et al.*, 2001). Unfortunately, these conclusions were deemed as being restricted due to a low follow-up rate.

Whilst problem alcohol use has been the subject of much research to determine causal factors, Dennis *et al.* (2005) pointed out that, 'little information is available on the duration and course of alcohol careers' (p.51). Additionally, little appears to be known regarding individuals who recover without treatment or their long-term prognosis. Epidemiological studies of individuals with long-term alcohol dependency estimated that 58% would eventually experience a "sustained recovery". Sustained recovery was generally defined as being free of problem drinking behaviour for more than one year (see Kessler, 1994; Dawson, 1996; McLellan *et al.*, 2000). Dennis *et al.* (2005) noted that this recovery rate 'is considerably better than the 39% average rate of recovery across psychiatric disorders' (p.55).

Whilst Dennis *et al.* (2005) noted that longitudinal studies have shown treatment to be effective, 'other studies have shown that after discharge, relapse and eventual re-admission are common' (p.52). Dennis *et al.* (2005) also cited the Office of Applied Studies (2000) report which determined that, of those entering treatment in the US, '60% were re-entering treatment, 23% for the second time, 13% for the third time, 7% for the fourth time and 4% for the fifth time and 13% for more than six times' (p.52).

This is supported by a number of retrospective studies that found that most individuals entering treatment for problem alcohol use did so three or four times before attaining a stable recovery (see Grella *et al.*, 2003; Simpson *et al.*, 2002). In support of this, Allsop *et al.* (1997) concluded that 'high relapse rates remain the most common outcome' of treatment (p.72). However, the mechanisms as to why this is so do not appear to be well understood.

Similarly, Dennis *et al.* (2005) cited studies that maintain that, once the habit is established, 'long term recovery rates... (vary)... by gender, race, age of first use, number of years prior to first treatment, prior treatment history and the extent of co-occurring psychiatric disorder' (p.52). It is worth noting however that the relative impact of these factors over the course of alcohol and treatment careers is less well explored.

2.1.5 The Current Research Aims

Using secondary data, gathered over time for service development purposes, the current project aimed to retrospectively explore the relative extent to which identified factors account for differences in the course of individuals' problem alcohol and treatment careers. The exploration of the relative impact of the identified factors in individual alcohol treatment careers is a logical step forward from understanding what starts individuals' alcohol problems, maintains them and helps reduce them. This may in turn highlight clinically valuable information to inform services of how best to treat what has been labelled as 'a complex disorder involving biological, psychological and environmental factors and the interactions between them' (Almasy, 2003, p.337).

Research Question

- To determine from the available data, to what extent do the identified independent variables affect the longitudinal course and duration of individuals' alcohol treatment careers in both single and multiple referral groups.

2.2 Method

2.2.1 Design

In order to answer the research question posed, the principle investigator utilised existing electronic and paper-based data collected by the Community Alcohol Team (CAT) as part of an ongoing service provision from 1988 to the present. Data was collated, with the assistance of the services' research team, from historical assessment interviews and discharge closure reports of individuals presenting for assistance with alcohol problems. The service database contained socio-demographic variables and drinking pattern variables from individual referrals to the CAT.

By splitting the sample into two groups (single and multiple referrals) comparisons using simple univariate analysis were made to determine differences between those problem drinkers who had a short treatment career versus those who had a longer and multi referral treatment career.

Based on the research question, the available variables contained within the database were identified as shown below.

Dependent Variables

1. Mean time between multiple referrals to the service.

2. Number of referrals to the service.

The above dependent variables were chosen from the database as they best fitted the identified research question. Additionally, they clinically best addressed from a service provision perspective what it was that the clinicians wanted to know. Specifically this was related to what variables influenced individuals to repeatedly return for treatment.

Independent Variables

- Social stability (marital status, employment).
- Level of drinking (at repeated referral and discharge).
- Involvement with the criminal justice system.
- Expectations of and positive/negative reasons for drinking.
- Age.
- Gender.
- Ethnicity.
- Planned/unplanned closure of treatment episodes.
- Number of contacts with the service (sessions).
- Referrer (E.g., Self or GP).

Hypotheses

A number of predictive relationships between identified independent variables and the course and duration of individual alcohol and treatment careers were hypothesised and are listed below:

- 1) An individual's level of social stability (employment status, marital/significant relationship) will predict a significant proportion of the variance in the number of treatment episodes and mean time between multiple referrals to services.
- 2) An individual's level of drinking will predict a significant proportion of the variance in the number of treatment episodes and mean time between multiple referrals to services.
- 3) An individual's level of involvement with the criminal justice system will predict a significant proportion of the variance in the number of treatment episodes and mean time between multiple referrals to services.
- 4) Different self reported reasons (e.g., social pressure) for drinking at the time of first presentation to services will predict a significant proportion of the variance in the number of treatment episodes and time between multiple referrals to services.
- 5) Gender and ethnic group will predict a significant proportion of the variance in the number of treatment episodes and time between multiple referrals to services.

2.2.2 Research Participants

The participants were selected from the service database maintained by the in house research team for the last 18 years. The service was multi-disciplinary in nature; community based and covered a wide geographic area. The service database contained information on approximately 9,000 individuals who had been referred for alcohol treatment during this time. The sample consisted of two groups indicated by the later univariate analysis to be matched for age, sex, and ethnicity: Group 1 consisted of individuals who had been referred only once to the service, Group 2 consisted of individuals who had been referred twice or more. Only the individuals with the most complete records were retained for the research sample.

In order to prevent the inclusion in group 1 of those people who would have been re-referred given sufficient time, an analysis was undertaken to determine the mean amount of time between initial and second referrals. This indicated that 85% of the total sample would be likely to represent within six years. Based on this calculation, the research team concluded that Group 1 would consist of individuals referred only once up to, and including, the year 2000. This calculation, based on real service data, indicated that most of Group 1 would be statistically less likely to re-present to services due to the extended time elapsed from their initial referral. The data was then split into two groups as described below:

Group 1 (Single Referral Only)

Group 1 comprised 2176 problem drinkers who had been referred only once to the target service between the years 1988 and 2000. Of these, 1489 (68.4%) were male and 687 (31.6%) female. This two-third male and one-third female gender ratio was generally representative of the problem alcohol population identified in the literature. The majority of the treatment sample (1999, 91.9%) was identified as of white ethnic origin with 162 (7.4%) as non-white. The mean age of Group 1 was 41.2 years with a standard deviation of 12.1 years. Ages ranged from 14 to 90 years.

Group 2 (Multiple Referrals)

Group 2 comprised 2058 individuals who had been referred two or more times to the target service from 1988 to 2006. Of these, 1353 (65.7%) were male and 705 (34.3%) female. Again, the majority of the sample (1880, 92.3%) was identified as of white ethnic origin with 141 (6.9%) as non-white. The mean age of Group 2 was 39.9 years with a standard deviation of 10.4 years. Individuals' ages at first referral ranged from 16 to 85 years.

2.2.3 Measures

Initial Assessment Form

When individuals were referred to the target alcohol treatment service, an initial one-hour assessment was undertaken by a clinical team member. This semi-structured assessment interview was guided by an initial assessment form. The form contained questions relating to: basic referral information, demographic data, medical details, past and current drinking/substance use, current relationships, legal status and perceived treatment needs. The information gathered from these forms, which have been revised and developed over time, was entered into the ongoing service database by the service's administrative staff. (See Appendix A for a copy of the current version of the form).

Drinking at Closure Form

When an individual finished treatment or contact with the target alcohol treatment service was lost, the alcohol worker completed a Drinking at Closure form. These forms recorded the last known level of the clients' drinking. (See Appendix B for a copy of the most recent version of the form).

2.2.4 Research Procedure

Ethical Approval

Ethical Approval was sought from and granted by the local Research Ethics Committee on 30th June 2006. Copies of the relevant letters and information can be found in Appendix C.

Research Database Creation

In order to ensure that the service's computer records were as complete as possible prior to analysis, the principal investigator and service research staff inputted large amounts of additional data from historical paper records and merged data from other existing computer data files to fill large identified gaps in the information contained within the ongoing service database.

Once the services ongoing computer database files were as complete as possible, they were electronically backed up and copied to a separate folder. This folder, comprising separate SPSS data files for the years 1988 to 2006, became the research database for the current study. The creation of this separate research database ensured that the ongoing service database could not be compromised or data corrupted by research work. See Appendix D for a list and brief explanation of the variables contained in the complete research database.

Data Checking and Cleaning

Following its creation, the research database was interrogated to uncover any issues that were likely to cause difficulties during the planned statistical analysis. As this research used secondary data, collected for service monitoring purposes rather than the present research, a number of issues needed to be addressed by the principal investigator before any analysis could take place.

1) Firstly, large numbers of duplicate files were identified and removed from the database. The most complete record of any duplicated client data file was kept to minimise loss of data. Only clients who had largely complete data sets were retained in the database to ensure as complete inter-variable analysis as possible. This meant that some client data, due to its lack of completeness, was dropped from the sample. However, as the initial sample was of such a large size, the principal investigator remained confident that there would be little difficulty in drawing useful conclusions from it and the loss of the data would not seriously compromise the statistical analysis to be undertaken.

2) Secondly, due to changes over time in the way that service staff had recorded and coded client data, it was realised that large amounts of data would need to be recoded to ensure consistency of the collected data over time. For example, the codes used to record a client's ethnicity had evolved from an initial five codes in 1988 to a total of twenty-one in 2006. Using the recoding function contained within the SPSS (version 14) statistical

package, this data was recoded to reuse the initial five codes of 'Caucasian', 'Asian', 'Afro-Caribbean', 'other' or 'mixed' for the entire database. A similar activity was also undertaken in order to recode the variables of 'referral agent' and 'legal status'. This ensured consistency in the data coding from 1988 to 2006. A similar process was again used when further reducing the number of categories in variables prior to the regression analysis being undertaken.

3) Data relating to the number of contacts that individuals had with the service at each subsequent referral was also added from separate electronic files. Files were identified and matched to files in the research database using the client's unique service number. However, as the numbers of client contacts were not always recorded, due to changes in service recording needs and management directives, there were large gaps in the available data. The variables most affected were 'reasons for closure' and 'drinking at closure'. However due to the large sample size there were no concerns in relation to the planned regression analysis.

4) Finally, closure data relating to both the level of drinking at closure and reasons for the client's file closure were added to the current research database, as this data had been stored in a separate data file. Data records were matched by using the client's unique service number. Again, recording changes over time resulted in large gaps in the available data.

Once the Principle Investigator and research team were satisfied that the above-identified issues had been addressed across all the year files, the research database files were merged together. This master file thus contained client information for individuals referred to the service from 1988 to 2006 inclusive.

The master file was then divided into the two subject groups using the criteria of referred once or multiple referral as outlined above. At this point the, master file was evaluated by the research team as containing all the data required to address the research questions for the current study.

Finally, the Principal Investigator and research team anonymised the records in the master file. To achieve this, the client names were removed and the service number altered by way of a mathematical equation known only to the principal investigator and key staff team members. This left no way of linking data in the master file back to the ongoing service or research databases by anyone but the Principal Investigator and key research staff.

Univariate Analysis Procedure

Initial analysis was undertaken as a final check that the data was as error free as possible. By using SPSS (version 14) frequency and its descriptive statistics functions it was possible for any potential errors or unusual data to be spotted and checked against the original service database. For example, a 58-year-old male had been recorded in the

research database as having a 78-year long alcohol career. By looking back at service records, this and other inconsistencies and entry errors in the data were rectified. This procedure also allowed the Principal Investigator to become more familiar with the data sets and the variables contained within them. At this point, a final recode of all the variables was undertaken to reduce to a minimum the number of categories contained within them. For example, the variable of ethnic origin, which originally contained five categories, was recoded down to only two (white and non-white). This was an important process, as the planned regression analysis would be reduced in its complexity by having fewer categories within variables. Although this process reduced the descriptive power of the analysis it increased the potential effect size of variables in the regression analysis. These recoding decisions were informed both by the frequency counts undertaken, information contained within the research literature and conversations with service alcohol workers. Great care was taken to ensure consistency of coding between both groups. Finally, at this point the independent and dependent variables measured at the ratio level of measurement were checked to establish if they were normally distributed.

Bivariate Analysis Procedure

The bivariate analysis was undertaken to determine the strength of the relationships between the independent variables and the dependent variables upon which the research questions were based. The level of measurement of each variable determined the calculations undertaken in this analysis as follows. When variables containing data of a ratio level were compared, a Pearson's r correlation was used to indicate if there was a

positive or negative correlation between them. When variables containing data of ratio level were compared to those containing nominal data, a compare means analysis was undertaken. Any independent variables that were found to be significantly correlated to the dependent variables, or those that showed the largest differences in compared means, were noted for preferential inclusion in the subsequent regression analysis. The results from this analysis indicated which independent variables might be useful to include first in the construction of the regression models.

Regression Analysis Procedure

From the univariate and bivariate analysis undertaken, a number of independent variables were suggested as being important for inclusion in the regression models. Whilst the bivariate analysis allowed the exploration of the relationship between the independent variables and dependent variables, the regression analysis allowed all the independent variables to be simultaneously compared to the dependent variable for each analysis.

As most of the independent variables were measured at a nominal level it was essential that they be recoded as 'dummy variables' in order for them to be included in the regression models as described by Miles and Shevlin (2001).

In order to fully answer the research question it was determined that two regression models would need to be constructed. The dependent variables for these analyses were identified as 'Mean time between referrals' and 'Number of referrals' respectively. The

first model utilised the initial referral data from the multiple referral group only whilst the second included initial referral data from both groups in an effort to build regression models that predicted of a high proportion of the variance in the dependent variables.

The order in which these independent variables were added to the models was guided by a combination of the reviewed alcohol literature, the ideas and opinions of the alcohol workers in the community alcohol team and the larger differences in means and significant correlations as indicated by the previous bivariate analysis. This is to say that those variables that were indicated by literature, opinions of alcohol workers and had larger mean differences or significant correlations were entered first. Other variables with less 'votes' were initially given less preference.

The entry method employed was essentially a manual form of stepwise entry as described by Miles and Shevlin (2001). Independent variables which were indicated by their *R*-squared value to be significant were retained. Those that were not were removed. However, instead of the computer deciding which variables were important, the principle investigator who was in turn informed by the literature, clinical practice, and the clinical team made these decisions.

2.3 Results

The research database population was split into two distinct groups. Group 1 (Single Referral Group) consisted of 2176 individuals with only a single referral to services. As outlined earlier, these individuals had been deemed as statistically unlikely to return for treatment due to the extended time elapsed (6 years) since their last discharge from services. Group 2 (Multiple Referral Group) consisted of 2058 individuals who had presented more than once to treatment services. Two regression analyses were undertaken following univariate and bivariate analyses. Analysis 1 utilised the dependent variable of 'mean time between referrals' and included only the data from Group 2 (Multiple Referral Group). Group 1 data was not included as there was no mean time between referrals due to them having only a single referral to services for treatment. Analysis 2 utilised the dependent variable of 'number of referrals' and so included data from both Groups 1 and 2 (Single and Multiple Referral). The independent variables highlighted by the univariate and bivariate analyses were entered first into the regression analyses. In turn, those independent variables, which were highlighted as significant by the regression analyses, determined which of the research hypotheses were accepted or rejected.

2.3.1 Univariate Analysis

The descriptive statistics analysis indicated that both the groups were generally similar in terms of their demographic characteristics and drinking habits at first referral. However, there were some interesting differences noted. The descriptive statistics from the univariate analysis for all demographic and drinking variables are summarised in Tables 1.1 and 1.2 below.

Table 1.1. Univariate Analysis Summary (Demographic Variables)

<u>Variable / Categories</u>	<u>Group 1 (Single Referral)</u> (n=2176)	<u>Group 2 (Multiple Referral)</u> (n=2058)
Male / Female split	1489 (68.4%) / 687 (31.6%)	1353 (65.7%) / 705 (34.3%)
Age Range Mean SD	14-90 years 41.2 years 12.1 years	16-85 years 39.9 years 10.5 years
Ethnicity White Non-White	1999 (91.9%) 162 (7.4%)	1899 (92.3%) 142 (6.9%)
Marital Status Married/Cohabiting Not Married/Cohabiting	965 (44.3%) 1136 (52.2%)	843 (41.0%) 1164 (56.6%)
Employment Status Active Not Active	1119 (51.4%) 959 (44.1%)	763 (37.1%) 1205 (58.6%)
Living With Alone With others No fixed address (NFA)	571 (26.2%) 1554 (71.4%) 9 (0.4%)	1571 (32.1%) 1368 (66.5%) 10 (0.5%)
Legal 1 Nothing Case pending Convicted of offence Drink driving	1730 (79.5%) 227 (10.4%) 67 (3.1%) 139 (6.4%)	1485 (72.2%) 146 (7.1%) 90 (4.4%) 135 (6.6%)
Legal 2 Nothing Case pending Convicted of offence (2 nd) Drink driving	2062 (94.8%) 17 (0.8%) 13 (0.6%) 69 (3.2%)	1570 (76.3%) 24 (1.2%) 12 (0.6%) 39 (1.9%)

Table 1.2. Univariate Analysis Summary Table (Drinking Pattern Variables)

Variable / Categories	Group 1 (Single Referral)	Group 2 (Multiple Referral)
Reasons for drinking		
Don't Know	211 (9.7%)	162 (7.9%)
Physical Effect	750 (34.5%)	734 (35.7%)
Mental State Effect	604 (27.8%)	592 (28.2%)
Life/coping	306 (14.1%)	271 (13.2%)
Family/Social Pressure	227 (10.4%)	154 (7.5%)
Customer contacts		
Range	1-200	1-100
Mean	4.87	5.57
SD	8.34	7.73
Reason for closure		
Planned	1149 (52.8%)	950 (46.2%)
Unplanned	352 (16.2%)	415 (20.2%)
Drinking at closure		
Abstinent	305 (14.0%)	321 (15.6%)
Controlled/Social Drinking	522 (24.0%)	382 (18.6%)
Problematic Drinking	34 (1.6%)	129 (6.3%)
Binge/Bout Drinking	291 (13.4%)	156 (7.6%)
Advice Given		
Advice Given	1697 (78.0%)	1617 (78.6%)
Advice Not Given	477 (21.9%)	214 (10.4%)
Referral agent		
Self referred/Sig Other	1284 (59%)	740 (36%)
Legal/Social Agencies	165 (6.7%)	86 (4.2%)
GP/Other NHS	663 (30.5%)	440 (21.4%)
Other Agency	54 (2.5%)	30 (1.5%)
Beverage		
Abstinent	37 (1.7%)	26 (1.3%)
Spirits	593 (27.3%)	555 (27.0%)
Wine/Sherry	276 (12.7%)	242 (11.8%)
Beer/Lager/Cider	1220 (56.1%)	1053 (51.2%)
Anything	43 (2.0%)	133 (6.5%)
Frequency of drinking		
Abstinent	47 (2.2%)	45 (2.2%)
Everyday	1452 (66.7%)	1393 (67.7%)
Not everyday	629 (28.9%)	454 (22.1%)
Problem length		
Range	0 – 50 years	0 – 50 years (At First Referral)
Mean	6.3 years	6.57 years
SD	7.2 years	6.75 years

Table 1.2. Univariate Analysis Summary (Drink Pattern Variables) Continued

Variable / Categories	Group 1 (Single Referral)	Group 2 (Multiple Referral)
Amount per week		
Range	0-840 units	0-840 units (At First Referral)
Mean	95.2 units	115.0 units
SD	96.6 units	99.63 units
Where using		
At home	1331 (61.2%)	1337 (65.9%)
Away from home	705 (32.4%)	518 (25.2%)
With whom		
Alone	1330 (61.1%)	1315 (63.9%)
With others	655 (30.1%)	498 (24.2%)

Note: Percentages may not total 100% due to missing data.

It should be noted that no comparative analysis was made between the two groups. As both groups are taken from the same population rather than a sample. In the Multiple Referral Group, there was a higher percentage of unemployment and multiple involvements with the criminal justice system. Additionally, they were indicated as more likely to be living alone and less likely to self refer for treatment.

In terms of differences in group drinking habits, those in Group 2 who went on to have multiple referrals had a higher mean consumption of alcohol at first referral (115 units per week) compared to those in the single referral group (95 units per week). Although the choice of beverage was generally similar between groups, there was observed to be a greater number of individuals who would drink 'anything' in the Multiple Referral Group. In addition, individuals in the Multiple Referral Group were more likely to be drinking at home and alone rather than with others. In terms of treatment, those in the Multiple Referral Group were indicated as more likely to be discharged from the service in an unplanned manner due to ceasing to attend for

treatment sessions. In summary, those in the Multiple Referral Group are initially more ‘serious’ drinkers with increased problems.

The univariate analysis also allowed for the examination of the relative number of individuals who repeatedly re-referred. Table 1.3 below indicates the observed rapid ‘tailing off’ in the number of re-referrals after a third referral. Interestingly, it also indicates that the male to female (2:1) was generally preserved across all referrals.

Table 1.3. Number of individuals per referral

No. of Referrals	N	Male (%)	Female (%)	Percent
1	2176	68.4	31.6	100.0
2	1263	66.2	34.8	61.4
3	469	66.6	34.4	22.8
4	188	67.2	33.8	9.1
5	72	78.8	33.8	3.5
6	30	60.8	39.2	1.5
7	30	79.4	20.6	1.5
8	6	60.1	39.9	.3
Total	4234			

Finally, the ratio level variables, including the dependent variables of ‘mean time between referrals’ and ‘number of referrals’ were examined to check that they were normally distributed. Normal distribution histograms for these variables can be found in Appendix E. As can be seen, all of the ratio variables, apart from age at first referral in both groups, were found to be skewed in their distribution. However, a sample size of over 200 allowed us to ‘dispense with the assumption of normality entirely’ (Alison, 1999, p.130) and did not effect the planned regression analyses.

2.3.2 Bivariate Analyses

Pearsons r Correlations

The independent variables of ‘age at first referral’, ‘customer contacts’ and ‘amount per week’ that were of a ratio level of measurement were independently compared to the dependent variables of ‘mean time between referrals’ and ‘number of referrals’ using a Pearson’s r test. Those independent variables that showed a significant correlation to the dependent variables were identified for preferential inclusion in the appropriate regression analysis. Given that this study comprised a population of problem drinkers assessed for alcohol treatment rather than a sample to be generalised to a wider population, statistical significance loses its importance. (Miles & Shevlyn, 2001).

Bivariate analysis 1 produced a small negative correlation ($r = -.068$, $p = 0.01$, two-tailed) between the dependent variable of ‘mean time between referrals’ and ‘age at first referral’. No significant correlations were found between the dependent variable and the independent variables of ‘amount per week’, ‘number of contacts’, and ‘problem length prior to first referral’. See Table 1.4 below for a summary of correlation coefficients from this analysis.

Table 1.4. Significant Correlations (Bivariate Analysis 1)

		‘Mean time between referrals’	Contacts	Age (At first referral)	Problem Length (Prior to first referral)	Amount Per Week (Units of Alcohol)
Mean time between referrals (DEPENDENT)	Pearson Correlation	1	.026	-.068(**)	-.010	-.032
	Sig. (2- tailed)		.375	.002	.674	.170
	N	2041	1138	2025	1930	1872

** Correlation is significant at the 0.01 level (2-tailed).

Bivariate analysis 2 indicated a small negative correlation ($r = -.078$, $p = 0.01$, two-tailed) between the dependent variable (number of referrals) and age at first referral. Additionally, a small positive correlation ($r = .091$, $p = 0.01$, two-tailed) was found between the number of referrals and the amount of alcohol being consumed per week at first referral. This indicated that the more an individual was drinking at first referral, the greater the number of referrals they were likely to have to the service. No correlations were found between 'number of referrals' and the remaining ratio variables of 'customer contacts' and 'problem length prior to first referral'. See Table 1.5 below for a summary of correlation coefficients from this analysis.

Table 1.5. Significant Correlations (Analysis 2)

		Number Of Referrals	Customer Contacts	Age	Problem Length (Prior to first referral)	Amount Per Week (Units of alcohol)
Number Of Referrals for treatment (DEPENDENT)	Pearson Correlation	1	.030	-.078(**)	-.005	.091(**)
	Sig. (2-tailed)		.083	.000	.752	.000
	N	4234	3248	4165	4040	3918

** Correlation is significant at the 0.01 level (2-tailed).

Compare Mean Analysis

In addition to the Pearsons r correlations undertaken for both analyses 1 and 2, further bivariate analyses were undertaken to compare the means of each nominally measurable independent variable to the dependent variables of 'mean time between referrals' and 'number of referrals'. The nominal independent variables included are shown below in Table 1.6. The output from this analysis, in addition to the evidence

base and clinical team input, informed the order in which of these independent variables were entered into the corresponding regression models. The resulting output tables for the compare mean analyses can be found in Appendix F, Tables 2.00 to 2.15 and Appendix G, Tables 3.00 to 3.15, respectively.

Based on the compare means analysis, the suggested order of importance for the independent variables to be inputted into the regression model for analysis 1 ('mean time between referrals') is summarised below in table 1.6.

Table 1.6. Summary of Category Mean differences (Analysis 1)

Suggested order of entry	Variable	Mean Difference Between Categories
1	Legal Status	450.92
2	Beverage	296.50
3	Drinking at Close	288.37
4	Reasons for Drinking	228.77
5	Where Using	219.63
6	Referral Agent	204.39
7	Advice Y/N	175.20
8	With Whom	161.95
9	Employment	124.40
10	Frequency of Drinking	107.37
11	Living With	94.21
12	Ethnicity	78.50
13	Sex	64.63
14	Marital Status	58.44
15	Reasons for Close	17.16

Again, the same procedure was undertaken prior to the second regression analysis, which used 'number of referrals' as the dependent variable. This indicated the following input hierarchy as summarised below in Table 1.7.

Table 1.7. Summary of Category Mean differences (Analysis 2)

Suggested order of entry	Variable	Mean Difference Between Categories
1	Legal Status	0.51
2	Advice Y/N	0.36
3	With Whom	0.30
4	Beverage	0.22
5	Frequency of Drinking	0.15
6	Employment	0.12
7	Ethnicity	0.10
8	Reasons for Drinking	0.09
9	Living With	0.08
10	Where Using	0.08
11	Reason for Close	0.06
12	Referral Agent	0.03
13	Drinking at Close	0.03
14	Marital Status	0.02
15	Sex	0.01

2.3.3 Multiple Regression (Analysis 1)

The dependent variable for the first Multiple Regression was ‘mean time between multiple referrals’ to the service. The independent variables were individually entered into the regression analysis in the order suggested by the earlier bivariate analysis. Those variables that did not significantly increase the *R*-squared value of the model were removed from consideration. In addition, those that decreased the *R*-squared or were indicated to have high levels of co-linearity to other variables were also removed.

Despite extensive exploration of the variables, the highest *R*-squared value that could be obtained from the dataset was 0.048, which indicated that the model produced was able to predict only 4.8% of the variance in the dependent variable (mean time between referrals). Table 1.8 below shows a summary of the included independent

variable's relative individual contribution to the final *R*-squared value based on their standardised co-efficient values.

Table 1.8. Model Summary (Regression Analysis 1)

Variable	Unstandardised Coefficients		Standardised Coefficients	Collinearity Statistics	
	B	Std Error	Beta	Tolerance	Variance Inflation Factor (VIF)
Drinking At Closure	454.670	73.338	.107	.981	1.020
Where Using	165.746	62.380	.085	.963	1.039
Legal Status	159.006	74.751	.068	.951	1.052
Advice	190.339	89.963	.066	.991	1.009
Employment	117.482	57.473	.064	.983	1.017
Beverage	112.602	61.488	.058	.961	1.041
Reasons For Drinking	92.790	64.040	.046	.992	1.008
Referral Agent	133.716	96.429	.044	.960	1.041

The independent variable of 'drinking at closure' made the biggest contribution to the explanation of the dependent variable with a Standardised Coefficient Beta of .107, followed by 'where using' (.085), 'legal status' (.068), 'advice' (.066), 'employment' (.064), 'beverage' (.058), 'reasons for drinking' (.046) and 'referral agent' (.044).

Although the *R*-squared value was low, the collinearity statistics for the model indicated that there were no threats to the integrity of the regression as both tolerances and variance inflation factors (VIF) fell within limits suggested by Miles and Shevlin (2001). Thus, all the model variables, although only explaining a very small amount of the variance in the dependent variable, made a unique contribution to the total *R*-squared value.

2.3.4 Multiple Regression (Analysis 2)

Using the dependent variable of 'number of referrals', the same procedure was followed as in Analysis 1 and the independent variables entered into a linear regression model as suggested by the bivariate analysis. Again, despite extensive analysis, it was not possible to build a model with a high *R*-squared value. The highest *R*-squared value that could be obtained from the dataset was 0.030, which indicated that the model produced was able to predict only 3.0% of the variance in the dependent variable (number of referrals). Table 1.9 below shows a summary of the included independent variables relative individual contribution to the final *R*-squared value based on their relative standardised co-efficient values.

Table 1.9. Model Summary (Analysis 2)

Variable	Unstandardised Coefficients		Standardised Coefficients	Collinearity Statistics	
	B	Std Error	Beta	Tolerance	Variance Inflation Factor (VIF)
Advice	0.332	0.049	.112	.981	1.020
Age	-0.008	0.002	-.078	.940	1.064
Amount Per Week	0.001	0.000	.066	.959	1.043
Employment	0.126	0.037	.056	.963	1.038
Legal Status	-0.128	0.047	-.045	.949	1.054

The independent variable of 'advice' made the biggest contribution to the explanation of the dependent variable with a Standardised Coefficient Beta of .112, followed by 'age' (-.078), 'amount per week' (.066), 'employment' (.056), and 'legal status' (-.045).

Again, although the *R*-squared value was low, the collinearity statistics for the model indicated that there were no threats to the integrity of the regression as both tolerances and variance inflation factors (VIF) fell within limits suggested by Miles and Shevlin

(2001) and Alison (1999). Thus, all the model variables, although only explaining a very small amount of the variance in the dependent variable, made a unique contribution to the total R -squared value.

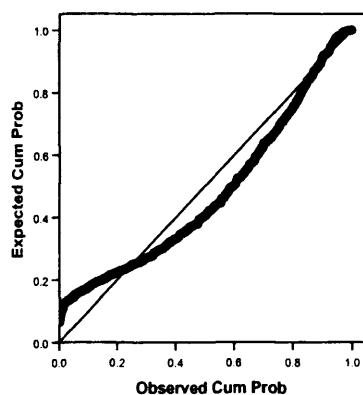
2.3.5 Usefulness of the Models

In addition to the low R -squared values of both models, the analysis also indicated that the assumptions of linearity and homoscedasticity was not met in the models produced. Figure 1.0 below, based on visual examination, did not display acceptable levels of linearity. Furthermore the statistical output for both models in Figure 2.0 was more indicative of heteroscedasticity than homoscedasticity. Together, these indicated that the predictive validity of the regression models was not constant across the range of values of the dependent variables. In short, the models produced were not good predictors of their respective dependent variables of ‘mean time between referrals’ or ‘number of referrals’.

Fig 2.0. Linearity of Regression Models (Analysis 1 & 2)

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Mean time (DEPENDANT)



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Number Of Referrals (DEPENDANT)

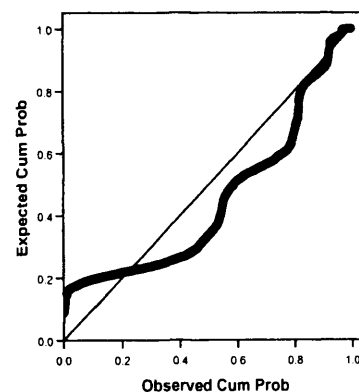
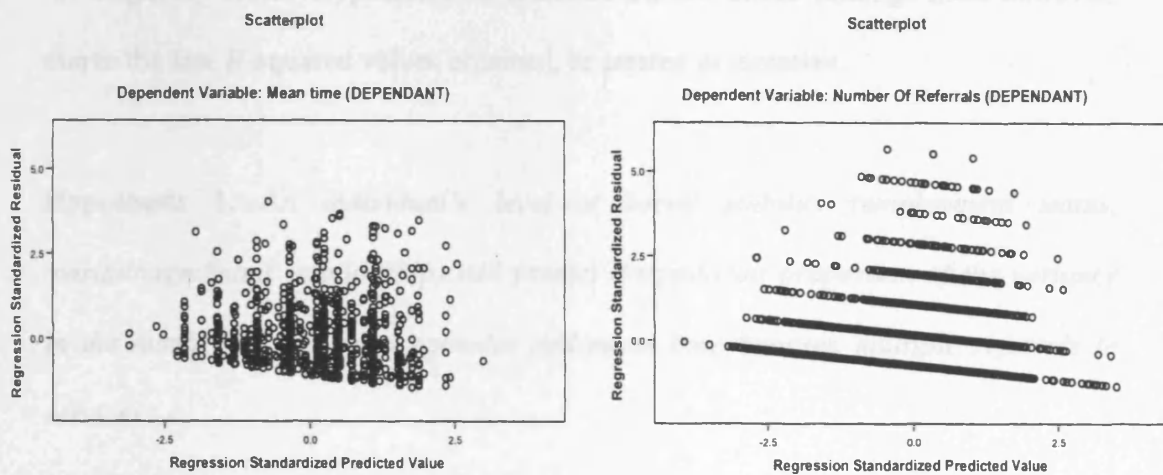


Fig 3.0. Homoscedasticity of Regression Models (Analysis 1 & 2)



Finally, the unstandardised coefficients data (column labelled 'B') for both models (Tables 1.8 and 1.9) indicated that the independent variables predicted only a small fraction of the variance of both the 'mean time between referrals' (measured in days) and 'number of referrals' in an alcohol treatment career. As the largest contributor variable in Analysis 1 (indicated by the Standardised Coefficient of 0.107) a client's drinking at case closure accounted for only 454 days of the variation in mean time between referrals in a treatment career that may span decades. In Analysis 2, the largest contributor (indicated by the standardised coefficient of .112) accounted for only 0.332 (3.2%) of the variation in number of referrals in an individual's alcohol treatment career.

2.3.6 Hypotheses Testing

Based on the results of the current study, the independent client demographic and drinking characteristics at first referral did not effectively predict either the 'mean time between multiple referrals' or 'number of referrals' in alcohol treatment careers.

However, based on the analysis undertaken there is some evidence to accept some of the originally stated Hypotheses as indicated below. These findings must however, due to the low *R*-squared values obtained, be treated as tentative.

Hypothesis 1. *An individual's level of social stability (employment status, marital/significant relationship) will predict a significant proportion of the variance in the number of treatment episodes and mean time between multiple referrals to services.*

Both regression analyses 1 and 2 included employment status as a factor in explaining the variance in the dependent variables of 'mean time between referrals' and 'number of referrals'. However, marital status was not indicated to be important in explaining the variance in either the 'number of referrals' or 'mean time between referrals'. This is to say that we have some evidence to say that employment status affects the length of time between multiple presentations for treatment and the number of treatments in an alcohol treatment career.

Hypothesis 2. *An individual's level of drinking will predict a significant proportion of the variance in the number of treatment episodes and mean time between multiple referrals to services.*

Regression analysis 1 included the type of beverage (high or low alcohol content) as a factor in explaining the variance in the dependent variable of mean time between referrals. In the second regression analysis, the 'amount per week' being consumed was a factor in explaining the variance in the dependent variable of 'number of

referrals'. In summary, although it is weak, we have some evidence that an individual's level of drinking affects both the mean time between and number of referrals to services for treatment.

Hypothesis 3. *An individual's level of involvement with the criminal justice system will predict a significant proportion of the variance in the number of treatment episodes and mean time between multiple referrals to services.*

In both models constructed, the variable of 'legal status' was included as it made a significant and individual contribution to the *R*-squared value. Thus, an individual's involvement with the criminal justice system has an effect upon the mean time between and number of referrals to services for treatment.

Hypothesis 4. *Different self reported reasons (e.g., social pressure) for drinking at the time of first presentation to services will predict a significant proportion of the variance in the number of treatment episodes and time between multiple referrals to services.*

Regression Analysis 1 indicated that individuals' reasons for drinking were a significant variable in explaining the variance in the mean time between multiple referrals. This was however not duplicated in Analysis 2. Furthermore, due to its relatively low Standardised Coefficient figure (0.046) in Analysis 1, its value should be treated with caution. In summary, an individual's reasons for drinking are useful to a limited extent for predicting the number of treatment episodes and time between multiple referrals to services.

Hypothesis 5. *Gender and ethnic group will predict a significant proportion of the variance in the number of treatment episodes and time between multiple referrals to services.*

No evidence was found from either analysis to support the hypothesis that gender and ethnic group would predict a significant proportion of the variance in the number of treatment episodes and time between multiple referrals to services.

2.3.7 Additional Findings

Although it was disappointing that the regression analyses did not yield high *R*-squared values, there were a number of interesting additional findings revealed from post hoc exploration of the data sets:

Firstly, a small positive correlation (.064) at the 0.01 level of significance (2-tailed) was shown between 'age at first referral' and the 'length of the first treatment episode'. This indicated that the older the individual at first referral, the longer their first treatment episode. In terms of explanation, it could be hypothesised that older individuals may have been drinking for longer with increased adverse social and physical health effects. Resultantly, they may view their consumption as a greater problem and thus be more motivated to both seek and engage with services.

Secondly, the most common outcome of treatment in terms of 'drinking at case closure' was indicated by examination of the dataset to be a return to socially controlled drinking rather than abstinence. Additionally, to determine if there was a

change in mean levels of drinking between first and second referrals the mean consumption was calculated for both referrals. This showed that the mean level of consumption upon re-referral for treatment (118.97 units of alcohol per week) was comparable to the level recorded at the initial referral (115.03 units of alcohol per week), meaning that people's drinking levels did not differentiate between first and second episodes of treatment.

2.3.8 Results Conclusions

- The univariate analyses indicated that those who go on to have multiple referrals for treatment are, at first referral, in greater chaos.
- Neither of the two regression models produced were able to explain more than 5% of the variance in time taken (days) before coming back for treatment or the number of referrals in an alcohol treatment career.
- The *R*-squared values of these regression models were sufficiently small as to be more indicative of chance or random patterns in the data set than significant or meaningful associations to the dependent variables.
- It was not possible to predict the re-referral rate or number of referrals that individuals will have in their alcohol treatment career based on the data and variables utilised from the targeted service database.

2.4 Discussion

The current study aimed to test a number of hypotheses regarding the utility of identified demographic and drinking variables, collected at first referral to services, to predict the course of individuals' alcohol treatment careers. Disappointingly, these hypotheses were, due to the low *R*-squared values of the regression analysis undertaken, largely rejected. Despite these results however, the current study suggests new directions and should be perceived as an important interim step in the process of predicting treatment outcomes for problem drinkers.

2.4.1 General Summary of Results

In the current study, the results of the regression analyses indicated that the demographic and drinking variables contained within the service database were not good predictors of the dependent variables of 'mean time between referrals' or 'the number of referrals' during an individual's alcohol treatment career. Indeed, the *R*-squared values gained from both of the regression analyses were so low (less than 5%) as to be approaching the likelihood of being attributable to chance rather than statistically significant trends within the data. Consequently, it would be unsound to directly base changes to clinical practice and/or service development on these findings alone.

There are a number of possible reasons for this interesting outcome. Firstly, it may be that other independent variables, not contained within the research database, may explain a greater percentage of the variance in the dependent variables. Secondly, the

research database for the current study may not contain the necessary variables to enable the construction of meaningful regression models with direct clinical utilities for predicting treatment outcome. Finally, it may be that the high level of missing data in some database variables reduced the validity of otherwise significant variables in the regression models.

The univariate analyses however offered some interesting evidence, that those in the Multiple Referral Group had more chaotic lives at first referral to services. In the Multiple Referral Group there were higher mean levels of alcohol consumption, unemployment, instances of drinking alone and increased involvement with the criminal justice system. In addition, those in the Multiple Referral Group were noted as more likely to be discharged from services due to failure to attend appoints. This may indicate that those who go on to have multiple referrals to treatment services are less likely to engage with treatment or remain in treatment as long as those who present only once.

In summary, the current study has produced a number of interesting findings using a dataset that is regarded by the host service as being unparalleled in other alcohol treatment services. These findings are considered below in context of the original hypotheses and against existing research evidence.

2.4.2 The Results in Context

In the following section, the hypotheses are re-stated and the findings of the current study linked to previous research for each. Following this, the additional findings of the current research are also linked to the existing research evidence.

Hypotheses

1) An individual's level of social stability (employment status, marital/significant relationship) will predict a significant proportion of the variance in the number of treatment episodes and mean time between multiple referrals to services.

Both regression analyses 1 and 2 included employment status as a factor in explaining the variance in both dependent variables of 'mean time between referrals' and 'number of referrals'. Wilsnack and Cheloha (1987) maintained that multiple roles (including employment as a worker) were accompanied by a reduction in the psychological need to use alcohol and an increase in social control. However in the current study, although employment status was demonstrated to have relevance, the effect was too small to be of overall significance. Based on these findings, it could be hypothesised that the role of worker itself is not what makes a difference but the satisfaction that is gained from that role. For example, even though a problem drinking individual has a job, they may dislike that job and so drink to cope with the associated stress or depression. Indeed, Bishoff (2001) noted a link between increased satisfaction at work and a greater motivation to reduce alcohol consumption. In this way it can be seen that the variable of employed/unemployed in itself may be too

simplistic and subject to the described confounding variables. To further complicate the situation, employment at one point in time may act as a factor in reducing consumption whilst acting inversely at other times over the course of a treatment career due to job status changes or workplace changes. In a similar way, most of the other variables could also be over simplistic. Thus, by this hypothesised method of action, predictions based on the variables highlighted by the research evidence base and represented in the host service database can be seen to be more complex than would first be believed.

Indeed, in the research literature a similar argument exists for the hypothesised effect of marital status. Hanna *et al.* (1993) noted that the increased stress at times of transition both to and from marital status was more closely related to changes in drinking behaviour than differences in marital status itself. Thus, again it can be seen that marital status is not a one-dimensional variable with stable properties. Indeed, it could be suggested that, as with employment, marital status may have limited effects upon problematic drinking, which vary in their method of action between the individual.

2) An individual's level of drinking will predict a significant proportion of the variance in the number of treatment episodes and mean time between multiple referrals to services.

Regression analysis 1 included the type of beverage (high or low alcohol content) as a factor in explaining the variance in the dependent variable of mean time between referrals. In the second regression analysis, the 'amount per week' being consumed

was a factor in explaining the variance in the dependent variable 'number of referrals'. The univariate analysis also highlighted that those who attend services for the second time have similar drinking habits to what was recorded at their first referral. This observation is compatible with the notion of 'reinstatement' (Edwards 1990) that suggests that those who have periods of abstinence or socially controlled drinking, if they relapse, generally return to their previous levels of consumption. The theory that skills acquisition in treatment carrying on after discharge from services would seem unlikely given the current studies results. Perhaps it is more likely that people revert to old habits during a relapse period.

3) An individual's level of involvement with the criminal justice system will predict a significant proportion of the variance in the number of treatment episodes and mean time between multiple referrals to services.

In both models constructed, the variable of 'legal status' was included as it made a significant and individual contribution to the *R*-squared value. Again, this contribution was small, as demonstrated by the regression analysis. Interestingly, the univariate analysis indicated that the greater percentage of multiple involvements with the criminal justice system were as a result of drink driving incidents. This is in sharp relief to problem drug users who often present for treatment with histories of acquisitive crime.

4) Different self reported reasons (e.g., social pressure) for drinking at the time of first presentation to services will predict a significant proportion of the variance in the number of treatment episodes and time between multiple referrals to services.

Regression Analysis 1 indicated that individuals' reasons for drinking (e.g., physical effects, boredom etc) were a significant variable in explaining the variance in the dependent variable of 'mean time between referrals'. This was however not duplicated in Analysis 2. Furthermore the standardized coefficient for this variable in Analysis 1 (0.046) was extremely low. Beginning with Brown (1980), numerous studies have indicated an association between alcohol outcome expectancies and level of use. (Brown, Goldman & Christiansen, 1985; Christiansen & Goldman, 1983). This was not supported by the current study's findings. However, if we consider that individual's reasons for problematic drinking may not be stable over time, in the same way that both employment and marital status may not be, then this finding is unsurprising. The notions of alcohol expectancy and reasons for drinking fit with West (2007) theoretical stance that drinking is functional for the individual and that treatment services should teach different coping skills to replace the function of the drinking. This may be achieved by addressing the reasons behind the drinking.

5) Gender and ethnic group will predict a significant proportion of the variance in the number of treatment episodes and time between multiple referrals to services.

No evidence was found from either Analysis 1 or 2 to support the hypothesis that gender and ethnic group would predict a significant proportion of the variance. In terms of gender, this was especially surprising as the existing evidence base highlights sex differences in terms of consumption, tolerance and increased likelihood of physical health problems. Drummond *et al*, (2005) and Raistrick, Heather and Godfrey, (2006) note however that the ratio of men and women presenting for

problem alcohol use treatment is consistently split 2:1 in favour of men. This was echoed in the univariate findings of the current study at every referral. The fact that this ratio persisted at subsequent referrals over the alcohol treatment career was surprising as literature including Nolen-Hoeksema and Hilt (2006) points to the likelihood of women suffering physical health complaints sooner than men and so more likely to reduce their consumption.

The current study evidence also questions the conclusions of Hernandez-Avila, Rounsaville and Kranzler (2004) who maintained that women who do develop problems entered treatment earlier than men and were arguably less entrenched in their behaviour as the mean ages for men and women were similar.

Additional Findings

Most interesting from a clinical treatment perspective was that the most common outcomes in terms of individuals' drinking at case closure was either abstinence (Group 1, 14% and Group 2, 15%) or a return to socially controlled drinking (Group 1, 24% and Group 2, 18%). This offers some indication, in support of Cunningham (1999), that interventions are indeed effective at least in the short term. However, as also observed by Dennis (2005), many of these individuals experience multiple relapses and return for additional treatment. This acknowledged trend was reflected in the current study where some 61% returned for a second treatment and 22% for a third tailing off to 9.1% for a fourth and less than 8% returning for a fifth time or more. This again echoes the findings of Dennis (2005) who cited a report by the Office of Applied Studies (2000), which indicated a similar pattern in the reduction in

numbers at each representation to services. In the current study, the number of re-referrals for treatment dropped dramatically after the third referral and this trend is supportive of previous retrospective studies by Grella *et al.* (2003) and Simpson *et al.* (2002) that the larger proportion of individuals entered treatment three to four times before attaining a stable recovery. The re-referral trends observed in the current study offer support for the notion held in the literature base that relapse is part of recovery and thus indivisible from treatment. This notion is neatly encapsulated in Prochaska and DiClemente's (1992; 2003) model, which includes relapse as an integral part of the learning and recovery process.

In the current study, as in Allsop (1997), high relapse rates remained the most common outcome of treatment. This is supportive of the conclusions of Valliant (1995; 2003) in that problematic drinking often requires multiple treatment episodes to address. Unfortunately, in common with Allsop (1997), Grella *et al.* (2003) and Simpson *et al.* (2002), the current study was unable to determine the mechanisms behind this seemingly robust trend in alcohol treatment careers. Indeed, none of the demographic or drinking variables included in the current study were able to significantly predict or explain the course of treatment careers. However, as discussed earlier, the current study did offer evidence to rule out the significance of variables contained within its hypotheses that other studies with smaller samples and a cross sectional design deemed to be important.

In summary, some of the findings of the current research have support in the existing evidence base. The fact that observed trends are reflected in the current study but are not significant in their affect upon the treatment career is somewhat puzzling. However, as outlined earlier, the variables utilised may have paradoxical effects

which could reduce their predictive validity as alluded to in the research literature. With this in mind, the low *R*-squared values obtained from the regression analyses are perhaps less surprising and future research steps must be considered in a context that may serve to circumvent these intriguing and unforeseen difficulties.

2.4.3 Future Research Steps

As a consequence of the results obtained from the current study it was concluded by the principal investigator that it was impossible, with the available data, to build meaningful regression models to predict the re-referral rate or number of re-referrals in individual's alcohol treatment careers. Based on these findings, the demographic and drinking variables contained within the service database are not evidenced to be good predictors of the course of alcohol treatment careers. Thus, the principal investigator suggests that future research into the relative predictive validity of variables which may affect the course of alcohol treatment careers must explore other variables. In summary, this suggests that other variables should be collected at initial referral assessments that are not currently contained within the host alcohol service database.

Important variables to include in future research might include an individual's level of motivation and readiness to change as highlighted in the work of Prochaska and DiClemente (1992) and later by Orford (2001). Additionally, variables which address the importance of peer and social pressure to change or spiritual variables as suggested in the work of West (2006) may also be more informative. Finally, an individual's beliefs about drinking and coping without it (Marlatt, 1985), their levels

of self efficacy (McCusker, 2001), and levels of motivation to stop or reduce their consumption are all areas where the host service currently has little data available.

These variables may be more informative than the largely demographic variables utilised in the current study. Even with the large data set available, the demographic and drinking variables were largely non-predictive. Based on these findings it would not be unreasonable to hypothesise that these psychosocial variables may be more revealing than demographic and drinking characteristics.

Another possibility for new sources of data, as suggested by the host service's clinical team, was briefly interviewing individuals who are re-referred to the service and ask them specifically why they returned at this time and what were the external factors that influenced their decision. This work, if undertaken with a qualitative rather than quantitative methodology may generate themes worthy of further investigation.

Additional findings of the current study noted that age at first referral was positively correlated to amount of alcohol consumed on a weekly basis. Although the correlation is small, this finding echoes the earlier work of Valiant (1995; 2003) who also noted this trend of declining consumption with increasing age. However, what was not evidenced were the specific reasons behind this apparent decline. If these reasons could be identified through the interview of re-referred clients they may be worthy of further investigation in their relation to the course of alcohol treatment careers.

Data from the current study data also hinted that later re-referrals indicated a gradually increasing mean consumption. In context with the work of Valiant (1995;

2003) this offers the intriguing possibility that, although general consumption decreases with age, there may be minority sub populations of resistant drinkers who buck this trend and continue to increase their consumption, due perhaps to increased tolerance, in defiance of the likely serious physical health implications. If, through further research, the existence of these sub populations could be further established, they may represent a frustrating factor in research and statistical analysis that looks for simple associations and patterns such as the current study and perhaps even previous large studies such as Project Match and The Mesa Grande Project (Miller & Wilbourne, 2002).

With this in mind, Valliant's (1995) observation that the issues in alcohol addiction are rather 'more gray than black and white' (p.34), seems prophetic. Logically, this begs the question of whether we have the research methods to control for the numerous confounding and interacting variables thought to be involved in alcohol addiction and recovery. Perhaps what is required is a period of explorative research that is qualitative in nature to identify themes and variables as yet unconsidered. This may allow a refocus in what is a highly contested area of research. Indeed, West (2006) notes that despite all the research undertaken, the layman's understanding of addiction is not far removed from the scientific interpretations conveyed in the research literature.

Based on the findings of the current study, it seems possible that the approach of attempting to build predictive models based on identified variables is flawed in similar ways to the matching hypothesis. Problematic drinking may not be understandable in depth from simple cause-and-effect theories and modelling.

Variables may not remain constant across a treatment career and may have paradoxical effects that frustrate attempt to isolate their relative impact. For example, being married for some individuals may be supportive, for others stressful or the qualities of the relationship may change overtime. Thus, marital status is not wholly descriptive.

The host services treatment approach has been historically something of a 'black box'. It is unclear which different methods or approaches clinical team members are applying dependent upon their individual profession, specialty and/or training. Consequently, it is difficult to identify easily who received what intervention and account for treatment and therapist variables that may have a significant effect upon the course and outcome of an individual's alcohol treatment career. Indeed, the importance of the therapeutic relationship is well documented in the evidence base in the work of Moos and Moos (2003) and Raistrick, Heather and Godfrey (2006) who noted that therapeutic alliance 'accounts for 9-40 per cent of outcome variance' (p.32). However, the host service database is devoid of variables that are pertinent to this well known but less well understood factor in treatment outcomes.

In summary, there is much opportunity for future research suggested by the failure of the current study to generate meaningful regression models based on the variables included for analysis. However, there are dangers and complications that may frustrate the search for demonstrable associations on which clinical practice may be based. In short, the road to answers seems paved with difficult questions.

2.4.4 Implications for Clinical Practice

Based on the findings of the current study it would appear that it is not possible, based on knowledge of a referred client's demographic and drinking variables, to predict with an acceptable level of accuracy either the number of referrals or mean time between them over an individual's treatment career. This is to say, we cannot take a person with profile 'X' at their initial referral and predict how long their treatment will be, how many referrals they will have or how long their career will be based on the demographic and drinking variables currently available to us in the research database. As such, a 'client profiling' approach appears to be as unavailable to us as treatment matching (Project MATCH, 1997). However, based on the findings in the univariate analysis, we have some indication that those individuals who at first referral have higher level of alcohol consumption, multiple involvements with the criminal justice system, are unemployed and are drinking alone are more likely to have multiple referrals for treatment. The higher levels of consumption highlighted at first referral in the univariate analysis also received some support in the regression analyses as a significant variable, as the type of beverage (high v low alcohol content) and the amount per week were both unique and significant contributors to the *R*-squared values in the regression analyses. If these indicators, as argued above, could be validated through further research, this may form clinical justification for the adoption of a stepped approach to services as outlined by Sobell and Sobell (2000).

In this approach, based on the initial assessment, individuals would be allocated an appropriate intensity of treatment. Those that were, at initial assessment, identified as having higher levels of consumption and more chaotic lives would be offered more

intense or long-term interventions. Conversely those who were identified as less chaotic may be suitable for shorter-term interventions. Through this, as Drummond *et al.* (2003) argued, those in greatest need would receive the most appropriate treatment. Indeed there is good evidence that the host service's current blanket brief interventions approach is not universally useful. Brief Intervention studies ranging from 1966 to 1995, Wilk *et al.* (1997) provided no conclusive evidence for or against the use of this approach with problematic drinkers. In addition, Moyer *et al.* (2002), in a review of 56 Brief Intervention studies, concluded that this treatment was only useful for those with less severe drinking problems. With this in mind, a stepped approach would represent a move away from how the host service currently delivers treatment. Currently, everyone referred receives a common assessment and is then offered advice or short term treatment (primarily a reduction programme). As outlined earlier, treatment is something of a 'black box' so it is difficult to determine exactly what the client is receiving. As such it could be argued that the opportunity for treatment success may not be optimised with the whole spread of clinical severity meeting with one brief intervention type response.

2.4.5 Critique of Research Methodology

Unavoidably, when utilising service datasets there were large amounts of data missing from the data set. Although large amounts of data were inputted from other computer and paperbased sources to reduce these gaps as far as possible, it may be that some trends in the data were partially obscured or reduced. However, as only a few variables were adversely affected it is unlikely that this would have had a major effect upon the analysis undertaken and results obtained.

Furthermore, it cannot be assumed that all those in the single referral group, despite not representing to the host service for six years, had not gone to another service elsewhere, moved out of area or even died. However, to ensure total isolation between the two groups would have entailed the following up of every single individual to ensure that they were not experiencing further difficulties. This would clearly be outside the limitations of the resources of the current study. Thus the method employed, although imperfect, was the best solution within the imposed constraints.

The mathematical process of readying the existing data for the regression analysis had implications in that a wealth of descriptive power was lost. By reducing the categories within variables down as far as possible to facilitate the implementation of regression analysis, meaningful trends and/or relationships in the data may have been lost. However, this analysis was deemed to be the most appropriate.

Despite these limitations, the current study is relatively unique in that it had access to large amounts of data that would have otherwise required the undertaking of costly longitudinal research that would have entailed large amounts of data collection and been well outside the time limitations set by the doctoral course.

The secondary findings from the univariate analysis may have an initial 'so what?' quality to them but actually this is the first time, as far as the principal investigator or the clinical team is aware, that real service data has indicated that those who re-refer multiple times are in some aspects more affected and in chaos as a result of their difficulties at their first referral to services.

2.4.6 Conclusion

In conclusion, the current study was not able to predict the course of treatment careers based on the variables available. However, the findings were interesting as they offered evidence based on real service data that those individuals whose lives are in chaos at first referral are more likely to have multiple referrals to treatment services. Although the regression models produced were not directly useful to inform clinical practice, they ruled out the included variables and indirectly pointed to further research to explore other independent variables which may as outlined influence clinical practice, service development and what information is collected at referral to services for treatment.

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Section 3: Critical Reflection

3.0 Critical Reflection

3.1 Origins of the Study

In truth, the origins of this study are as old as the service database it utilised. Begun some twenty years ago as a research database, it originally encapsulated a far wider range of potential variables. However, as the fledgling service grew and the referral rate increased, the practicality of collecting hundreds of variables meant that the rationale behind the data set became less research orientated and more service needs led. Additionally, changing national and Trust directives on what data was to be collected also drove the course and evolution of the research database overtime towards becoming a scaled down service monitoring database.

Twenty years of service data collection had produced a largely computer-based database that was, as far as the founding principal researcher was aware, unique in its scope. In addition, the service had several long serving members of staff who had set up the database and were still in post. This meant that I had potential access to both the data and the rationale of the individuals who had set it up and overseen its development. Upon reflection, these individuals were critical to the present study as my navigation of the database would have been far slower and more problematic without the depth of their historical knowledge of the data.

Prior to the current study, several small-scale research projects had already explored some aspects of the database using regression analysis. My interest in alcohol issues stemming my own life experiences, my information technology background prior to

my NHS career and the academic requirement to undertake a piece of research of doctoral standard offered both myself and the in service research team an opportunity to explore the entire data set in far greater detail than had been achieved previously.

Initial meetings with the research team, my research supervisor and clinical supervisor were used to both inform me of the content of the database and brainstorm potential projects and research questions that might have clinical application. At this time I was faced with the task of writing a literature review as part of the academic requirements of the doctorate. Having agreed by this point to undertake a project using the database, I used the writing of this literature review as an opportunity to become more familiar with the alcohol research literature and determine where my own specific interests lay. During the task of writing, I found myself becoming interested not just in the theories of alcoholism but also more specifically in individuals' alcohol treatment careers. I was surprised to learn how relatively little was understood regarding alcohol treatment careers and how variables may affect them. Individuals' involvement with alcohol appeared to be due to the interaction of a myriad of social, physical and psychological variables. Some of these variables were represented in the service database and I became intrigued as to the possibilities of being able to predict individuals' treatment careers based upon their initial referral information. More importantly, if it could be achieved, then there were clinical and service delivery implications attached that might justify a change in the treatment approach based on an individuals' profile at first referral.

The established research literature base contained some evidence that social and drinking variables such as age, marital status, employment, peer pressure and attitudes

were influencing variables in individuals' drinking over time. However these studies were usually based on small samples and often contradictory in their conclusions. Knowing that the lost service database contained information on thousands of individuals' alcohol treatment careers I felt, as did both the research team and statistical advisor, that a study with that much potential statistical power might be able to extract some clarity from what is an area of research where shades of grey abound. If the variation in individuals alcohol treatment careers could be predicted at first referral based on the presence or absence of identified variables then perhaps we could alter our clinical practice accordingly. For example, if individuals who were drinking spirits were found to return more quickly following discharge, it might be that we would have evidence to offer those individuals longer and/or more intensive treatments. Additionally, it might open the way to increased multi-disciplinary working and links with other services best able to affect variables in treatment careers that might be found to be significant.

Based on these discussions with the clinical and research team in the host service, it was decided that the research would attempt to determine the extent to which these sociodemographic and drinking variables identified in the literature were influential in the course of individuals' alcohol treatment careers. Specifically, both the research team and myself were interested in to what extent variables affected the 'mean time between multiple referrals' for treatment and the 'number of treatment episodes'. The hope was to be able to further develop clinical practice, service provision and treatment based on the findings of a piece of research that explored the entire database. If for example those individuals who would likely present multiple times to services could be identified at their first referral, more intensive treatments could be

implemented immediately. In turn, it was noted that this might invoke serious consideration of a stepped care model of working that some practitioners in the host service were in favour of.

3.2 Development of the Study

Having determined the general scope of the research, the next phase was to determine how the existing service database could best be analysed. This process was important as it assisted me to produce the research proposal document to be presented for ethical approval. For input on the types of analysis available, it was felt that outside assistance was required. During previous projects the research team had called upon the services of a local statistics expert who worked at the local university. He was duly contacted and agreed to give input, and advice right through the project up to and including the analysis of the data.

The type of analysis to be undertaken and the research question were determined at a series of pivotal meetings between the Principal Investigator, the service research team and research supervisor. Eventually, simple multiple regression was chosen as the preferred statistical method of analysis due to its relative ease of use and adaptability. Structural equation modelling was also considered during this time but was eventually rejected due to the increased complexity of analysis and associated learning curve that would be required to undertake it. Additionally, the research team were anxious that the large amounts of time required for the Principal Investigator to make the data ready for analysis would not allow enough time to become familiar with structural equation modelling, for which they had no expertise or prior

experience. The lack of user friendly computer software available to analyse the data together with the acknowledged problems with the technique as alluded to by Miles and Shevlin (2003) convinced the Principal Investigator that simple multiple regression would be adequate for our purposes. This approach best took into account the time scales involved, and was deemed to be achievable within the allotted time scale of the research. Upon reflection, this was the right decision as the amount of work that was required to be undertaken on the database to make it ready for analysis had been significantly underestimated as no previous projects that utilised the service database were as wide in scope.

3.3 Data Collection and Treatment

Unlike the other members of my university year group cohort I did not need to collect any data as it had already been collected over the twenty years of the service databases existence. On reflection, I was somewhat naive about the amount of work that would be required to take the data from its raw state and ready it for the planned multiple regression analysis. Indeed, with hindsight, this factor and its associated issues would be responsible for almost intolerable levels of anxiety and frustration over the weeks and months ahead as I worked my way through the research data base whilst simultaneously learning how to undertake multiple regression analysis.

Although the research database, once created, was indeed immense, it also had a number of fundamental characteristics that presented serious challenges. Firstly, the way data had been coded from assessment interviews was not consistent across the life of the database. For example, the way ethnicity had been coded evolved from an

original five codes to over twenty codes and this was by far not the only example. So to make the data suitable for regression analysis, the codes for the ethnicity data and the other fifteen nominally measured variables data had to be homogenised. Although the functionality of the SPSS computer package used made this easier, this was a time intensive process that could not be rushed. A slow and steady plod was required to ensure the maximum retention of data and accuracy. Secondly, there were large amounts of missing data, errors, and duplications of client records. Although most of the data existed on other computer files or in other paper based formats, to put it right was also a time intensive process. Looking back now I did not, and perhaps could not have truly appreciated the amount of missing or incorrect data in a live service database. Changes in service protocols and demands of what was recorded and how over time had indeed created an enormous dataset but had also created a number of serious obstacles to extracting something meaningful and of clinical value from it. During these processes, it was difficult to contain my anxiety of being able to complete the research on time.

Multiple regression analysis becomes a far quicker analysis, if you have independent variables that are measurable on a ratio level of measurement rather than the largely nominal variables contained within the research database. Resultantly, the variables required further recoding after the univariate and bivariate analyses in order to reduce, as far as possible, the categories contained within the variables. Again, this was a necessary but time consuming process. This was however, with this technique, unavoidable.

3.4 Writing Up

Writing up the thesis was in some ways one of the most enjoyable tasks of the research as it allowed me to finally put together the content that I had been storing in disparate files and diaries. At the start of this process a pivotal meeting with my statistical advisor had reassured me that the regression analysis, despite its unexpected findings, was sound. This validation and the increase in confidence fuelled my motivation. This process also allowed me to deal with my initial disappointment relating to the regression analysis outcomes and, with renewed enthusiasm, explore alternative explanations and possibilities regarding what they and the additional findings might mean in the context of both existing and future research. During this undertaking, I became more aware of the limitations of both the current studies design the statistical approach employed and the difficulties associated with using existing data sets.

The writing up of the thesis also presented some challenges. Although I found this in some ways more straightforward a task than the literature review, the challenge of how to create the research report so that it told the story in an accessible way was difficult. This for me represented a reversal of the process from trying to increase and make more complex my understanding to simplifying and summarising what is in reality a complex piece of research. During the writing up I become more aware and was able to reflect upon how much I had learnt during the process and how, despite the numerous challenges and steep learning curve, it had all come together.

3.5 Critique of the Research

In addition to the criticisms of the current study outlined in the Discussion, there are a few more points worthy of note regarding the current studies data set.

Some of the data, especially those variables that relate to the length of individuals' problems, the amount of alcohol consumed and their drinking at closure are based solely on what clients choose to tell us. Clinicians in the host alcohol service acknowledge that individuals may not be wholly truthful or underestimating in some of the information that is given at referral and subsequently recorded as fact in the service database. Resultantly, this variance of 'truth' represents another confounding variable that may have partially obscured trends within the data. However, as with all data gained from self-report measures, this is largely unavoidable and not peculiar to the current study.

3.6 Key Learning Points

As a result of undertaking this complex research project I feel that I have grown as a researcher in the following ways:

- I learnt that data driven research of this kind requires an initial slow plod in terms of data collection, cleaning and analysis. There are no real shortcuts and the process has to be followed through logically before regression analysis can be undertaken.

- I developed my ability to explore surprising and unexpected findings and be flexible in my thinking in order to reformulate their relevance to the question and implications to further research.
- I further developed my ability to prioritise complex tasks and network with other professionals in order to bring the research to fruition.
- As a result of undertaking the analysis methods I have increased my confidence in using statistical methods to explore datasets.

3.7 Overall Reflections and Summary

This for me has not just been a research project, for me this has been a very personal journey towards achieving my goals. At times the journey was painful, at times I felt as though I would never get there but took faith and strength from those who know me best. They, when I felt lost, encouraged me to continue to find my way. In the darkness they were my light.

The undertaking of the research has been a profoundly challenging undertaking and has prompted a roller coaster ride of emotions. However, on balance, and in the end, I am glad that I did it. The research and indeed clinical training has for me been without doubt one of the hardest things I have ever undertaken. Against the backdrop of a number of life events (marriage, fatherhood, child illness) it challenged me every step of the way in ways I could not ever have predicted. The challenge of managing and containing the demands of the research affected both my clinical work and my home

life. Indeed, there were times that it almost felt too much. Almost. However, from this experience I have learnt that I am stronger than I ever gave myself credit for and have far developed my faith in my ability to deal with complex problems and prioritise large numbers of complex but inter-related tasks whilst keeping going and maintaining my motivation. As a researcher I am far more aware of the research process and have become more comfortable with the periods of uncertainty that characterised the undertaking of the project. These are the things I will take with me post qualification. I still have much to learn but that will be my motivation as I look forward to the next journey into my post training and the challenges that wait.

Appendix A – Services Initial Assessment Form

INITIAL ASSESSMENT FORM - ALCOHOL

DATE: ASSESSED BY: 141 WHERE:

REF NO: KEYWORKER:

NHS NUMBER:

(BLOCK CAPITALS PLEASE)

TITLE: FIRST NAMES:

(Mr, Mrs, Miss, Ms, Dr, Other)

LAST NAME:

PREFERRED NAME:

ADDRESS:

POSTCODE:

TEL NO:

Is this person homeless? ☐ Yes ☐ No

DOB: __/__/__ AGE __)

ETHNICITY:

☐ Refused
☐ Not Asked

GENDER: ☐ Male
☐ Female

CIVIL STATUS: ☐ Single
☐ Married/Cohab
☐ Widowed
☐ Divorced
☐ Separated

☐ White - British
☐ White - Irish
☐ White - Other
☐ Black - British
☐ Black - Caribbean
☐ Black - African
☐ Black - Other
☐ Asian - Indian
☐ Asian - Pakistani
☐ Asian - Bangladeshi
☐ Asian - Other
☐ Mixed - White/Black Caribbean
☐ Mixed - White/Black African
☐ Mixed - White/Asian
☐ Mixed - Other

☐ Chinese
☐ Other

EMPLOYMENT:

☐ Employed
☐ Unemployed - available for work
☐ Unemployed - sick/incapacity
☐ Houseworker
☐ Retired
☐ Student
☐ Other

RELIGION: (if relevant):

PREFERRED LANGUAGE:

REFERRAL DETAILS

Who referred?

When?

Reason for Referral:

ADDRESS:

TEL NO:

MEDICAL DETAILS

OUT OF COUNTY? ☐ Yes ☐ No

GP NAME:

ADDRESS:

TEL NO:

OTHER AGENCIES EVER CONTACTED (for alcohol problems)

☐ NONE

EG: GP
GENERAL HOSPITAL
A&E
PRIVATE DOCTOR

PROBATION
SOCIAL SERVICES
PRISON

ALCOHOL TREATMENT UNIT
THERAPEUTIC COMM/REHAB
AA
VOLUNTARY AGENCY

OTHER:

PREVIOUS CAT CONTACT:

Medical History/Investigations

Psychiatric History

Eating/Sleeping/Mood

Any prescribed medication?

CURRENT CONTACTS:

NAME:

NAME:

ADDRESS:

ADDRESS:

Permission to contact if necessary:

PROBLEM DRINKING PATTERNS

Preferred Beverage:

Frequency: How often do they typically drink? (days per week)

Binge Drinker?

☐ Yes ☐ No

Where and with whom drinking? (predominantly)

RECENT DRINKING PATTERN

What would a typical drinking week look like? (last 3 months)

WEEKDAY	Mon	Tues	Weds	Thu	Fri	Sat	Sun
MORNING							
AFTERNOON							
EVENING							
DAILY TOTALS							
						TOTAL UNITS	

Comments:

What's their drinking for, (ie what do they get out of it) and why do they do it?

What problems caused (finance, health, relationships)

Who thinks their drinking is a problem?

How long has this been a problem? ☐ < 1 year or ____ years

Have you been able to drink in a controlled way?

Any periods of abstinence? YES/NO

If YES, describe:

Withdrawal symptoms

Have you ever had a fit/hallucination? When?

Why presented for help now?

DRINKING HISTORY/GENERAL COMMENTS

OTHER SUBSTANCE USE: (to include illegal, legal, prescribed drugs)

Cigarettes:

Caffeine:

Others:

Are any of these substances injected? _____ Which? _____

Has the individual shared injecting equipment in the last month? Y/N

Has the individual shared injecting equipment in the last 5 years? Y/N

Are you concerned about your substance use?

Consider	Hep C?	☐
	Hep B ?	☐
	HIV ?	☐

EMPLOYMENT HISTORY

Job History:

Alcohol related problems at work:

Use of Leisure Time:

CURRENT RELATIONSHIPS

Civil Status _____ For How Long? _____

With whom living? _____

Client's Children: Number _____ Ages: _____

Are they: ☐ living with customer ☐ with relatives ☐ in care
☐ living with other parent ☐ other (specify): _____

Any problems with child care/meeting child(s) needs?

Are you residing in a household where children are also living?

Children living with client:

Name(s)	Age(s)

Current Social Situation (domestic, family, friends, housing)

Relevant Family History

CURRENT LEGAL STATUS

☐ None

Details of offence(s):

PAST LEGAL HISTORY: (include any relevant offences, including drink-driving)

HISTORY OF VIOLENCE:

ASSESSMENT SUMMARY

Customers Perceived Needs:

Estimated length of contact with service:

Venue & time for follow up:

Any Action Taken:

- ☐ Risk Assessment (according to service criteria)
- ☐ Shared Care (with whom) _____
- ☐ Child Protection

Signed:

Designation:

Date:

COMMUNITY ALCOHOL TEAM – CARE

AN

Client's Name _____	Date First Seen: _/_/___	Case Manager's Signature: _____	Client's signature: _____
Ref No _____			Date _/_/___
			Carer Involvement? ☐ Yes ☐ No Client given copy of care plan? ☐ Yes ☐ No

	PROBLEMS	GOALS	INTERVENTIONS
Alcohol Use Other Drug Use Prescribed Medication			
Health (eg pregnancy)			
Housing/Financial			
Offending			
Employment/Training Social/Leisure/Time Management			
Relationships (eg domestic violence)			
Psychological/Psychiatric (eg self/harm)			
Childcare (eg child protection)			
Cultural Needs Race, religion, ethnicity Disability Gender/Sexuality			

CRISIS AND CONTINGENCY PLANNING
(must be completed if on enhanced CPA)

Risk assessments can only reflect the situation at the time the assessment is carried out. Similarly care planning is based on information provided at the time the care plan is being developed.

Development of crisis and contingency plans for individual clients should be seen as good practice, but is mandatory for those on Enhanced Level CPA.

In the event of a crisis occurring, or the plan for dealing with a particular risk area fails, the following contingency process will apply:

- ◆ Review case within MDT and where appropriate update risk assessment and care plan
- ◆ Liaise with other agencies involved including GP

Other Agencies Involved	
Name	Agency

- ◆ Assess need for intervention by another agency (eg A&E, Psychiatry)
- ◆ Record decisions in notes and update care plan
- ◆ Monitor situation closely

Any other measures to be taken specific to this case? ☐ Yes ☐ No

Details:

Measures to be taken if client fails to attend appointments:

**Leicestershire NHS Drug and Alcohol Services
Community Alcohol Team**

CARE PROGRAMME APPROACH SCREENING/REVIEW FORM

PATIENT DETAILS:

SURNAME: _____ **FORENAME(S):** _____

DATE OF BIRTH:

DATE OF INITIAL CPA SCREENING:	NAME OF ASSESSOR:	ASSESSOR CONTACT ADDRESS:
		Drury House 50 Leicester Road Narborough LEICESTER Tel 0116 2256350

FOR INITIAL SCREENING

Does this patient have a history of/current Mental Health Problems? YES/NO

If NO, the client would not normally be suitable for Care Programme Approach. If this is the case, tick 'not eligible', sign the form and file it in the patient's notes; continue with local clinical management arrangements.

If YES and the mental health problem is complex and requires multi agency involvement, the patient should be considered for Enhanced CPA, otherwise they should be placed on Standard CPA. Tick the appropriate box below:

☐ Not Eligible	Sign and file form in patient's notes, complete Care Plan/Risk Assessment and file in notes
☐ Standard	Sign and file form in patient's notes, ensure CPA/Care Plan information up to date on MARACIS
☐ Enhanced	Sign and file form in patient's notes, ensure CPA/Care Plan & Contingency Planning information up to date on MARACIS

SIGNED:	DESIGNATION:	DATE:

CPA SCREENING REVIEW

A client's CPA status should be reviewed annually. If the client's CPA status has not changed, initial and date below to indicate that it has been reviewed. If the client's CPA status has changed, then a new screening form should be completed.

☐	2006	Date <u> </u> / <u> </u> / <u> </u>	Initials	
☐	2007	Date <u> </u> / <u> </u> / <u> </u>	Initials	
☐	2008	Date <u> </u> / <u> </u> / <u> </u>	Initials	
☐	2009	Date <u> </u> / <u> </u> / <u> </u>	Initials	
☐	2010	Date <u> </u> / <u> </u> / <u> </u>	Initials	

RISK ASSESSMENT

This risk assessment should be carried out and interpreted in conjunction with the NHS Community Alcohol Team's Risk Assessment Framework document.

Risk	Review Date(s)				
	At Initial Assessment	Subsequent Review	Subsequent Review	Subsequent Review	Subsequent Review
	Date:	Date:	Date:	Date:	Date:
Self Harm	Y/N	Y/N	Y/N	Y/N	Y/N
Violence/Harm to Others	Y/N	Y/N	Y/N	Y/N	Y/N
Suicide	Y/N	Y/N	Y/N	Y/N	Y/N
Child Protection (Section 47)	Y/N	Y/N	Y/N	Y/N	Y/N
Children in Need (Section 17)	Y/N	Y/N	Y/N	Y/N	Y/N
Domestic Violence*	Y/N	Y/N	Y/N	Y/N	Y/N

*separate notes should be kept (see policy)

At Initial Assessment: Has the initial clinical assessment identified any evidence of significant risk behaviours? YES/NO

At Subsequent reviews: Since the previous review has there been a significant change in the evidence of significant risk behaviours? YES/NO

~~If the answer to either of the above is YES please record the outcome and the proposed management plan in the client's clinical records.~~

Risk	Review Date(s)				
	At Initial Assessment	Subsequent Review	Subsequent Review	Subsequent Review	Subsequent Review
	Date:	Date:	Date:	Date:	Date:
Self Harm	Y/N	Y/N	Y/N	Y/N	Y/N
Violence/Harm to Others	Y/N	Y/N	Y/N	Y/N	Y/N
Suicide	Y/N	Y/N	Y/N	Y/N	Y/N
Child Protection (Section 47)	Y/N	Y/N	Y/N	Y/N	Y/N
Children in Need (Section 17)	Y/N	Y/N	Y/N	Y/N	Y/N
Domestic Violence*	Y/N	Y/N	Y/N	Y/N	Y/N

*separate notes should be kept (see policy)

At Subsequent reviews: Since the previous review has there been a significant change in the evidence of significant risk behaviours? YES/NO

~~If the answer to either of the above is YES please record the outcome and the proposed management plan in the client's clinical records.~~

Risk	Review Date(s)				
	At Initial Assessment	Subsequent Review	Subsequent Review	Subsequent Review	Subsequent Review
	Date:	Date:	Date:	Date:	Date:
Self Harm	Y/N	Y/N	Y/N	Y/N	Y/N
Violence/Harm to Others	Y/N	Y/N	Y/N	Y/N	Y/N
Suicide	Y/N	Y/N	Y/N	Y/N	Y/N
Child Protection (Section 47)	Y/N	Y/N	Y/N	Y/N	Y/N
Children in Need (Section 17)	Y/N	Y/N	Y/N	Y/N	Y/N
Domestic Violence*	Y/N	Y/N	Y/N	Y/N	Y/N

*separate notes should be kept (see policy)

At Subsequent reviews: Since the previous review has there been a significant change in the evidence of significant risk behaviours? YES/NO

If the answer to either of the above is YES please record the outcome and the proposed management plan in the client's clinical records.

PROGRESS MEASURE FORM

THIS QUESTIONNAIRE IS DESIGNED TO INDICATE YOUR INITIAL CONCERNS. WE MAY WISH TO REPEAT THESE SAME QUESTIONS IN THE FUTURE TO SHOW YOUR PROGRESS AND TO EVALUATE OUR SERVICE. PLEASE ANSWER ALL THE QUESTIONS.
INFORMATION WILL BE KEPT CONFIDENTIAL WITHIN THE NHS ALCOHOL SERVICE.
THANK YOU FOR FILLING THIS IN.

NAME: _____

DATE: _____

KEYWORKER: _____

CURRENT DRINKING PATTERN:

- 1) In the last month, how many days per week have you been drinking? _____ days per week
- 2) What alcoholic beverages do you tend to drink?
(eg beer, wine) _____

- 3) How much do you drink in a typical drinking day?
(e.g. 2 pints, or 3 glasses, or 1 measure) _____

AT THE MOMENT:

Example:

Please answer the following questions by marking with a cross at the appropriate point on the line.

NOT VERY _____ X _____ VERY
SERIOUS SERIOUS

- 4) How serious do you consider your drinking to be?

NOT VERY
SERIOUS

VERY
SERIOUS

- 5) To what extent does your drinking interfere with your life?

NOT VERY
MUCH

VERY
MUCH

- 6) Are you happy with your drinking?

VERY
UNHAPPY

VERY
HAPPY

PLEASE TURN OVER

- 7) With help from us, how confident are you in dealing with your drinking?
- NOT VERY CONFIDENT _____ VERY CONFIDENT
- 8) What is the overall quality of your relationship with the person you are closest to?
- VERY POOR _____ EXCELLENT
- 9) What is the overall quality of your present relationships with others?
- VERY POOR _____ EXCELLENT
- 10) How do you feel about yourself as a person?
- VERY POOR _____ EXCELLENT

OVER THE LAST MONTH:

- 11) How has your general physical health been?
- VERY POOR _____ EXCELLENT
- 12) Have you been feeling anxious or nervous?
- NOT AT ALL _____ EXTREMELY
- 13) Have you been feeling low or depressed?
- NOT AT ALL _____ EXTREMELY

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

Appendix B Services Drinking At Closure Form.

CLOSURE SUMMARY SHEET (ALCOHOL)

Name _____

Key Worker _____

Date Assessed _____

Date Of Last Contact _____
(telephone/face-to-face)

Date Closed by Case Manager _____

WERE OTHER AGENCIES INVOLVED BEYOND REFERRAL? YES/NO

(other professionals/agencies eg probation/GP/SS)

Who? _____

WERE SIGNIFICANT OTHERS INVOLVED BEYOND REFERRAL? YES/NO

(significant others/carers eg family, friend, neighbours)

Who? _____

REASONS FOR CLOSURE:

Treatment Incomplete:

- ☐ Failure to engage (never turned up)
- ☐ Discharge following persistent non-attendance
- ☐ Disciplinary discharge
- ☐ Other incomplete (e.g. death)

Treatment Complete (planned discharge):

- ☐ Alcohol Free
- ☐ Achieved care plans objectives
- ☐ Achieved some care plan objectives
- ☐ Did not achieve care plan objectives
- ☐ Stabilised (for transfer elsewhere)

Referred on/case transferred to:

- ☐ Primary Care
- ☐ Residential Rehab
- ☐ Mental Health Services
- ☐ Vol Sector
- ☐ NHS Other
- ☐ Other: (Specify) _____

REPORTED DRINKING AT LAST CONTACT: (face-to-face/telephone contact)

- ☐ Not Known
- ☐ Abstinent
- ☐ Light Social/Controlled drinking
- ☐ Heavy Social/Controlled drinking
- ☐ Problematic drinking
- ☐ Bout/binge drinking

OTHER INTERVENTIONS:

No of Home Detox (with script): _____

No of Hospital Detox : _____ times

CPA Status At Closure:

- 0 Not Eligible
- 1 Standard
- 2 Enhanced

CAT Worker:

- ☐ Community Care Assessment
- ☐ Case Conference
- ☐ Core Group Meeting
- ☐ Court Report
- ☐ Court Appearance
- ☐ Child Protection Issues

Appendix C - Ethics Correspondence.

Leicestershire Partnership NHS Trust

NHS Trust

Research & Development Office
Daisy Peake Building
Towers Hospital
Gipsy Lane
Leicester
Tel: 0116-225-3743
Fax: 0116-246-3591
David.Clarke@leicspart.nhs.uk

DC/CH

30 June 2006

Christopher Hodgkins
Trainee Clinical Psychologist
Centre for Applied Psychology (Clinical Section)
University of Leicester
104 Regent Road
Leicester
LE1 7LT

Dear Christopher

**Re: Influencing variables in the course and duration of alcohol
addiction and treatment careers of individuals with multiple
presentations to alcohol services**

Please find enclosed a copy of correspondence from the Leicestershire Local Research Ethics Committee (One), confirming that following the submission of your amended documentation the project has received formal ethical approval.

Under the Research Governance Policy of the Trust, confirmation of appropriate ethical approval is a necessary prerequisite for obtaining Trust Management Approval. I am happy to confirm therefore that Leicestershire Partnership NHS Trust formally approves the study to proceed, subject to the following conditions:

- You abide by the conditions imposed by the REC
- All correspondence with the REC is routed through the Trust Research Office (including the obligatory progress/final report as detailed).
- The agreed protocol is adhered to.
- A summary of any findings is reported to the Trust/Clinical Service/Participants at the conclusion of the study.
- Any changes in the protocol, timescale etc. are notified to the R&D Office
- At the conclusion of the study, a final report form is completed.
- A copy of any subsequent publication is lodged with the Trust.
- That paperwork related to the study may be subject to audit at any time (this requires maintenance of a site file).

This letter also serves as confirmation that as Principal Investigator you are covered by the terms of the Trust's research indemnity for the duration of the project. Please sign and return the attached confirmation sheet without which Trust approval will be rescinded. With my best wishes on the success of your study.

Regards,



Dr. Dave Clarke
Associate Director (R&D)

Leicestershire Partnership NHS Trust
Headquarters George Hine House Gipsy Lane Leicester LE5 0TD Tel: 0116 225 6000 Fax: 0116 225 3684
Chairman: Dr Wendy Hickling OBE JP DL BA LLD Chief Executive: Dr. Maggie Cork
www.leicspart.nhs.uk

Created on 30/06/2006 15:55

Appendix D – Brief Description of Independent Variables

<u>Independent Variable</u>	<u>Description</u>
Ethnicity	Included to determine the possible effects of differences in ethnicity on the course of treatment careers. Coded down from 21 to 2 codes (White v Non White).
Marital Status	The individual's marital status (Married or unmarried at time of first referral).
Employment Status	Employment Status at time of first referral. (e.g. employed or unemployed).
Referral Agent	Agency who referred the individual for treatment. (E.g. GP, Self or significant others).
Beverage	What they were predominantly drinking at first referral. (e.g. spirits, cider, lager etc..)
Frequency of Drinking	How often they were drinking alcohol problematically (e.g. everyday or not everyday).
Problem Length (prior to initial referral)	Number of years that individual felt they had difficulties prior to treatment measured in years.
Amount Per Week	Amount per week (Units of Alcohol) being consumed by individual at first referral.
Where Using	Indicated where individual was using alcohol (e.g. at home or away from home)
With Whom	Indicated with whom individual was using alcohol (e.g. alone or with others)
Reasons for Drinking	The individuals reasons for drinking at referral (e.g. don't know, physical effect)
Living With	Indicated if the individual was living alone, with others a time of first referral.
Legal Status	Individuals legal status indicated if any they had any prior convictions, convictions pending etc).
Age (At first referral)	Age at first referral (in years)
Sex	Individuals gender
Advice Given	If the individual received an advice session regarding their drinking at first referral.
Drinking at closure	The individuals drinking at the close of first treatment. This may be abstinent, social drinking or problematic drinking.
Reasons for closure	Why the case was closed, if it was planned or unplanned due to non-attendance.
Length of first treatment episode	Length of first treatment in days from day first seen to day last seen.
Customer Contacts	Number of times the individual was seen during their first referral.

Appendix E-Univariate Analysis

Appendix E:

Checking For Normal Distribution

One of the general assumptions of regression analysis is that the dependant variables and any other ratio level independent variables included in the analysis are normally distributed. The following figures display the distribution of both of the dependant variables and ratio level independent variables considered for inclusion in the regression models.

Fig 1.0 Distribution of Mean Time Between Referrals (Dependant Variable, Analysis 1).

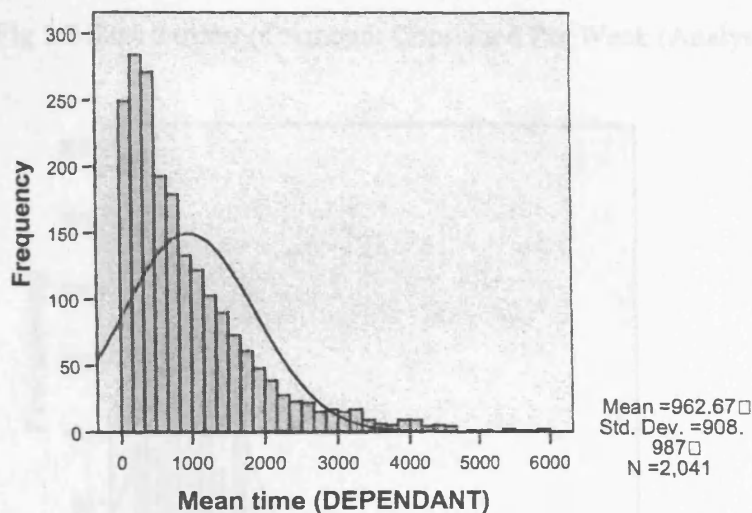


Fig 1.1 Distribution of number of customer contacts (Analysis 1).

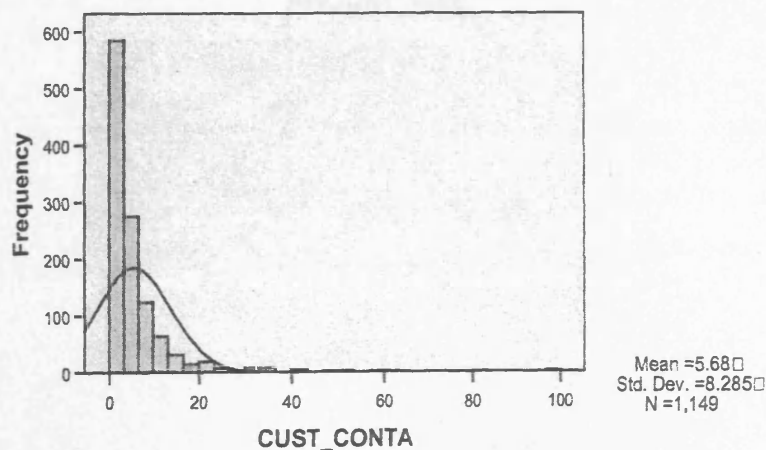


Fig 1.2 Distribution of client age (Analysis 1).

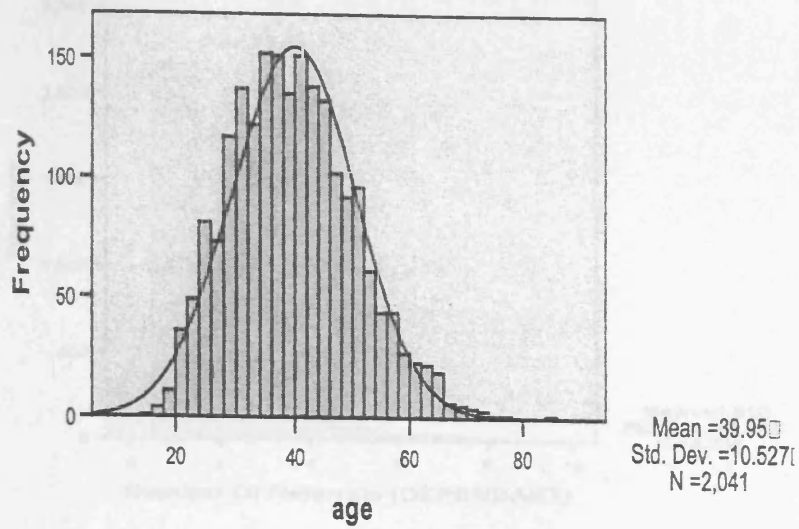


Fig 1.3 Distribution of Amount Consumed Per Week (Analysis 1)

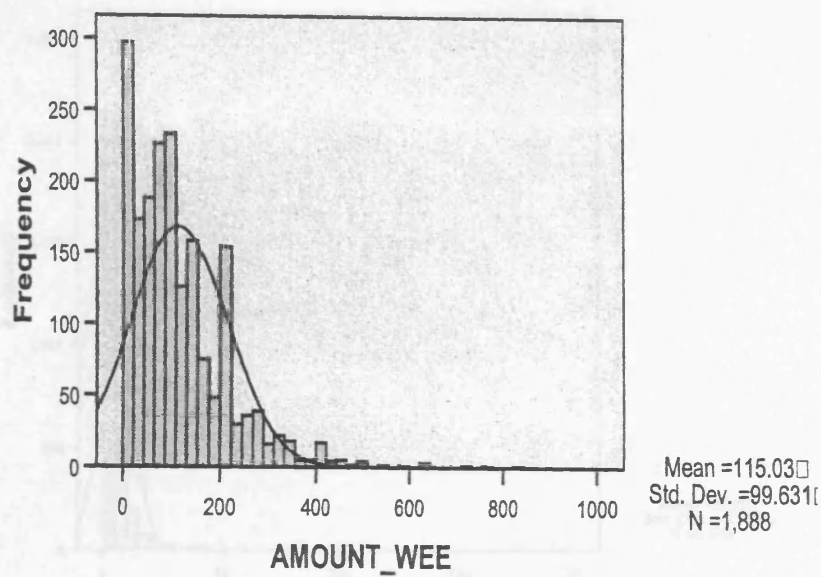


Fig 2.0 Distribution of Number of Referrals (Dependant Variable, Analysis 2).

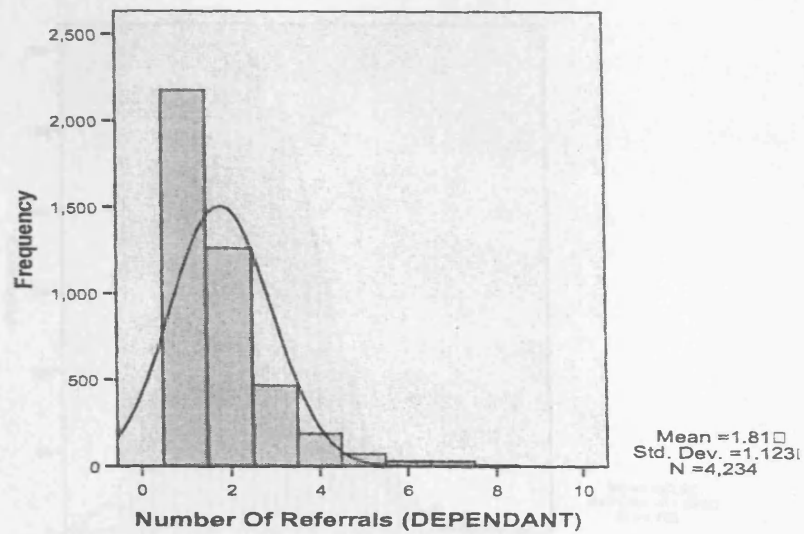


Fig 2.1 Distribution of Customer Contacts (Analysis 2).

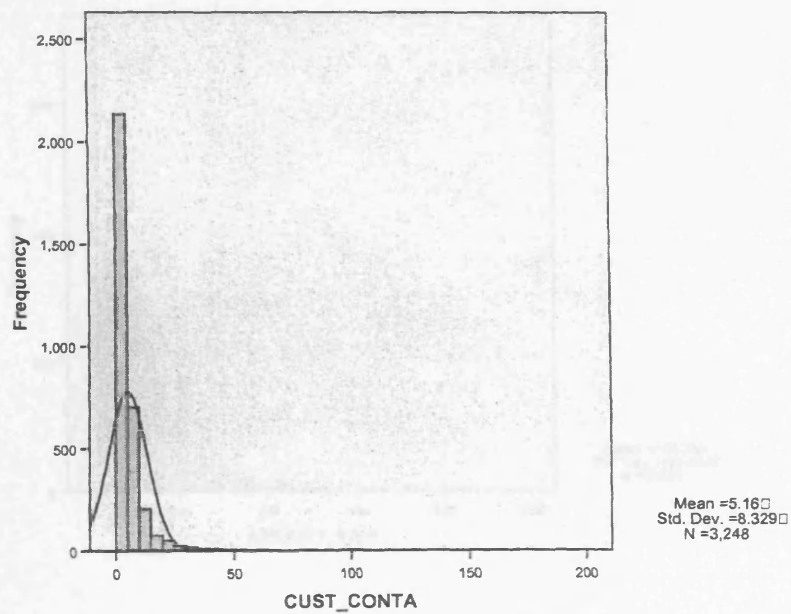


Fig 2.2 Distribution of client age (Analysis 2).

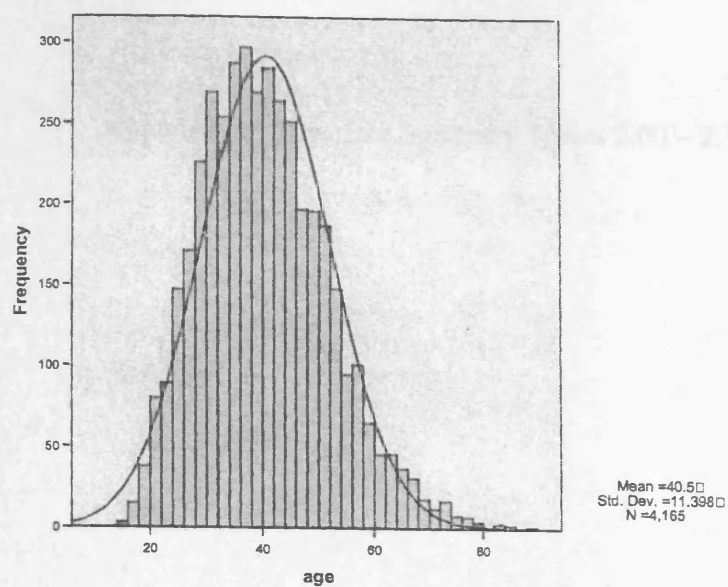
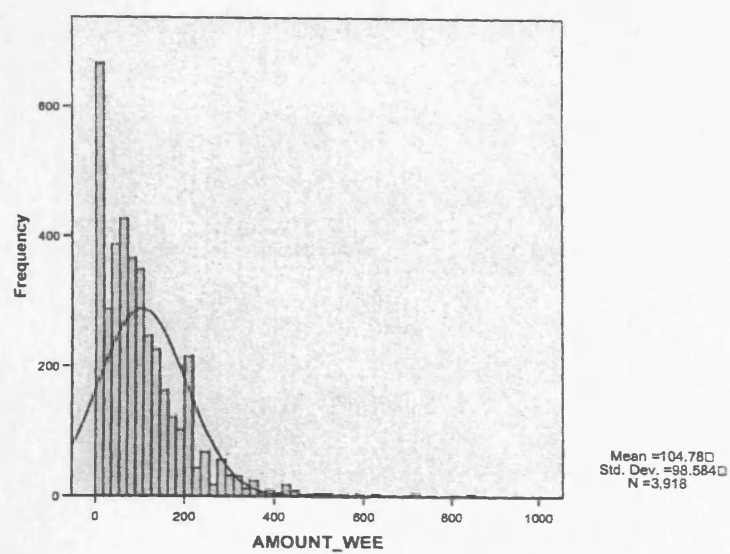


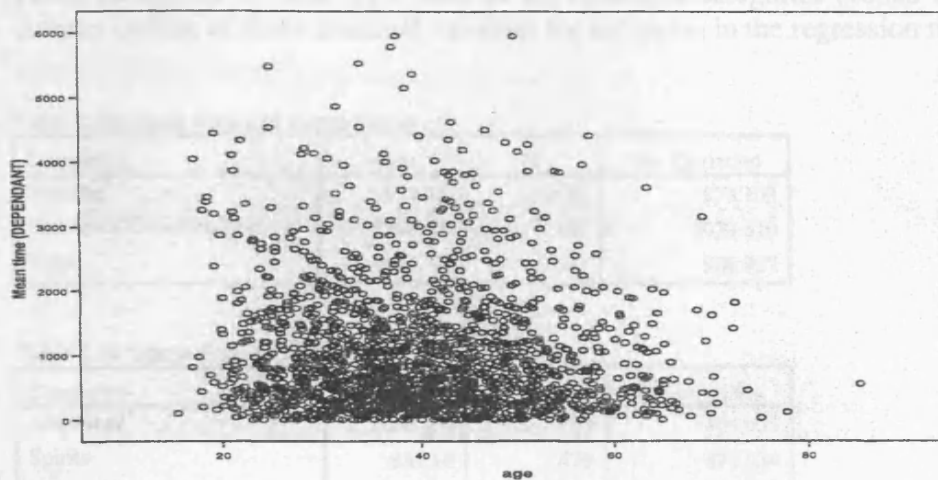
Fig 2.3 Distribution of Amount Consumed Per Week (Analysis 2)



Appendix F- Bivariate Summary Tables 2.00 – 2.15 (For Analysis 1).

APPENDIX “F”: Significant Correlations & Bivariate Summary Tables
(Analysis 1)

Significant Bivariate Correlations. A significant correlation was found between age (at first referral) and mean time between referrals).



		Mean time	Age
Mean time between Referrals (DEPENDANT)	Pearson Correlation	1	-.068(**)
	Sig. (2-tailed)		.002
	N	2041	2025
Age	Pearson Correlation	-.068(**)	1
	Sig. (2-tailed)	.002	
	N	2025	2041

** Correlation is significant at the 0.01 level (2-tailed).

Bivariate Mean Difference Comparison Tables (Analysis 1)

The following tables are arranged in descending Rank order of mean difference between categories. This order suggested in turn the order in which variables were added to the regression model. Those with the biggest mean difference were added first. Only variable categories which added to the models R-value were retained. Those categories in bold were used as the reference categories (coded as 0) for the dummy coding of these nominal variables for inclusion in the regression model.

Table 2.00: Mean time and Legal Status

Categories	Mean	N	Std. Deviation
Nothing	921.73	1659	874.103
Convicted/Case Pending	1140.47	382	1029.620
Total	962.67	2041	908.987

Table 2.01: Mean time and Beverage

Categories	Mean	N	Std. Deviation
Abstinent	730.00	23	469.023
Spirits	851.10	679	871.834
Non Spirits	1026.50	1331	928.922
Total	964.56	2033	910.067

Table 2.02: Mean time and Drinking at Close

Categories	Mean	N	Std. Deviation
Abstinent	677.21	233	687.238
Drinking	944.62	1000	863.545
Total	894.09	1233	839.396

Table 2.03: Mean time and Reasons for Drinking

Categories	Mean	N	Std. Deviation
Don't Know	821.99	159	837.425
Physical Effect	930.58	726	911.596
Mental State Effect	980.61	572	891.565
Life pressure/coping	1050.76	547	948.815
Total	969.05	2004	912.262

Table 2.04: Mean time and Where Using

Categories	Mean	N	Std. Deviation
Not Using	980.76	46	813.984
At Home	887.78	1297	818.167
Away From Home	1107.41	620	1039.150
Total	959.33	1963	899.095

Table 2.05: Mean time and Referral Agent

Categories	Mean	N	Std. Deviation
Referred by self or significant others	1077.22	936	954.173
Legal/Social Agencies	1248.88	162	1134.274
GP/Other NHS	1044.49	526	874.685
Total	1083.74	1624	950.188

Table 2.06 Mean time and Advice (y/n)

Categories	Mean	N	Std. Deviation
Advice not given	978.87	1576	888.302
Advice given	803.67	203	745.354
Total	958.88	1779	874.763

Table 2.07: Mean time and With Whom

Categories	Mean	N	Std. Deviation
Not Using	987.00	69	850.854
Alone	914.63	1292	858.821
With Others	1076.58	563	995.794
Total	964.62	1924	903.290

Table 2.08: Mean time and Employment Status

Categories	Mean	N	Std. Deviation
Active	1036.60	921	964.351
Not active	912.72	1063	866.863
Total	970.23	1984	915.268

Table 2.09: Mean time and Frequency of Drinking

Categories	Mean	N	Std. Deviation
Abstinent	979.13	32	881.745
Everyday	920.51	1329	874.971
Not Everyday	1027.88	484	958.863
Total	949.69	1845	898.596

Table 2.10: Mean time and Living With

Categories	Mean	N	Std. Deviation
Alone	896.22	494	870.778
With Others	990.43	1512	917.381
Total	967.23	2006	906.822

Table 2.11: Mean time and Ethnicity

Categories	Mean	N	Std. Deviation
White	960.90	1882	910.648
Non white	1038.56	142	913.626
Total	966.35	2024	910.847

Table 2.12: Mean time and Sex

Categories	Mean	N	Std. Deviation
Male	984.77	1343	927.617
Female	920.14	698	871.099
Total	962.67	2041	908.987

Table 2.13: Mean time and Marital Status

Categories	Mean	N	Std. Deviation
Married or Cohabiting	997.50	909	936.748
Not Married or Cohabiting	939.06	1090	894.331
Total	965.64	1999	914.096

Table 2.14: Mean time and Reasons for Close

Categories	Mean	N	Std. Deviation
Planned	808.40	815	810.785
Unplanned	825.56	323	738.805
Total	813.27	1138	790.738

Table 2.15: Summary of Category Mean differences (Analysis 1).

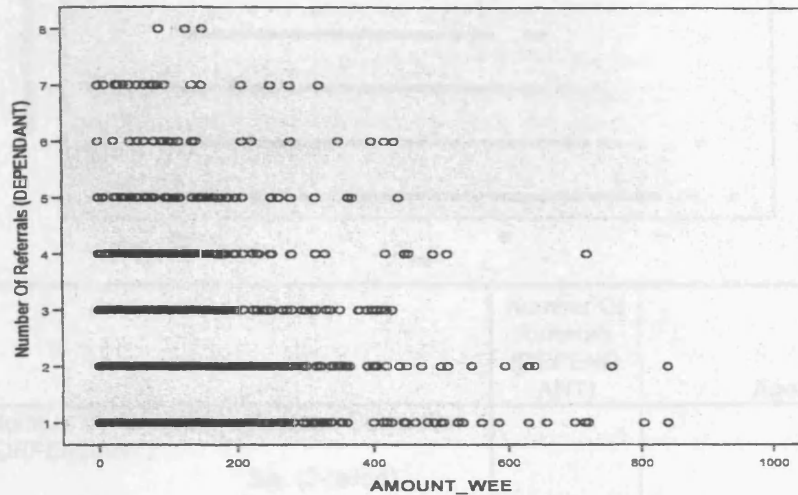
Variable	Mean Difference Between Categories
Legal Status	450.92
Beverage	296.50
Drinking at Close	288.37
Reasons for Drinking	228.77
Where Using	219.63
Referral Agent	204.39
Advice Y/N	175.20
With Whom	161.95
Employment	124.40
Frequency of Drinking	107.37
Living With	94.21
Ethnicity	78.50
Sex	64.63
Marital Status	58.44
Reasons for Close	17.16

Appendix G - Bivariate Summary Tables 3.00 – 3.15 (For Analysis 2).

APPENDIX "G": Significant Correlations & Bivariate Summary Tables
(Analysis 2)

Significant Bivariate Correlations

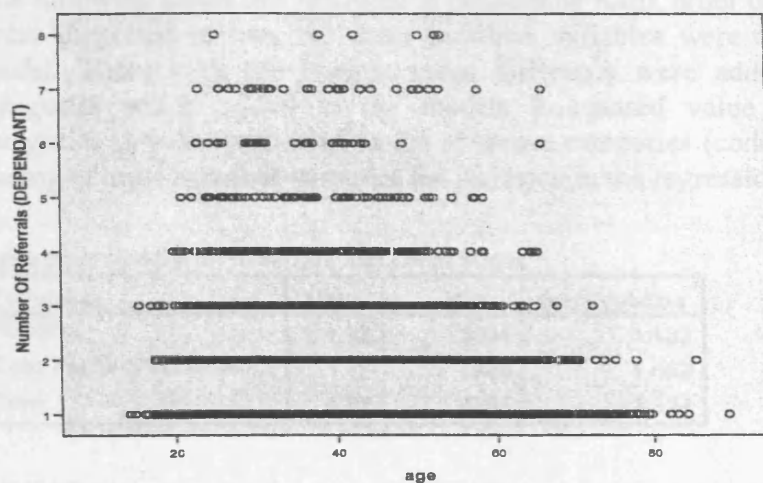
1) A significant correlation was found between Number of referrals and Amount per week.



		Number Of Referrals (DEPENDANT)	Amount per Week
Number Of Referrals (DEPENDANT)	Pearson Correlation	1	.091(**)
	Sig. (2-tailed)		.000
	N	4234	3918
Amount per Week	Pearson Correlation	.091(**)	1
	Sig. (2-tailed)	.000	
	N	3918	3918

** Correlation is significant at the 0.01 level (2-tailed).

2) A significant correlation was found between Number of referrals and age at first referral.



		Number Of Referrals (DEPENDANT)	Age
Number Of Referrals (DEPENDANT)	Pearson Correlation	1	-.078(**)
	Sig. (2-tailed)		.000
	N	4234	4165
Age	Pearson Correlation	-.078(**)	1
	Sig. (2-tailed)	.000	
	N	4165	4165

** Correlation is significant at the 0.01 level (2-tailed).

Bivariate Mean Difference Comparison Tables (Analysis 2)

The following tables are arranged in descending Rank order of mean difference. This order suggested in turn the order in which variables were added to the regression model. Those with the biggest mean difference were added first. Only variable categories which added to the models R squared value were retained. Those categories in bold were used as the reference categories (coded as 0) for the dummy coding of these nominal variables for inclusion in the regression model.

Table 3.00: Number of Referrals and Legal Status

Categories	Mean	N	Std. Deviation
Nothing	1.82	3404	1.133
Case Pending/Convicted	1.76	830	1.082
Total	1.81	4234	1.123

Table 3.01: Number of Referrals and Advice (Y/N)

Categories	Mean	N	Std. Deviation
Advice not given	1.82	3288	1.136
Advice given	1.46	681	.853
Total	1.76	3969	1.101

Table 3.02: Number of Referrals and With Whom

Categories	Mean	N	Std. Deviation
Not Using	1.53	217	1.009
Alone	1.83	2632	1.139
With Others	1.76	1224	1.059
Total	1.79	4073	1.110

Table 3.04: Number of Referrals and Beverage

Categories	Mean	N	Std. Deviation
Abstinent	1.63	60	1.089
Spirits	1.85	1320	1.114
Non Spirits	1.79	2838	1.116
Total	1.81	4218	1.115

Table 3.05: Number of Referrals and Frequency of Drink

Categories	Mean	N	Std. Deviation
Abstinent	1.66	79	1.061
Everyday	1.81	2795	1.134
Not Everyday	1.67	1114	.967
Total	1.77	3988	1.090

Table 3.06: Number of Referrals and Employment

Categories	Mean	N	Std. Deviation
Active	1.76	2048	1.095
Not active	1.88	2053	1.163
Total	1.82	4101	1.131

Table 3.07: Number of Referrals and Ethnicity

Categories	Mean	N	Std. Deviation
White	1.82	3898	1.133
Non white	1.72	304	1.006
Total	1.81	4202	1.124

Table 3.08: Number of Referrals and Reasons for Drinking

Categories	Mean	N	Std. Deviation
Don't Know	1.74	371	1.165
Physical Effect	1.82	1485	1.138
Mental State Effect	1.79	1177	1.060
Life/Coping	1.83	1122	1.135
Total	1.81	4155	1.118

Table 3.09: Number of Referrals and Living With

Categories	Mean	N	Std. Deviation
Alone	1.75	1079	1.081
With Others	1.83	3077	1.127
Total	1.81	4156	1.116

Table 3.10: Number of Referrals and Where Using

Categories	Mean	N	Std. Deviation
Not Using	1.57	139	1.000
At Home	1.83	2641	1.127
Away From Home	1.75	1353	1.075
Total	1.79	4133	1.107

Table 3.11: Number of Referrals and Reason for Close

Categories	Mean	N	Std. Deviation
Planned	1.67	1974	1.055
Unplanned	1.73	681	1.009
Total	1.69	2655	1.044

Table 3.12: Number of Referrals and Referral Agent

Referral Agent Recode 1	Mean	N	Std. Deviation
Referred by self or significant others	1.75	2225	1.158
Legal/Social Agencies	1.76	364	1.122
GP/Other NHS	1.78	1197	1.140
Total	1.76	3786	1.149

Table 3.13: Number of Referrals and Drink at Close

Categories	Mean	N	Std. Deviation
Abstinent	1.75	540	1.185
Drinking	1.75	2191	1.082
Total	1.75	2731	1.103

Table 3.14: Number of Referrals and Marital Status

Categories	Mean	N	Std. Deviation
Married or Cohabiting	1.80	1881	1.104
Not Married or Cohabiting	1.83	2236	1.152
Total	1.82	4117	1.130

Table 3.15: Number of Referrals and Sex

Categories	Mean	N	Std. Deviation
Male	1.80	2842	1.141
Female	1.82	1392	1.085
Total	1.81	4234	1.123

Table 3.16: Summary of Category Mean differences (Analysis 2).

Variable	Mean Difference Between Categories
Legal Status	0.51
Advice Y/N	0.36
With Whom	0.30
Beverage	0.22
Frequency of Drinking	0.15
Employment	0.12
Ethnicity	0.10
Reasons for Drinking	0.09
Living With	0.08
Where Using	0.08
Reason for Close	0.06
Referral Agent	0.03
Drinking at Close	0.03
Marital Status	0.02
Sex	0.01

Appendix H- Publication guidelines for target journal

British Journal of Clinical Psychology

Notes for Contributors:

The *British Journal of Clinical Psychology* publishes original contributions to scientific knowledge in clinical psychology. This includes descriptive comparisons, as well as studies of the assessment, aetiology and treatment of people with a wide range of psychological problems in all age groups and settings. The level of analysis of studies ranges from biological influences on individual behaviour through to studies of psychological interventions and treatments on individuals, dyads, families and groups, to investigations of the relationships between explicitly social and psychological levels of analysis.

The following types of paper are invited:

- Papers reporting original empirical investigations
- Theoretical papers, provided that these are sufficiently related to the empirical data
- Review articles which need not be exhaustive but which should give an interpretation of the state of the research in a given field and, where appropriate, identify its clinical implications
- Brief reports and comments

1. Circulation

The circulation of the Journal is worldwide. Papers are invited and encouraged from authors throughout the world.

2. Length

Papers should normally be no more than 5000 words, although the Editor retains discretion to publish papers beyond this length in cases where the clear and concise expression of the scientific content requires greater length.

3. Reviewing

The journal operates a policy of anonymous peer review. Papers will normally be scrutinised and commented on by at least two independent expert referees (in addition to the Editor) although the Editor may process a paper at his or her discretion. The referees will not be aware of the identity of the author. All information about authorship (including personal acknowledgements and institutional affiliations) should be confined to the title page (and the text should be free of such clues as identifiable self-citations, e.g. 'In our earlier work...').

4. Online submission process

- 1) All manuscripts must be submitted online at <http://bjcp.edmgr.com>.

First-time users: Click the REGISTER button from the menu and enter in your details as instructed. On successful registration, an email

will be sent informing you of your user name and password. Please keep this email for future reference and proceed to LOGIN. (You do not need to re-register if your status changes e.g. author, reviewer or editor).

Registered users: Click the LOGIN button from the menu and enter your user name and password for immediate access. Click 'Author Login'.

2) Follow the step-by-step instructions to submit your manuscript.

3) The submission must include the following as separate files:

- Title page consisting of manuscript title, authors' full names and affiliations, name and address for corresponding author - [!\[\]\(c5a77b9fb14aa0ef043d22731cfdb9cf_img.jpg\)A title page template is available to download.](#)
- Abstract
- Full manuscript omitting authors' names and affiliations. Figures and tables can be attached separately if necessary.

4) If you require further help in submitting your manuscript, please consult the Tutorial for Authors - [!\[\]\(b4e1ff2e8f524362c56854ab12e24d01_img.jpg\)Editorial Manager - Tutorial for Authors](#)
Authors can log on at any time to check the status of the manuscript.

5. Manuscript requirements

- Contributions must be typed in double spacing with wide margins. All sheets must be numbered.
- Tables should be typed in double spacing, each on a separate page with a self-explanatory title. Tables should be comprehensible without reference to the text. They should be placed at the end of the manuscript with their approximate locations indicated in the text.
- Figures can be included at the end of the document or attached as separate files, carefully labelled in initial capital/lower case lettering with symbols in a form consistent with text use. Unnecessary background patterns, lines and shading should be avoided. Captions should be listed on a separate page. The resolution of digital images must be at least 300 dpi.
- For articles containing original scientific research, a structured abstract of up to 250 words should be included with the headings: Objectives, Design, Methods, results, Conclusions. Review articles should use these headings: Purpose, Methods, Results, Conclusions: [!\[\]\(1df135fbbfb00d2a1c5df5745e1cff79_img.jpg\)British Journal of Clinical Psychology - Structured Abstracts Information](#)
- For reference citations, please use APA style. Particular care should be taken to ensure that references are accurate and complete. Give all journal titles in full.
- SI units must be used for all measurements, rounded off to practical values if appropriate, with the imperial equivalent in parentheses.
- In normal circumstances, effect size should be incorporated.
- Authors are requested to avoid the use of sexist language.
- Authors are responsible for acquiring written permission to publish lengthy quotations, illustrations, etc. for which they do not own copyright.

For Guidelines on editorial style, please consult the *APA Publication Manual* published by the American Psychological Association, Washington DC, USA (<http://www.apastyle.org>).

6. Brief reports and comments

These allow publication of research studies and theoretical, critical or review comments with an essential contribution to make. They should be limited to 2000 words, including references. The abstract should not exceed 120 words and should be structured under these headings: Objective, Method, Results, Conclusions. There should be no more than one table or figure, which should only be included if it conveys information more efficiently than the text. Title, author and name and address are not included in the word limit.

7. Publication ethics

Code of Conduct -  Code of Conduct, Ethical Principles and Guidelines
Principles of Publishing -  Principles of Publishing

8. Supplementary data

Supplementary data too extensive for publication may be deposited with the British Library Document Supply Centre. Such material includes numerical data, computer programs, fuller details of case studies and experimental techniques. The material should be submitted to the Editor together with the article, for simultaneous refereeing.

9. Post acceptance

PDF page proofs are sent to authors via email for correction of print but not for rewriting or the introduction of new material. Authors will be provided with a PDF file of their article prior to publication.

10. Copyright

To protect authors and journals against unauthorised reproduction of articles, The British Psychological Society requires copyright to be assigned to itself as publisher, on the express condition that authors may use their own material at any time without permission. On acceptance of a paper submitted to a journal, authors will be requested to sign an appropriate assignment of copyright form.

11. Checklist of requirements

- Abstract (100-200 words)
- Title page (include title, authors' names, affiliations, full contact details)
- Full article text (double-spaced with numbered pages and anonymised)
- References (APA style). Authors are responsible for bibliographic accuracy and must check every reference in the manuscript and proofread again in the page proofs