An Investigation of the role of Negative Alcohol-Related Expectancy: a Predictor of Consumption and a Representation of Motivation for Abstinence.

by

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THESIS DECLARATION

I declare that the work reported in this thesis is my own, having been carried out within the normal terms of supervision, in the Faculty of Social Science in the University of Glasgow.

John Mc Mahon

THESIS SUMMARY

This thesis is divided into three parts: Introduction; Experiments; and Discussion.

INTRODUCTION

Alcohol services have demonstrated that the majority of adults in the western world drink with relatively few problems while a minority, commonly quoted at 1%, develop major problems. However, statistics of fiscal, economic and medical problems associated with alcohol suggest that a figure of 1% underestimates the scale of the problem. In spite of such figures, recent research has found that not only is the current alcohol service deficient, it is actually declining. Thus, there is much to be gained from ensuring that whatever service is provided is efficient and effective. Regretfully, this is not the case for research has consistently shown that outcome in treatment of problem drinking is poor.

One view is that relapse is inherent in alcohol problems but another view is that if patients were matched to treatments, according to their level of motivation, then better outcome would be assured. However, as yet there is no clear concept on what constitutes motivation with regard to treatment.

The last decade has witnessed increasing interest in an approach which has potential to provide a solution, that is, alcohol-related expectancy. Laboratory studies have demonstrated that expectancy effects are more important than pharmacological effects in mediating drinking behaviour, showing that many of the effects once thought to be due to alcohol are, in fact, due to expectancy. More important, the most consistent finding from expectancy research is that there is a positive relationship between drinking and positive expectancy, that is, higher positive expectancy of alcohol - higher consumption, which has led many to posit that positive expectancy motivates drinking. A view which gains support from the finding that higher positive expectancy is implicated in relapse after treatment. Hence, it has been suggested that this approach could be used to match clients to treatment, since each problem drinker could be taught alternative methods of achieving the effects of alcohol which are most reinforcing to him/her.

However, this thesis poses the question 'why should an individual invest time and effort learning ways to gain an effect which can be gained simply by drinking ? Thus, it is argued that a potentially more useful approach is to measure 'motivation to abstain', represented by negative expectancy, rather than 'motivation to drink', represented by positive expectancy.

Research, although not strictly part of the expectancy domain, demonstrates that negative expectancy is implicated in recovery. These studies show that negative expectancy is important in: help seeking for addictive behaviours; spontaneous remission from alcohol problems; recovery in treated problem drinkers; and maintaining abstinence. Indeed, it has been found that currently abstinent problem drinkers retain a high level of positive expectancy which continues to motivate drinking, nevertheless, abstinence is maintained by recalling aversive outcomes.

Despite such evidence and some researchers arguing that it should have potential explanatory value in drinking behaviour, negative expectancy has largely been ignored by researchers. A neglect which stems from first, the dominance of instruments which measure only or predominantly positive expectancies and second, the equivocal results found in other studies of negative expectancy. However, it is argued that the failure to find a clear relationship between negative expectancy and consumption arises because of the questionable validity of the instruments used. It is hypothesised that if an instrument is compiled, using rigorous scientific methods, then negative expectancy: 1/ will be a statistical predictor of consumption; 2/ will represent motivation to abstain.

EXPERIMENTS

A new instrument, the Negative Alcohol Expectancy Questionnaire (NAEQ) is constructed by canvassing the negative expectancies held by 188 adults: problem drinkers in treatment; social drinkers; and ex-problem drinkers attending AA. It is found that the negative expectancies which subjects hold fall into three temporal contexts: the time of drinking; the day after; and long term consequences. Thus, the NAEQ was designed to reflect this by arranging the items into three sub-scales: That night; Next day; Continued drinking.

In a study of 101 social drinkers using measures of positive expectancy (the AEQ) and negative expectancy (the NAEQ) it is found that the NAEQ is the best and most consistent predictor of consumption, predicting: quantity per session; frequency of drinking; and weekly consumption. Some evidence is also found which suggests that negative expectancy is involved in drinking restraint.

Positive and negative expectancies of satisfied and dissatisfied social drinkers are compared. It is argued that since dissatisfied drinkers will be more motivated to abstain, they should hold higher negative expectancies of alcohol. The results of this study show that this is, indeed, the case with the most reliable differences found in the Next day sub-scale. No reliable differences were found between these two groups in any positive expectancies

variables. A second study compares the the expectancies of satisfied social drinkers and non-problem abstainers. In this study, reliable differences were found for both positive and negative expectancies, with abstainers holding lower positive expectancies and higher negative expectancies than the social drinkers. An analysis of the expectancies of all three groups is then carried out, which demonstrates that while dissatisfied social drinkers most resemble satisfied drinkers in the positive expectancies which they hold, in negative expectancies they most resemble abstainers. It is concluded that the results of these two studies support the main hypothesis of this thesis, that is that negative expectancy represents motivation to abstain from alcohol.

The investigation of positive and negative expectancy is extended to male problem drinkers. It was found that the results were consistent with the earlier findings since level of consumption was best predicted by negative expectancy as it was with social drinkers.

A one month and three month follow-up study of 53 male problem drinkers in treatment found that abstinence was predicted by higher distal negative expectancies, lending support to the suggestion that negative expectancy represents motivation for abstinence. Positive expectancy did not predict outcome.

In order to test the NAEQ's utility as an instrument to match clients to treatment by motivational level, subjects were allocated to groups according to their admission negative expectancy scores, both Total score and Distal score. Both measures gave similar results, although the distal score was slightly superior. It was found that there was little difference in outcome between subjects with high and moderate negative expectancies, however, there was a marked difference between these groups and the low group, where only one subject was abstinent at three months.

Finally, it was shown that when positive and negative expectancy were processed against each other for all subject groups, (that is: problem drinkers; social drinkers and abstainers) a coherent and plausible picture of drinking decisions emerged. What was, perhaps, most striking was the similarity between dissatisfied social drinkers and treatment relapsers. For although these two groups have quite different expectancies when positive and negative are assessed separately, when a combined expectancy measure is used they are almost identical. Suggesting that in stages of change terms they are at the same point regarding a decision to change.

DISCUSSION

It is concluded that the results of this thesis show that when an empirically derived instru-

ment for measuring negative expectancy is employed (the NAEQ) negative expectancy predicts consumption for both social drinkers and problem drinkers. Also that the thesis has demonstrated that negative expectancy can predict outcome of treatment for problem drinkers, lending support to the suggestion that negative expectancy represents motivation to abstain.

When compared to other instruments for measuring negative expectancies, three main differences are found. First, that the sample of subjects used in its construction is far larger and more diverse than any of the others. Second, the NAEQ not only employs many more items but the range of the expectancies are much greater. Finally, the NAEQ is arranged to represent three temporal contexts whereas the others tend to be limited to the time of drinking. It is suggested that since the NAEQ has shown such an unparalleled success that researchers view expectancies in the wider context of the effects of *drinking behaviour* rather than *alcohol effects*.

It is suggested that the NAEQ may prove to be a useful assessment instrument for therapists in two ways. First as a quantitative measure of the individual's level of motivation, which would allow better treatment match. Second, and as qualitative measure, allowing the infrastructure of motivation to be assessed, which may aid motivational style treatments.

Two areas for future research have been suggested. First, measures of desirability should be included to ascertain whether they improve prediction. Second ways of combining positive and negative expectancy, to model decision making processes, should be explored to provide a better understanding of drinking decisions.

PART ONE

INTRODUCTION

CHAPTER ONE

Setting The Context

Contents of Chapter One

CHAPTER SUMMARY

Alcohol services have demonstrated that the majority of adults in the western world drink with relatively few problems while a minority, commonly quoted at 1%, develop major problems. However, statistics of fiscal, economic and medical problems associated with alcohol suggest that a figure of 1% underestimates the scale of the problem. In spite of such figures, recent research has found that not only is the current alcohol service deficient, it is actually declining. Thus, there is much to be gained from ensuring that whatever service is provided is efficient and effective. Regretfully, this is not the case for research has consistently shown that outcome in treatment of problem drinking is poor.

One view is that relapse is inherent in alcohol problems but another view is that if patients were matched to treatments, according to their level of motivation, then better outcome would be assured. Although traditionally it has been advocated that this could be accomplished according to the individual's motivation to drink, this thesis suggests that a more useful measure would be motivation to stop drinking.

Chapter One

Setting the Scene

INTRODUCTION

Alcohol surveys have shown that the majority of adults in the western world drink alcohol, even if only occasionally. For example in a survey of American business and professional women, Shore and Batt (1991) found that 88.5% drank alcohol at least once a year. McCarty (1987) suggests that 89% of American adults drink at least occasionally and similarly in Scotland over 90% (Plant 1991).

The majority appear to drink with relatively few problems. Indeed, recent research has suggested that light to moderate drinking may actually be beneficial, by decreasing the incidence of coronary heart disease, and even promoting longevity (Brewers Society, 1988; Turner, Bennet and Hernandez, 1981, Brunt 1992) - although the conclusions from these studies have not gone unchallenged (Shaper 1990). There is, however, a sizable minority who do develop major problems with alcohol. Although there has never been any agreement on the size of this affected group, a commonly quoted estimate is 1% of the population.

The figure of 1% misrepresents, however, for there is a growing body of evidence which shows alcohol over-consumption to be a major source of fiscal, economic and medical problems that go beyond the problems associated with so-called 'alcoholics'. The brief review below helps indicate the scale of this.

PROBLEMS ASSOCIATED WITH ALCOHOL

Fiscal Problems

Heather and Robertson (1989) conclude that there has been an increase in the scale of the alcohol-related problems faced by individuals and by society, as per capita annual consumption of absolute alcohol has almost doubled from 4.9 litres in 1950 to 9.2 litres in 1984. During the same period convictions for drunkenness rose from 12 per 10,000 of the population in 1952 to 26 per 10,000 in 1983. An even larger rise can be seen in convictions for driving while intoxicated which rose from 23,971 in 1968 (when the breathalyser was introduced) to 113,213 in 1984. Of course these figures must also be interpreted in the light of better policing methods, but Heather and Robertson argue that they still represent a

substantial increase.

Economic Problems

Problem drinking is also believed to represent a considerable cost to employers in the UK through sickness, accidents, unemployment and premature death (Department of Employment 1989; Alcohol Concern 1989). The General Household Survey (1984) found that 16% of men and 4% of women were in the heavy drinking category (over 35 units and over 25 units per week respectively) and the Trades Unions Congress (1986) have suggested that 2% of the workforce in Britain has a serious problem with alcohol. Indeed, it has been estimated that the resultant cost to industry is more than £700 million per annum for absenteeism alone and when loss through accidents at work and poor performance is taken into account, this sum more than doubles.

Medical Problems

In Britain, hospital admissions for alcoholism rose from 512 per year in 1952 to 13,916 in 1982 (Heather and Robertson 1989) and have further risen to 17,500 at present (Davies 1992). It is estimated that 3 out of every 4 deaths due to liver disease are directly attributable to alcohol (Davies 1992). However this represents only the tip of the iceberg in the cost to the medical services, since in many patients admitted to hospital who do not have an alcohol problem as a primary diagnosis, alcohol has had a major contribution to their condition. For example, alcohol is associated with liver disorders, upper gastrointestinal disease, myocardial infarction, other myocardial diseases, respiratory diseases, gastritis and pancreatitis (Lloyd et al 1986; Chick et al 1986). One study (Holt et al 1980) found the direct consequences of alcohol to be particularly high in an accident and emergency department in Edinburgh, where as many as 40% had been drinking prior to admission. Figures for those categorised as 'assault', 'trauma' and 'suicide attempt' were even higher than for those with medical or surgical conditions, but even for these latter categories the figures were approximately 20%.

PROBLEMS ASSOCIATED WITH THE ALCOHOL SERVICE

Alcohol Service Provision Does Not Match Need.

It is hardly surprising that on the basis of statistics such as those provided above, Heather and Robertson (1989) describe society as facing an 'epidemic'. Indeed, since it is not only the UK facing this problem, they suggest the use of the term 'pandemic' is not out of place.

Ironically, despite this massive and increasing drain on resources there has not only been no commensurate growth in alcohol services to meet these problem, over the last decade there has been an actual reduction in the alcohol services provided (Etorre 1988).

This lack of recognition (denial, even) appears to be widespread. For example, Joeman (1992) has observed that industry in general remains unconvinced that there is any need to implement measures to reduce problem drinking within the workplace and workforce, even though such measures have proven to be cost effective in the USA. Government, itself, has been equally reluctant to implement measures which should reduce the scale of the problem, for the World Health Organisation's target recommendation of a 25% reduction in alcohol consumption by the year 2000 (Anderson 1992) has been considerably watered down by them. Instead, the British government has adopted a policy of only reducing by 25% the consumption in heavy drinkers (BJA 1992) - those males consuming more than 35 units per week and those females consuming more than 25 units per week.

In contrast to the reduction in alcohol services, there has been an enormous explosion in services provided for other drug abusers which when compared with alcohol service provision appears to be disproportionate to the scale of the problem. For example, one Scottish health board recently proposed a parity of service provision for alcohol and drug services despite recent research which estimate that there are only 20,000 drug users compared with an estimated 55,000 problem drinkers (Brunt 1992). However, similar to 'alcohol use' and 'alcoholism', Peele (1987) makes a distinction between 'users' who are not encountering major problems and addicts who are and this distinction appears to be borne out by Plant (1992) who gives a figure of 1,184 'notified addicts' in Scotland (about 6% of the drug users as compared with 1% of alcohol users). Which would suggest that the decision for growth in drug services has been taken for emotional reasons, or has been taken from the moral high ground, rather than being based on empirical criteria. Of course, service growth to address drug addiction, however disproportionate and for whatever reason, is more than welcome but it is a source of regret to those who treat problem drinkers that there has not been a comparable growth in the alcohol services over the same period.

Implication of Providing a Poorly Resourced Alcohol Service.

If the current alcohol service is deficient in terms of a declining provision in the face of a growing need, then there is much to be gained from ensuring that whatever service is provided is efficient and effective. Regretfully, the statistics clearly indicate that the rates of successful treatment outcome (however measured) are poor. In fact, in 1960, Jellineck de-

scribed alcoholism as a *"relapsing"* condition and today, more than thirty years later, few (if any) would argue that this description does not still apply. Indeed, in specific terms, post-treatment relapse is routinely quoted as high as between 70% (Denizen 1987) and 90% (Allsop 1984) and this level of unsuccessful outcome ranks second only to that of schizophrenia (Ito and Donovan 1986).

One view is that relapse is inherent in the problem of alcoholism, but another view is that a better outcome could be assured (from even a limited service) *through better matching patients to the different treatments available.* It is this latter view that provides the context within which the research reported in this thesis has been conducted.

The approach described herein focuses upon the need to pay attention to the concept of motivation in the treatment of problem drinkers. In this respect, it remains uncontroversial. However, an analysis of the involvement of 'motivation' in problem drinking reveals that it might be more productive to investigate the role of the drinker's motivation to *stop* drinking rather than his motivation to *drink* - and in this respect, it is unconventional if not controversial.

The view advanced is that through paying attention to a problem drinker's motivation to stop drinking before 'treatment' is begun, a better outcome is assured. For instance, those who are motivated to stop can be helped in the conventional manner: detoxified; introduced to skills and techniques that can be used to reduce or stop drinking and then given support to help practice them. However, those who are not motivated to stop drinking but are simply 'escaping into treatment' for a variety of idiosyncratic reasons that have little to do with a long-term desire to change their drinking ways, can be diverted away from treatment such as this, where the effort required to learn and practice these new skills and techniques will almost surely (like any learning exercise) be a sufficient impediment to success. Such a group requires an alternative approach prior to conventional treatment: an approach that is designed to help highlight the nature of their problem rather than to learn the mechanisms that can be used to cope with wanting the agent that is its source.

A Difficulty.

Of course, diverting problem drinkers to appropriate treatments that match their needs would be easy if motivation to stop drinking could be validly, reliably and readily measured. Since there is no clear concept of what motivation with respect to problem drinking *is* (Greenfield et al 1989), measuring it for assessment and treatment purposes has been im-

possible.

A Solution.

What is required is: 1/ an analysis of what should be *heeded* in the interest of knowing a person's motivation to stop drinking; 2/ the development of ways of *measuring* such motivation and 3/ the development of ways of *using* such measurements to inform assessment and treatment (and theory) (Jones 1993).

The long-term goal of exercises such as this is to relieve pressure on a much beleaguered, unfashionable and diminishing service and to increase the efficiency of that service by improving the outcome of the treatment it offers.

This thesis reports research designed to identify what should be heeded to measure motivation to stop drinking, to develop a way of measuring it and ways of using the measurements to help more appropriately place problem drinkers in treatment. The next two chapters examine the evidence from two approaches to this problem; positive expectancy (motivation to drink) in chapter two, and negative expectancy motivation to abstain in chapter three.

CHAPTER TWO

The role of positive alcohol-related expectancy in consumption:
A review of the research methodology and findings.

Contents of Chapter 2

CHAPTER SUMMARY

The goals of this chapter are to: 1/ investigate the role of cognitions in drinking; 2/ review the methodology employed and the main findings of expectancy research; 3/ investigate the aetiology of expectancies.

The two main branches of expectancy research; laboratory studies and field studies; are reviewed in this chapter. First, laboratory studies which is concerned with separating pharmacological effects of alcohol from expectancy effects by manipulating the belief that a subject has or has not consumed alcohol. These studies have demonstrated that expectancy effects are more important than pharmacological effects in mediating drinking behaviour, showing that many of the effects once thought to be due to alcohol are in fact due to expectancy.

Second, the field studies which are more concerned about the content of the expectancies which people hold and how this affects consumption. Studies have shown that positive expectancy is already in place in children and adolescents before they have any direct experience. However, there is some evidence to suggest that there is a maturation process from predominantly negative expectancies in children to predominantly positive expectancies in adults. Expectancy would seem to be initially learned vicariously through the culture in which one is reared and in particular through observing the drinking behaviour of parents and friends. However, expectancies before drinking tend to be amorphous, crystallising with personal experience of alcohol.

The most consistent finding from this research is that there is a positive relationship between drinking and positive expectancy, that is, higher positive expectancy of alcohol - higher consumption, leading to the view that positive expectancy motivates drinking. A view which is strengthened by the finding that higher positive expectancy is implicated in relapse after treatment. However, gender differences have been found suggesting that males and females may be differentially motivated. Cognitive biases have also been found in expectancies, that is that others are more affected by alcohol than self, or that others use alcohol in the same way as self, but to a greater extent. It has been suggested that biases such as these may have implications for: 1/ the aetiology of problem drinking and 2/ the methodology of measuring expectancy.

Finally, the question of functionally autonomous or reciprocal models of expectancy is discussed and it is concluded that a reciprocal model, that is expectancy affects drinking but drinking also affects expectancy, fits the evidence best.

Chapter 2

The role of positive alcohol-related expectancy in consumption: A review of the research methodology and findings.

INTRODUCTION

It is being increasingly recognised that drinking alcohol is a goal-directed behaviour, that is, individuals drink alcohol to attain a definable effect. Specifically, it is hypothesised that people drink because they expect that the act of consuming alcohol will lead to positive changes in behaviour and / or affect. This assumption has, over the last one and a half decades spawned a burgeoning research literature on the beliefs or expectancies which people hold of alcohol. Leigh (1987) suggests that before this period it was assumed that "*everybody knew the effects of alcohol*", therefore, there was nothing to gain from researching the consequences of holding these beliefs. Today, however, the cognitive nature of drinking decisions is not only well-recognised but it has been suggested further that knowing the content of these expectancies, or beliefs, offers a strategy for treatment intervention in problem drinkers and, perhaps, even a strategy for prevention (Brown 1985a, 1993; Christiansen and Goldman 1983; Connors et al 1988; Cox and Klinger 1988; Mooney et al 1987; Rather and Sherman 1989). Almost exclusively this research on expectancy has focussed on positive expectancy and neglected the other side of drinking beliefs - negative expectancy, which is the main topic of this thesis.

This chapter will review the theory and findings of research on positive alcohol-related expectancy and its relationship to drinking behaviour. This is done for two reasons. First, this body of research has developed a theoretical and methodological framework which will be utilised in this thesis, in the investigation of negative expectancy. Second, a measure of positive expectancy will also be included in the studies reported in chapters 5 to 7, as a comparison for negative expectancy.

Over the years expectancy research has taken two quite distinct, although not unrelated, routes. First, laboratory studies which seek to differentiate between expectancy effects and pharmacological effects, by manipulating the subject's belief that s/he has consumed alcohol, and, second, 'field studies' which look at 'reasons for drinking', or motivation to drink.

Although this thesis will concentrate mainly on the latter class of expectancy research, at this juncture it would be important to look at some studies from the former class of research, which is specifically designed to separate the roles of pharmacology and expectancy in drinking behaviour. This is necessary for it was from studies like the ones reported below, which demonstrate the important role of cognitions in drinking behaviour, that expectancy theories emerged.

EXPECTANCY - LABORATORY STUDIES

Expectancy, when used in the context of 'laboratory studies', actually means the manipulation of the individual's belief that alcohol has been consumed versus the belief that alcohol has not been consumed. The established paradigm used in these studies is now 'the balanced placebo' design - a 2 x 2 factorial design in which two factors are manipulated: first, the instructions - that is, whether the substance which the subjects *believe* they will be receiving will be alcohol or not alcohol - second, the substance actually received - that is, whether the subjects actually *receive* alcohol or not alcohol . In this procedure the subjects are randomly allocated to one of 4 groups: 1/ expect alcohol / receive alcohol; 2/ expect alcohol / receive placebo; 3/ expect placebo / receive alcohol; 4/ expect placebo / receive placebo. Using this paradigm, expectancy effects and pharmacological effects can be separated out and their respective contributions can be established, since, if all the subjects who receive alcohol behave in a similar manner, irrespective of their expectancy, but differ from the subjects who do not receive alcohol, then the behaviour exhibited must be due to pharmacological effects. Conversely, if all the subjects who expect alcohol behave in the same way, irrespective of the content of the drink they receive, but differ from those who do not expect alcohol, then that behaviour must be due to expectancy effects. Results obtained by using this paradigm suggest that cognitions (that is, expectancies) play a more dominant role in drinking behaviour than the actual pharamacological effects of alcohol (Donovan and Marlatt 1980; Marlatt and Rohsenow 1980).

Marlatt and Rohsenow (1980), in an extensive review of the experiments which have employed this design, suggest that drinkers can behave in a manner consistent with the effects of the substance they *believe they have consumed* (either alcohol or soft drink) rather than the substance they have *actually consumed.* Their conclusions are made more explicit below.

Craving, a concept which has traditionally been hypothesised to be central to alcoholism,

has been found to be determined by the subject's belief that alcohol had been consumed rather than alcohol consumption per se (Engle and Williams 1972; Merry 1966). Similarly, actual consumption - that is, amount consumed in a taste test - was found to be dependent on the *belief* that alcohol was being consumed (Asp 1977; Marlatt, Demming and Reid 1973). Individuals who believed that they were drinking alcohol, drank more than those who believed they were drinking a soft drink. Although these studies demonstrate that consumption is influenced by expectancy rather than pharmacology, they say nothing about what these expectancies might be. However, other studies have been more explicit in the expectancies which they have investigated.

Perhaps the most commonly advanced explanation of drinking is the tension-reduction hypothesis, which suggests that consuming alcohol reduces tension. This would seem to be an extremely important issue for investigation, since the corollary of the hypothesis would be that people drink more when they are anxious. Marlatt and Rohsenow (1980) suggest that the results of studies which have investigated this hypothesis are consistent with an expectancy rather than a pharmacological explanation. Interestingly, the effect is different for males and females since, for males, anxiety is reduced by the expectation of having consumed alcohol, whilst in females anxiety is actually increased (Abrams and Wilson 1979; Wilson and Abrams 1977). Marlatt and Rohesenow (1980) have argued that anxiety may be increased in females because of the greater sanctions against intoxication which females experience.

Another common belief is that alcohol increases sexual arousal. Reviewing the literature on studies of the effects of alcohol on sexual arousal, Marlatt and Rohsenow (1980) conclude that studies which do not employ the balanced placebo design, show a negative relationship between alcohol dose and sexual arousal, that is, higher dose less arousal. However, in those studies which do employ the balanced placebo design, it was found that, in men, the expectancy of receiving alcohol was associated with increased sexual arousal, regardless of the beverage consumed. In women the effect was different since the expectancy of receiving alcohol was not associated with increased sexual arousal when objectively measured, but was associated with subjectively increased sexual arousal (Williams and Lawson 1976).

Marlatt and Rohsenow (1980) also suggest that there is evidence that increased aggression following consumption is expectancy determined rather than pharmacologically determined and that expressions of aggression may be attributed to alcohol, thus, reducing the individual's responsibility (Lang et al 1975; Marlatt, Kosturn and Lang 1975). Marlatt and

Rohsenow (1980) suggest that this may hold true for any behaviours which are socially dis-
approved and hence may reinforce drinking by granting temporary immunity for responsi-
bility to excessive drinkers.

Thus, these studies demonstrate that people hold beliefs (expectancies) that drinking alco-
hol will result in certain outcomes and these beliefs affect consumption. However, these
studies also demonstrate that these beliefs (expectancies) are not necessarily valid.

Another explanation which has commonly been posited to explain drinking behaviour is
conditioning (for example, Kaplan et al 1985; Ludwig and Wikler 1974; McCusker and
Brown 1990; Seigel 1983). Basically conditioning theories suggest that exposure to alco-
hol over a prolonged period of time results in the individual 'learning' various responses
and that these responses will be evoked in the presence of alcohol, leading to further drink-
ing.

For example, Siegel (1983) formulated 'Opponent Process Theory' to explain drug toler-
ance (that is, with prolonged use, the drug has less effect or else a higher dose is required to
obtain the same effect). He observed that exposure to a drug will cause an organism to
physiologically adapt to the effect of the drug, by producing an effect opposite to that of
the drug (an opponent process). This, he suggests is due to a conditioning process, since
regular consumption of a drug in the presence of a neutral stimulus will lead to an associa-
tion between the stimulus and the drug. Hence, in time, the stimulus alone will elicit an an-
ticipatory opponent process and, obviously, heavier and more frequent drinking will result
in stronger conditioning effects. For example, if the effect of alcohol on an individual
drinking in a bar was tension reduction, then entering the bar would elicit a response of in-
creased tension, in anticipation of the alcohol to be consumed, a phenomenon which the in-
dividual may interpret as craving. However, results from studies which have employed the
balanced placebo paradigm have cast some doubt on the explanatory value of conditioning
theories.

A study by Williams, Goldman and Williams (1981) extended the balanced placebo para-
digm to a 2 x 3 design, by including two different doses of alcohol in the received alcohol
condition. After the subjects had consumed the alcohol or the placebo they completed a
battery of cognitive tasks (letter cancellation, digit span and Raven's matrices) and motor
tasks (finger tapping, stylus monitoring, standing steadiness and walking steadiness). The
results of this study demonstrate a significant dosage-related compensation effect on cogni-
tive tasks (but not on motor tasks), that is, subjects' performance did not deteriorate with in-

creasing dosage of alcohol. Indeed, on two of the three cognitive tasks (letter cancellation and digit span) the subjects who were given the highest dosages performed at an equivalent level to the subjects who expected and received a placebo. However, on the Raven's matrices task, which requires the highest cognitive processing of the tasks administered, although a significant dosage related compensation effect was found, the subjects showed least compensation effects. It should be noted that this compensation effect was only found on the expect alcohol condition, the subjects on the expect placebo / given alcohol condition showed a systematic deterioration with increasing dosage. The authors conclude that compensation only occurs when alcohol is expected and that the extent of the compensation appears to be related to the complexity of the task.

The compensation effects demonstrated in this study are reminiscent of the opponent processes hypothesised by Seigel (1983), since this design elegantly demonstrates that the compensation effects being shown are opposite to the actual effects of the drug. However, what is important is that it is not the mere presence of alcohol which elicits these effects, but rather the belief that alcohol has been consumed. Results such as these must cast some doubt on a simplistic view of stimulus response mechanisms, suggesting as it does that higher cognitive processes (expectancies) are involved.

The final study which will be reviewed in this section, by Laberg and Loberg (1989), specifically tested the predictive power of Seigel's (1983) hypothesis against an expectancy hypothesis, employing a design similar to that of Williams, Goldman and Williams (1981) above, but with only one alcohol dose. In this study they employed two groups of subjects - moderately dependent and severely dependent on alcohol. The moderately dependent subjects performed much like the subjects in the previous study, that is they compensated for alcohol but only when they expected that they had consumed it. However, this effect was reversed in the severely dependent group, that is their performance actually deteriorated when alcohol was expected, but it did not deteriorate when alcohol was consumed in the expect placebo condition. The authors suggest that, in severely dependent alcoholics expectations of consuming alcohol increases anxiety.

Of course this is exactly Seigel's (1983) contention, that the drinker's body makes physiological adaptations in the opposite direction to the drug effects in preparation for consumption and so, if alcohol reduces anxiety, then according to Seigel an increase in anxiety should be an observed effect. However, like the previous study, these results suggest that, if this opponent process takes place, then it may be due to expectancy rather than conditioning. Also, taken with the previous study, it may suggest that the effects are again dose-

related, that is although the severely dependent group showed a deterioration on the tasks, it is possible that they may have shown an improvement, in the expect alcohol / receive alcohol condition at higher doses, since it would be expected that in this group the opponent processes emitted would be more pronounced and, hence, a larger dose of alcohol would be required to combat this effect.

Thus, three important points come from these studies which can be summarised as follows. 1/ Expectancies of alcohol are at least as important as, if not more important than, the pharmacological effects of alcohol in mediating behaviour - at least at small to moderate doses.
2/ The expectancies individuals hold of alcohol are not necessarily accurate.
3/ Physiological effects, thought to be due to conditioning have been shown to occur when individuals expect alcohol.
If, as these studies suggest, drinking behaviour is influenced by expectancies of alcohol, rather than the pharmacological effects, then, for a better understanding of drinking behaviour, it would be important to know what effects individuals expect from drinking and how these expectancies affect drinking behaviour. It can be seen that laboratory studies are of necessity limited in this respect, as they can only examine the effect of one expectancy at a time. What is required is a more naturalistic approach which can investigate the effect of the full spectrum of alcohol expectancies on drinking behaviour. The remainder of this chapter will deal with studies which have investigated this relationship.

POSITIVE EXPECTANCY - FIELD STUDIES

Whereas the laboratory studies of expectancy have largely concentrated on the manipulation of the belief that the individual has *consumed* alcohol, field studies have concentrated more on *'reasons for drinking'*. That is, these studies have been more concerned with the content of the expectancy set that individuals hold and how that expectancy set affects drinking behaviour.

Before reviewing the evidence from these studies it is essential to describe the main instrument which has been employed to investigate expectancy for three reasons. First, it will be argued that this, and similar, instruments have directly affected the way that expectancy has come to be viewed at present. Second, the methodology for constructing this instrument will be adapted to construct an instrument to measure negative expectancy. Third, this instrument will be employed in all studies reported in this thesis.

The Alcohol Expectancy Questionnaire (AEQ)

The majority of the work in this area has been carried out by Sandra Brown and her colleagues, who have developed the Alcohol Expectancy Questionnaire (AEQ) and an adolescent version (AEQ-A). This tool (the AEQ) has been, by far, the most widely used tool in the investigation of alcohol-related expectancies, either in its original form or in a modified form. It is, therefore, worthwhile to examine in some depth its method of construction, content and structure for this instrument more than anything represents alcohol researchers' beliefs about what positive expectancy is. How the structure of these beliefs was established follows.

Brown et al (1980) used a four phase procedure to investigate, what they called, "*the reinforcement expectancies which people hold with respect to alcohol*". In the first phase they interviewed 125 subjects, including students and patients in an alcohol treatment unit. These subjects were asked to report all of their positive experiences while drinking, that is, all the positive subjective changes which were experienced when drinking alcohol. From this phase they derived 216 items which they structured into statements for use in a questionnaire. In phase two they administered the questionnaire to a further 400 subjects and subjected the results to item analysis. This phase resulted in a pool of 90 items which was administered to a further 450 subjects in phase three, and the results factor analysed in the final phase. Using this procedure they produced a six factor solution which, hardly surprisingly in view of the method employed, were all positive (that is they represented things that

the subjects wanted).

The factor which accounted for the greatest amount of the variance was, what they termed, Global Positive Change - a general amorphous factor which depicts alcohol as a positive transforming agent. Brown et al (1980) suggest that the large portion of the variance accounted for by this factor -

"indicates the degree to which alcohol is viewed by humans as a potent, even 'magical' drug". (Brown et al 1980 page 425).

The second factor extracted was Physical and Social Pleasure. This factor depicts alcohol as a pleasure enhancer and social lubricant. For example, adding warmth to social occasions and making such occasions more enjoyable.

The third factor was Sexual Enhancement. This factor depicts alcohol as helping to break down the barriers when meeting the opposite sex and as enhancing sexual performance and enjoyment.

The fourth factor was Increased Social Assertiveness. This factor depicts alcohol as a social facilitator, allowing the individual to overcome his/her inhibitions and converse with more ease.

The fifth factor was Relaxation and Tension Reduction. This factor depicts alcohol as an anxiolytic by relieving tension and aiding sleep. This is hypothesised to be one of the most common expectancies which people have of alcohol.

The sixth factor was Arousal and Aggression. This factor depicts alcohol as giving the individual power over others, indeed in some discussions of the AEQ it is actually called Arousal and Power (for example, Brown 1985b).

The final structure of the AEQ is a 90 item questionnaire, where the items comprising each factor are randomised within the instrument. It has a forced choice 2-point scoring system, where the subjects answer 'agree' if they sometimes or always experience the effect or 'disagree' if they never experience the effect.

It can be seen that this instrument measures only positive expectancies of alcohol. Brown et al (1980) state that if negative expectancies had been offered by the sample then they would have been included. However, it is clear that the methodology employed to produce the AEQ determined that only positive expectancies would be offered, precluding the inclusion of negative expectancies. It will be argued in the next chapter that this omission has had implications on expectancy research, that is, that it has contributed to negative ex-

pectancy being largely ignored by researchers. An adolescent form of this questionnaire has also been produced, and is described below.

The Alcohol Expectancy Questionnaire - Adolescent (AEQ-A)

The adolescent version of the questionnaire (AEQ-A), was compiled by adapting the AEQ and adding 28 other expectancy items, based on reasons which adolescents gave relating to drinking/abstinence. Interestingly they note that these new items were in fact negative effects, which may reflect the different methodology used. That is, while in the AEQ construction the subjects were asked to report their positive experiences of alcohol, in the AEQ-A the subjects were asked to report what they expected of alcohol.

Not surprisingly, since the majority of the items are identical, the factor structure of the AEQ-A is very similar to the adult form, the main difference being that instead of 6 factors the AEQ-A has 7 factors. The Physical and Social Pleasure is now called Changes in Social Behaviour but taps basically similar expectancies. The Increased Social Assertiveness factor disappears and there are two new factors which appear to depict opposing expectancies.

The first one is Improved Cognitive and Motor Abilities which depicts expectancies such as heightened awareness and ability to play sports better when drinking.

The second is Cognitive and Motor Impairment which depicts expectancies of decreased awareness and violence towards objects.

The structure of the AEQ-A uses an identical format to the AEQ.

Other Expectancy Questionnaires

Two further expectancy instruments have been produced and their content will be briefly reviewed here, since this chapter and the next chapter refer extensively to research studies which have employed these instruments.

The Alcohol Effects Scale (AES)

This scale constructed by Southwick et al (1981) consists of 74 bipolar semantic differential items, and was constructed by presenting 20 undergraduates with an open ended questionnaire asking their expected effects of alcohol in various situations. The participants were asked to think of a situation which fitted categories of situations involving, a mental task, a physical task, a social task, emotional stress and miscellaneous situations. For each situation they were asked to describe the situation which they were envisioning, what their

responses would be if alcohol were used in the situation, their responses if they remained sober.

The first 37 items indicate the effects subjects may experience after drinking a moderate amount of alcohol. The second 37 items are identical to the first but indicate the effects the subject expects after drinking too much. The subject is asked to indicate on a 5 point bipolar scale what he/she expects alcohols effects to be.

This instrument has 3 factors 1/ Stimulation / Perceived Dominance 2/ Pleasurable disinhibition 3/ Behavioural Impairment.

The Effects of Drinking Alcohol (EDA)

This scale constructed by Critchlow 1987 (now Leigh), consisting of 20 items scored on a 5 point Likert scale, was constructed by consulting questionnaires used in previous expectancy studies. There are 5 factors 1/ Nastiness 2/ Cognitive / Physical Impairment 3/ Disinhibition 4/ Gregariousness 5/ Depressant Effects.

Although these, and similar, instruments have now been used extensively in research studies of expectancy, it is clear, from even a brief review, that these instruments are heavily biased towards positive expectancy. The only instrument which employed a large sample in its construction (the AEQ) does not measure negative expectancy at all. Two of the other instruments which do measure negative expectancies (the AEQ-A and the AES), employed small samples of questionable representativeness and the last (the EDA) relied on a literature search.

POSITIVE EXPECTANCY - ORIGIN

Since evidence which will be presented in a later section shows that alcohol-related expectancies are a powerful mediator of behaviour while drinking (and as will be later argued as a motivator to drinking) then it would be important to know the aetiology of these expectancies and what modifying influences are involved. This section will now review the research which has investigated this issue, concluding that expectancy is, initially, socially learned since it has been found to be present prior to drinking experience.

Cultural Differences in Drinking

MacAndrew and Edgerton (1969) suggest that drinking behaviour, rather than being a direct result of the pharmacological effects of alcohol, is in fact culturally learned and, more recently, Critchlow (1986), in a review of the research on beliefs (expectancies) about alcohol, has concurred with this suggestion. She points to evidence which suggests that these beliefs have mirrored the cultural and political climate of the time. For example, the belief that alcohol is a disinhibitor, which releases the individual's base impulses from the control of the higher cortical centres in a way that the individual is unable to control, or inhibit, unacceptable behaviour, has figured large in the temperance literature and in popular culture. This has spawned the belief that since alcohol causes individuals to act in a way which is abnormal, then alcohol can be viewed as a cause of crime. Indeed, in popular culture, alcohol continues to be used, and indeed generally accepted, as a defence for deviant behaviour - "I was drunk at the time" - the implication being that if alcohol had not been consumed then the behaviour would never have occurred. As already stated, Marlatt and Rohsenow (1980) suggest that this may be one of the reinforcing properties of alcohol, that it provides a culturally acceptable excuse, allowing the individual to avoid the responsibility of their actions, by attributing alcohol as the cause of their behaviour.

Peele (1987) in a review of the cultural variations in addiction argues that drinking patterns are socially inculcated, by pointing up the stark differences which have been found in drinking patterns and attitudes between countries and the even more startling differences which can be found between sub-groups, or ethnic minorities, within the same country. For example, two neighbouring tribes of red indians, the Hopi and Navajo, show completely different attitudes to alcohol. The Navajo are characterised by very liberal attitudes to drinking and tend to be heavy drinkers. The Hopi, however, who drink much less, expel their heavy drinkers to a rural skid row where they can drink themselves to death.

In contrast to the indians, is the lack of alcohol abuse found in the Jewish community in the USA. In this community abstinence is rare, since alcohol forms an integral part of their religious observances, however alcoholism is also rare. Interestingly, they tend to reject the notion of alcoholism as a disease, viewing it rather as a psychological dependence and moral failing. A similar lack of alcohol problems can be found in the Chinese community of New York's Chinatown, where not a single case of drunkenness was reported among 17,515 arrests between 1933 and 1949 (Peele 1986).

A study by Linsky, Colby and Straus (1986) characterised the norms of all 50 states of the USA on a 'proscriptive norm index' - that is, the degree to which the drinking of alcohol is disapproved of or restricted. They found that permissive normative systems (societies where drinking is condoned if not encouraged) are significantly correlated with heavy drinking and deaths from cirrhosis of the liver. However, they also found that proscriptive normative systems (societies where drinking is discouraged) were significantly correlated with disruptive alcohol-related behaviour.

The research quoted above could in no way be considered an exhaustive review, however, it does suggest that there is a link between consumption of alcohol and the 'norms' or attitudes towards alcohol of the society in which the drinker resides, whether this be the country or, in the American experience, the ethnic minority to which one belongs. This relationship, however, does not appear to be a simple one of - positive attitude equals heavier drinking, since proscriptive attitudes while reducing consumption in the many, appear to increase problems in the few, a point which will be taken up again in the next chapter. At present, the conclusion to be drawn from this section is that the attitudes and norms of societies are linked to patterns of consumption.

The next section will review the research which suggests that this link is forged through the alcohol-related expectancies which are transmitted by society, in particular parents and peers.

Vicarious Learning

Christiansen, Goldman and Inn (1982) suggest that expectancies of alcohol originate through a social learning process, where adolescents gain vicarious experience of the effects of alcohol through observing, initially, their parents and relatives, and later, their peers. Using the AEQ-A, they measured the expectancies of 1580 adolescents aged 11 to

19 years. They found that the gross expectancies for the non-drinking (or little experience) group were not markedly different from the heavier drinking (experienced) group, since 44 of the 100 items of the AEQ-A did not distinguish between drinkers and non-drinkers and 5 of the 6 factors found in the experienced drinkers group were also found in the non-drinking group. However, there were fewer items making up these factors in the non-drinking group and in the experienced drinkers group the items had greater homogeneity. Thus, they concluded that expectancies of the effects of alcohol are present prior to drinking, although the evidence does suggest that these expectancies tend to be amorphous, crystallising with experience. Supporting the finding that expectancies can be independent of personal experience, Brown (1993) found that subjects who had never used cocaine or marijuana had definable expectancies of the effects of these drugs.

In another paper Christiansen and Goldman (1983) re-analysed the data of the above 1580 subjects to determine the relationship between expectancies and drinking behaviour. They found that expectancies added to the predictive power of sociodemographics, such as gender and age, in explaining the variance in drinking behaviour.

More support for vicarious learning can be found in a study by Casswell et al (1988) of 743 New Zealand children aged 8 and 9 years. This study employed a structured interview format, where the children were asked what they knew about alcohol and the source of that knowledge. They report that the children had clear concepts of alcohol - mostly negative - and were able to describe drunkenness either in terms of drinking too much alcohol or in behavioural characteristics, for example "dizzy", "can't walk properly", "brain funny", 31% described antisocial behaviour "fight", "go crazy" or damage property". Less than 1% offered a positive description, for example, "getting all bubbly inside", "make a lot of jokes with your friends' or "go around the streets singing". Television emerged as the major information source (35%) with parents second (26%).

Bauman and Bryan (1980) in a study of 233 children aged 10 to 13 years also found that children with little or no experience of alcohol had definable expectancies. They also found that children who had higher positive expectancies of alcohol were also the ones who had had most experience of alcohol. While they conclude that there is an association between expectancy and consumption they also offer a caveat - that the causal direction is equivocal, that is, do positive beliefs about alcohol lead to consumption or does consumption lead to positive beliefs ?

In an attempt to clarify this relationship Bauman et al (1985) used a panel design to study 1339 adolescent, that is they measured subjects' expectancies and drinking behaviour at the beginning of the study (time 1) and repeated one year later (time 2). The main finding of the study was that the subjects who were abstainers at time 1 and who were now drinkers at time 2 had a higher expectancies than subjects who were abstainers at both points. There were also increases from time 1 to time 2 in the expectancies of the subjects who had been drinkers at time 1, with the greatest increases being associated with heavier drinking. Bauman et al (1985) conclude that expectancy and consumption have a reciprocal relationship, that is, that expectancy affects drinking and drinking affects expectancy. They also report that they could not find a dominant direction for this relationship.

That personal experience of drinking should affect expectancy would seem to be an obvious assumption to make. Indeed it would be strange if this were not the case. However, Brown and her colleagues suggest that while this is the case, personal experience is, nevertheless, coloured by vicarious learning.

Personal Experience

Brown et al (1980) suggest that socially learned expectancies and personal experience with alcohol may be reciprocally reinforcing, that is there is a self-fulfilling prophecy involved. They suggest that when a particular behavioural effect follows alcohol consumption then the individual attributes causality to alcohol and, thus, expects similar effects from future drinking. This, they suggest holds true, even if alcohol itself cannot produce these effects, that is, effects that have been socially learned, a suggestion which is in complete agreement with the conclusions of Marlatt and Rohsenow (1980) discussed in an earlier section.

DISCUSSION

The evidence reviewed so far strongly supports a social learning theory approach to expectancies, that is, that individuals learn what to expect from alcohol before having any personal experience with its effects. Further it would suggest that there may be a self-fulfilling prophecy at work since it would appear that expectancies can produce effects that alcohol itself cannot produce, suggesting that only effects experienced which are consistent with the individual's expectancies are attributed to alcohol and any inconsistent effects experienced would then be attributed to other sources (for example, environment, company etc). If this was the case, then, in a culture which had a predominantly positive attitude to

drinking, it can be assumed that the expectancies which an individual learned would indeed be positive and any other effects (for example, negative) may be missattributed.

Bandura (1977, 1984) suggests that, in a social learning context, individuals learn what outcomes to expect from social behaviours by modelling, that is, they learn from observing others, parents, friends etc. Thus, they 'know' what effects to expect of a behaviour before actually performing that behaviour. If these expectancies are confirmed then the relationship between the behaviour and the expectancy is strengthened. Bandura (1977) further suggests that once these expectancies have been established, through regular performance of the behaviour, then even if the expected effect is occasionally disconfirmed, it will not necessarily change the expectancy held of that behaviour, since a disconfirming outcome may be dismissed as either idiosyncratic or as attributable to something peripheral to the behaviour. Thus, expectancies would appear to be robust, that is, once they are established they are difficult to change.

However, this is not to dismiss the pharmacological effects of alcohol entirely. Such a proposition would obviously be both simplistic and naive. Indeed, it would be reasonable to assume that a belief such as tension reduction would be strengthened by the initial experience with alcohol since, by the nature of its biphasic effects, alcohol reduces anxiety initially but increases anxiety at higher doses (Sher 1985), hence the initial dose would confirm this expectancy. What it does suggest is, that many of the effects traditionally attributed to alcohol, in particular social behaviours, are actually due to expectancies learned before alcohol has ever been consumed.

The research reviewed above does, however, have some interesting anomalies. The most obvious one is the discrepancy between the Christiansen, Goldman and Inn (1982) study and the Casswell et al (1988) study. While both studies agree on the fundamental point that children learn expectancies of alcohol vicariously, they differ dramatically in the content of these expectancies. Christiansen, Goldman and Inn's (1982) study found that children had predominantly positive expectancies whereas Casswell et al (1988) found that they had predominantly negative expectancies. In view of the above arguments about self-fulfilling prophecies this is an extremely important discrepancy, since if an individual approaches alcohol with negative expectations and if there was a self-fulfilling prophecy at work, then these expectancies would be realised. If an individual approached drinking with negative expectancies and the outcome was, indeed, aversive it would be surprising if alcohol was consumed again. Obviously, this is not the case, but why do two groups of

children hold such different expectancies about alcohol ? There are three possible explanations of these findings.

First, it is possible that the differences could be explained by contrasting cultures. While such an explanation is possible, it is unlikely since there is no evidence to suggest that New Zealanders are more proscriptive in their attitudes to alcohol than Americans.

Second, the differences may just be an artifact of the methodology employed. Casswell et al's (1988) study used an interview format with open questions while Christiansen, Goldman and Inn (1982) employed the AEQ-A. It has already been suggested in a previous section that the procedure, used in the compilation of the AEQ, biased the answers towards positive expectancies and since the AEQ-A is a derivative of the AEQ, the same criticisms apply. However, what is interesting is that when items were added to the AEQ-A, using a panel of adolescents, these new items were mostly negative, thus negative expectancies are present in this group. Thus, it would appear from Christiansen, Goldman and Inn's (1982) study that while negative consequences are part of the expectancy set in this group of adolescents, the expectancies held are, nevertheless, predominantly positive.

The third, and perhaps the most interesting, explanation may lie in the process of maturation. The Casswell et al (1988) study employed subjects aged 8 and 9 years while the Christiansen, Goldman and Inn (1982) study employed subjects aged 12 to 19 years. In the introduction to their paper Casswell et al (1988) cite Aitken (1978) who reports that from the age of 10 to 14 years children's judgements about the morality of drinking habits becomes less severe. Hence, these discrepancies may reflect a socialisation process where children experience a cognitive change, that is, from holding a childish negative model of alcohol to taking on the adult model of drinking behaviour which is more positive. In support of this suggestion Christiansen, Goldman and Inn (1982) have shown that there are expectancy changes associated with age which are independent of direct experience with alcohol, being rather the influence of increasing knowledge, maturity and reading influences. An ideal opportunity to shed some light on this question was afforded by the Bauman et al study (1985) who measured the SEU of children and repeated the measure one year later. Incredibly, they do not report the natural expectancy changes which occur in these children, except as they relate to drinking categories, that is, they do not report what changes, if any, occurred in the abstinent group.

It would appear then, that while the methodology employed in these studies could explain the discrepancies between the Christiansen, Goldman and Inn (1982) study and the Casswell et al (1988) study, there may also be a maturation process occurring. If, as will be

suggested alcohol-related expectancies are related to alcohol problems and these expectancies are present before experience with alcohol, then the dynamics of expectancy formation within a socialisation framework requires further research. Also, it is possible this speculated process could provide a strategy for prevention.

This point about socially learned expectancies is an especially important one to this thesis and will feature prominently in the next chapter.

In summary the research on the aetiology of expectancies suggests that expectancies of alcohol are:-

1/ established through social learning initially

2/ may change from predominantly negative to predominantly positive during adolescence.

3/ present prior to actual experience of drinking.

4/ self-perpetuating, that is, expectancy can elicit an effect which is then attributed to alcohol

5/ robust, that is, once established they are resistant to change

POSITIVE EXPECTANCY - RELATIONSHIP TO DRINKING BEHAVIOUR

The studies which will be reviewed in this section demonstrate that positive alcohol-related expectancies are associated with consumption, that is the higher the expectancy an individual holds the higher the consumption. They also provide further evidence that these expectancies are mainly acquired through social learning and are refined through direct experience of alcohol

Brown, Christiansen and Goldman (1987) suggest that alcohol-related expectancies are important to our understanding of alcohol consumption decisions. Hence, they hold that the rationale for investigating the content of the expectancies which people hold of alcohol is that these expectancies represent 'reasons for drinking'. Certainly this view would appear to be justified since the results of expectancy studies have consistently shown a positive relationship between expectancy and consumption, that is, higher positive expectancy is associated with higher levels of consumption.

Brown et al (1980), in their inaugural study of expectancies tested the hypothesis that not all subjects would have the same expectancies and that these differences in expectancies would be differentially related to consumption patterns. This hypothesis was confirmed,

since they found that particular expectancies were indeed associated with differences in drinking patterns. Specifically, they found that less experience with drinking and limited consumption was associated with more general expectancies of alcohol, that is, Global Positive Changes, whereas more experienced and heavier drinkers had higher expectancies of Sexual Enhancement and Arousal and Aggression. This finding is consistent with the evidence quoted earlier which suggests that while individuals have definable expectancies prior to experiencing alcohol, these expectancies tend to be amorphous and direct experience of alcohol crystallises the expectancies - makes them more specific. Alternatively, it could also suggest that individuals who approach alcohol with already well formed specific expectancies tend to become heavier drinkers. This question of cause or consequence will be taken up again below.

Brown (1985b) studied the drinking of 321 college students. She factor analysed the drinking variables (for example, frequency, amount, company, occasion etc) and found, what she termed "*three naturally occurring drinking patterns*". First, heavy social - high scorers in this pattern drink large amounts often and experience physical distress (hangovers nauseous etc), low scorers are non-drinkers or light drinkers who report no alcohol-related problems. Second, problematic drinkers - high scorers in this pattern resembled the first pattern but had also had contact with the authorities because of drinking, however, they do not always label their drinking as problematic. Third, contextually determined - high scorers in this pattern drink in less personal settings, such as bars with strangers or new acquaintances, low scorers tend to drink at home with family or alone. Using regression analysis she found that expectancies added to the prediction of drinking style, to that explained by sociodemographics alone. For heavy social drinkers and contextually determined drinkers the best expectancy predictor was Social and Physical Pleasure whereas for the problematic drinkers it was Tension Reduction. Thus she concluded, that individuals with high expectancies of tension reduction may be at risk in developing alcohol problems.

Southwick et al (1981) used the Alcohol Effects Questionnaire (AES) to study the expectancies of 226 undergraduates who represented 4 categories of drinking - Abstainers (n = 18), Occasional drinkers (n = 44), Light/Moderate drinkers (n = 112) and Heavy drinkers (n = 52). The subjects were asked to indicate on a 5-point bipolar scale the way in which a moderate amount of alcohol would affect them (phase 1). Then to indicate on an identical set of items the effects they expected from too much alcohol (Phase 2). The results from

both phases were factor analysed independently and three almost identical factors emerged for each phase - Stimulation / Perceived dominance, Pleasurable disinhibition and Behavioural impairment.

All categories of drinkers, except for the abstainers, expected stimulating effects during phase 1 and more neutral effects during phase 2. In the Pleasurable disinhibition factor all categories of drinkers expected positive effects during phase 1 and, to a lesser degree, all categories of drinkers, except for the abstainers, expected positive effects in phase 2. The Behavioural impairment factor showed no main effects differences by phase of drinking x category of drinker, all subjects expected greater behavioural impairment in phase 2 than in phase 1.

The authors conclude that expectancies are systematically related to both drinking experience and phase of intoxication. They also suggest that, on the basis of these results, heavier drinkers expect greater positive effects from alcohol and the same negative effects as lighter drinkers. Conversely, these results also show that abstainers expect less positive effects and more negative effects, which the authors suggest may be due to having very little experience with alcohol, or very aversive experiences. This point will be discussed at greater length in the next chapter.

In an extension of the Brown (1985b) study, described above, Brown, Goldman and Christiansen (1985) hypothesised that since alcohol-related expectancies have been found to antedate drinking, they mediate decisions about the initiation and level of alcohol consumption. This study employed 580 subjects 344 college students, divided into heavy drinkers (n = 81), moderate drinkers (n = 216) and occasional drinkers (n = 47), 65 hospitalised medical patients - excessive drinkers (n = 41) and non-excessive drinkers (n = 24) and 171 alcoholics in treatment as either in-patients or out-patients. It was found that alcoholics scored higher than excessive drinking medical patients on all scales of the AEQ, who scored higher than heavy drinking college students, who scored higher than moderate drinking college students, who scored higher than non-excessive drinking medical patients, who scored higher than occasional drinking college students. However, it should be noted that the differences between individual groups did not always reach statistical significance. The scales which best differentiated between groups were Global Positive Changes and Tension Reduction.

Zarontello (1986) replicated these results in a study of 60 alcoholics in treatment and 35 in-patients in a general hospital. He found that the alcoholics had higher expectancies of Glo-

bal Positive Changes, Social Assertion and Tension Reduction (all significant at p < .001) and Social and Physical Pleasure (p < .05).

Interestingly, both the Brown, Goldman and Christiansen (1985) and the Zarontello (1986) studies failed to replicate Brown et al's (1980) previous finding that light drinkers have more global or non-specific expectancies, whereas heavier drinkers have higher specific expectancies and less global expectancies. Brown, Goldman and Christiansen (1985) suggest that this is attributable to the 1980 study having non-drinking subjects while all subjects in this study were drinkers and thus had experience of alcohol. This explanation while possible lacks plausibility, since it would be expected that any 'crystallisation process' would be cumulative. In this case, when the results are cast on Z-scores, even occasional drinking college students, who one can reasonably assume have limited experience of drinking because of age and drinking style, score higher on two specific scales (Sexual Enhancement and Arousal and Power) than they do on the Global Positive Changes scale.

Leigh (1989b) offers an alternative explanation. In a confirmatory factor analysis of the AEQ (and the AES and EDA) she found that the individual factors of the AEQ were highly intercorrelated. Hence, she suggests that rather than consisting of six discrete or independent factors the AEQ may actually be measuring one global factor of positive expectancy. Indeed, she points to the lack of face validity of some items of the AEQ, for example "*I become lustful when I drink*" which would be assumed to belong to the Sexual Enhancement scale but is actually an item from the Global Positive Change scale. Also "*After a few drinks I become brave and capable of fighting*", another item from the Global Positive Change scale, would seem to logically fit into the Arousal and Aggression scale. Leigh (1989a), although going to some pains to point out that she is not denying the validity of the instrument, offers the caveat that it is both unwise and an oversimplification to treat these scales as discrete. As she observes, common sense tells us that the effects of alcohol as described by these scales must be related to each other in complex ways.

"...it makes sense that a belief in alcohol as a tension reducer and as a sexual lubricant must be related to each other. How could it be otherwise ? Beliefs about global positive changes resulting from alcohol cannot, almost by definition, be independent of beliefs about more differentiated positive changes."   (Leigh 1989a p 369)

Nevertheless, the results of these studies do show that consumption is positively related to expectancy, that is, higher positive expectancy of alcohol is associated with higher consumption. The authors of these studies argue that these results demonstrate that individuals

drink to achieve the expected reinforcing properties of alcohol and, hence, expectancies may prove to be a cost-effective and productive focus of attention in treatment, by identifying the individuals for whom certain treatment interventions may be beneficial and the individuals for whom certain treatment interventions may be unneccessary. They further argue that expectancies may also help in the identification of individuals who may be at risk of developing alcohol problems. However, in view of the doubts cast on the factor structure of the AEQ, it is unlikely that this tool would have the precision to aid early detection in such a fashion.

The studies reviewed so far have suggested that alcohol-related expectancies are associated with consumption, that these expectancies are mainly acquired through social learning and are refined through direct experience of alcohol. Three studies are reviewed below which suggest that part of this refining process entails differentiating between the effects of alcohol on self and others.

Positive Expectancies - Effects on Self and Others

Rohsenow (1983) used a modified version of the Alcohol Expectancy Questionnaire (AEQ) to test the hypothesis that there would be a difference between personal and general expectancies. She modified the AEQ by : 1/ using only the five items which loaded highest on each of the six factors; 2/ adding two negative expectancy scales - Cognitive or Motor Impairment and Careless Unconcern and; 3/ producing two versions of the questionnaire, one which asked about expectancies of the effects of alcohol on self and the other which asked about effects on people in general. Subjects were 85 male and 65 female undergraduates.

Results of the study showed significant self / other differences on every scale, that is, that subjects expected others to be more affected, both positively and negatively, by alcohol than themselves. Significant effects were found for both gender and level of drinking. Females showed this self / other effect to a greater degree than males on all scales, except Sexual Enhancement and the negative scales. Light drinkers showed the discrepancy more than moderate or heavy drinkers for Aggression and Power and Relaxation. Further, light drinkers expected significantly less Social and Physical Pleasure than others, while moderate and heavy drinkers expected virtually the same as others. A significant effect was found for gender, after controlling for consumption, on self-expectancies but not for general expectancies. Females expected significantly less Global Positive Changes, Social and

Physical Pleasure and Relaxation than males but expected significantly more Cognitive and Motor Impairment. Comparing the self-expectancies of different levels of drinkers, she found that light drinkers expected fewer positive consequences from alcohol and moderate and heavy drinkers expected more positive consequences, but no differences were found in the expected levels of negative consequences.

Rohsenow suggests that the subjects may be demonstrating a self-enhancing bias by attributing greater alcohol effects to others, a mechanism which may be instrumental in maintaining heavy drinking. She also argues that this study demonstrates the need for researchers and treatment providers to assess self-expectancies rather than general expectancies. Finally, she suggests that negative expectancy plays little role in drinking decisions, a point which will be taken up in the next chapter, where it will be argued that this is not the case.

A similar study was carried out by Leigh (1987) who used the Effects of Drinking Alcohol questionnaire (EDA) also presented in two forms - the effects on self and the effects on most other people. Subjects were also asked to rate these effects (that is, how good or bad are they) for both self and others. She drew her sample from two populations. The first sample consisted of 148 males and 124 females, mean age 44, taken at random from the general population, using a reverse phone directory as a sampling frame. This sample received the EDA in a mail shot. The second sample consisted of 89 male and 176 female students, mean age 18.7.

The results of this study are very similar to Rohsenow's (1983) since she also found evidence of a self / other discrepancy, particularly for negative effects. However, she offers an alternative explanation to the self-enhancing bias that Rohsenow (1983) suggests. According to Leigh although the positive effects of alcohol are widely known and shared, it is the negative effects which hold most sway over our thinking. Recent years have witnessed an upsurge on the reporting of adverse consequences of drinking - for example, violence and crime. However, in relative terms these incidents are rare when compared with the number of drinking episodes which occur. Thus, she suggests that rather than employing a self-enhancing bias, subjects are in fact rendering an "*accurate account*" when they say that they are unlikely to be affected by alcohol, but others are.

Two interesting results from this study were first, the finding that non-drinkers and light drinkers were quite different in their expectancies. Non-drinkers scored higher on all scales than light drinkers and were higher on the negative scales, expecting more nastiness, impairment, disinhibition and depressant effects than all other categories of drinker. Leigh

suggests that non-drinkers view alcohol as a powerful transforming agent which can affect them in every way - positive and negative - and that these results may indicate that it is the expected negative effects which inhibit their drinking. Second, she found, unlike Rohsenow, that heavy drinkers scored higher than light drinkers on negative effects, however, they rated these negative effects more positively. Thus, she suggests that these judgements may contribute to heavier drinking behaviour.

Oei, Hokin and Young (1990) in a study of 108 males and 175 female students found evidence which supports the self / other discrepancy, only in this study they measured dependency, using the Alcohol Self Statements Questionnaire (ASQ). They divided the subjects into four groups according to their drinking - non-drinkers, very light drinkers, light drinkers, medium/heavy drinkers. They performed a discriminant function analysis on the 'self' statements which returned one function, dependence, which, not surprisingly, discriminated across all groups in a monotonic progression consistent with drinking level, that is, non-drinkers less dependent, heavier drinkers more dependent. Another discriminant function analysis was performed on the 'others' statements and this returned two functions - using alcohol to enhance positive experiences and using alcohol to cope with negative experiences. The first function discriminated between all drinking groups. On the second function non-drinkers and medium/heavy drinkers considered others to be more dependent on alcohol than the light drinkers did. Heavier drinkers, while perceiving that they drank to cope with negative experiences, viewed others as using alcohol for this purpose to a greater extent.

The authors conclude that the results of the first discriminant function support Leigh's (1987) hypothesis that drinking expectancies of self and others is affected by the media. However, the results of the second discriminant function support the self-enhancing bias proposed by Rohsenow (1983). They suggest that rather than distorting reports of their own drinking, heavy drinkers actually distort reports of others drinking thus appearing comparatively less dependent on alcohol.

These results have implications about how expectancies are measured, suggesting that self-expectancies should be more related to drinking behaviour than general expectancies.

Positive Expectancy - Gender Differences

The above study by Rohsenow (1983) has demonstrated, there are gender differences in expectancies. For example, she found that women expected a greater degree of Cognitive and Motor Impairment than men, which she suggests is an expectancy which is held on good grounds, since females reach a higher level of blood alcohol than males at the same dose. Leigh (1987) lends support to this finding, as she also reports that females expect greater impairment than males. That there are gender differences in expectancies should not surprise, since there are good a priori grounds to expect such a result.

First there are differences in drinking experience. That there are gender differences in drinking behaviour is incontrovertible, for example, it is well recognised that women drink less than men. One study (Dawson and Archer 1992) found that more men than women drink (63.6% vs 40.9%) and that more men than women are classified heavy drinkers. Depending on the classification used, this ratio is estimated at somewhere between 1.5 and 3 to 1. Even when consumption is adjusted for body weight and total body water, men still have a higher consumption (1.38 to 1). Also, it is well recognised that the pharmacological effects of alcohol are dissimilar in males and females due to the differences in physiology. Thus, if expectancies are acquired, or become more specific, as a result of drinking experiences then gender differences in expectancies should be apparent because of the different volume consumed and the differential pharmacological effects experienced.

Second, there are differences in the socialisation process. The research of Christiansen and his colleagues was cited above, who, in a series of studies, found evidence to suggest that alcohol expectancies are firmly in place in adolescents before any alcohol is consumed. They demonstrated that children as young as 12 years already had firm expectancies of the effects of alcohol. Hence, they suggest that the effects of alcohol are initially learned, by observing the drinking behaviour and effects of alcohol on parents and other adults, and then peers. Subsequent experience with alcohol then crystallises these expectancies. Hence, expectancies that are acquired through vicarious experience in this way can be viewed as a product of the normal socialisation process of adolescents. However, learning of this type cannot be divorced from the culture in which it occurs. Indeed, cultural differences in expectancy have been demonstrated between both adolescents and adults in Ireland and the USA (Christiansen and Teahan 1987; Teahan 1988). Thus, in view of the differences in the socialisation process of males and females, it would be surprising if there were not differences in the expectancies of males and females. Rohsenow (1983) who found that females expected less positive effects than males suggests that this may derive from the greater social sanctions against intoxicated behaviour in women. This is a view

which is echoed by Marlatt and Rohsenow (1980) who suggest that females experience greater social sanctions in regard to intoxication and, thus, feel a greater need to monitor their behaviour.

Gender differences have also been found in the expectancies that men and women hold of alcohol by other researchers. Brown et al (1980) found that females were more likely to expect positive social experiences, whereas males were more likely to expect arousal and aggression. Williams and Wortley (1991) in a study of 57 male and 141 female first year students also found differences which they argue are a consequence of social acculturation, which pressurises females to show greater control and moderation in appetitive behaviours in general and alcohol in particular.

In a study of 157 males and 168 females Mooney et al (1987) found that expectations of Social and Physical Pleasure, Sexual Enhancement and Global Positive changes were the best predictors of males' drinking, whereas expectations of Tension Reduction was the best predictor of females' drinking. Mooney et al (1987) suggest that expectancy is a motivator of drinking but suggest that males and females may be differently motivated. Hence, they argue that the results of their study has treatment and prevention implications. That is, treatment for problem drinking in females may be best aimed at reducing tension, particularly social tension, by improving social skills and teaching relaxation techniques.

The next section will turn to positive expectancy and problem drinking.

POSITIVE EXPECTANCY - RELATIONSHIP TO PROBLEM DRINKING

Positive Expectancy and the Aetiology of Problem Drinking

The studies reviewed so far have produced evidence to suggest that positive alcohol-related expectancy has explanatory value in the aetiology and maintenance of problem drinking. Consistently, the main finding of all studies reviewed is that higher positive alcohol-related expectancy is associated with higher levels of drinking. While this suggestion appears secure, for example Connors et al (1986) found that alcoholics scored higher on all AEQ scales than problem and non-problem drinkers, many of these studies have gone beyond this simple assertion to suggest that particular expectancy profiles are associated with identifiable patterns of drinking. However, to date, there appears to be little evidence in support of a more differentiated relationship such as this.

For example, Brown et al (1980) suggested that higher levels of Global Positive Changes were associated with lighter drinking and that heavier and problem drinking was associated with higher expectancies of Sexual enhancement and Arousal and Power. In another study, problem drinking in college students was found to be associated with high expectancies of tension reduction (Brown 1985b). An alcoholic profile was proposed by Brown, Goldman and Christiansen (1985) who suggested that alcoholic drinking was characterised by high expectancies of Global Positive Changes, Social Assertiveness and Social and physical Pleasure. Thus, even within one group of colleagues working together, the evidence produced so far has been contradictory.

The criticisms which were offered earlier, that is, that the sub-scales of the AEQ were not independent would certainly appear to be valid here. Perhaps the differences found by these studies can be accounted for by the inter-subject variability of the samples rather than, as has been suggested, a priori differences between drinking styles. If this is the case, then it may suggest that like the 60s search for the 'alcoholic personality' the 80s and 90s search for an alcoholic expectancy profile is doomed to failure. Indeed, the similarity of purpose between these 'holy grail type quests' is striking, that is to describe problem drinkers as a homogeneous group which is in some readily definable way different from the 'normal population'. While not denying the purity of purpose, or the contributions made, by such quests, this thesis will argue in the following chapters that such a polarised approach, as is offered by positive alcohol-related expectancy, cannot satisfactorily explain problem drinking behaviour. A positive expectancy approach may, however, offer the opportunity of individualised assessment and hence a heuristic to guide treatment aimed at providing coping skills which negate the need for the positive expectancies on which the client scores

highly.

What does seem to be of more explanatory value, in the aetiology of alcohol problems, are the cognitive biases which have been shown to occur with regard to expectancies. In the three studies cited above, that is, Rohsenow (1983), Leigh (1987) and Oei, Hokin and Young (1990), it was found that subjects had different beliefs about the effects of alcohol on themselves than they held about its effects on others and that, generally, the subjects expected that others would be more affected by alcohol than themselves. Rohsenow (1983) suggested that this was due to a self-enhancing bias while Leigh (1987) suggested that it was, in fact, due to the negative portrayal of alcohol by the media. Oei, Hokin and Young (1990) however, found that both explanations had some utility, although probably their most interesting finding was that heavy drinkers believed that others used alcohol in a way which was not only similar to themselves but used it in this way to a greater extent.

If this was the case, then any species of strongly held positive expectancy could be responsible for initiating problem drinking and such a cognitive bias could serve to maintain the problem by 'blinding' the drinkers to idiosyncratic nature of their drinking behaviour since they would view it as not merely 'normal' but, moreover, as something which others were engaging in to an even greater degree. The effect that this bias has on negative alcohol-related expectancy will be discussed in the next chapter.

The final set of reviews in this chapter looks at the effect of positive alcohol-related expectancy on treatment outcome. If, as has been proposed, positive expectancy motivates drinking then treated clients who have high positive expectancies should have a less favourable outcome than those who have low positive expectancies.

Positive Expectancy and Relapse

In a one year follow-up study of 34 patients (originally 42 but 8 could not be contacted) Brown (1985a) found that positive expectancies (as measured by the AEQ) were related to outcome. In particular, she found that all AEQ scales (with the exception of Arousal and Power which showed no relationship) and Total expectancy were negatively correlated with abstinence and non-problem drinking at one year following discharge, that is subjects with lower positive expectancy were more likely to be abstinent or drinking at a non-problem level. Brown found also that lower levels of stress and higher levels of social support were also predictive of abstinence and non-problem drinking. It would have been instructive if Brown had clarified the relationship between these three variables. For exam-

ple does positive expectancy increase as stress rises and does it fall with the perception of higher levels of support. Unfortunately this paper provides no information to answer these questions.

Some clarification of these questions is, however, provided by Connors, O'Farrell and Pelcovits (1988) who interviewed 22 relapsed alcoholics, with 31 relapse episodes, to determine the expectancies surrounding their relapse episodes. They asked two questions a/ *"What did you expect that drinking in this situation would accomplish ? b/ Was (were) the expectation(s) realised ? That is, did the drinking achieve this (these) expectation(s)."*
Results of the study showed that there were four categories of expectancies preceding relapse: 1/ Coping with social situations (48%); 2/ Gaining control over a situation (23%); 3/ Coping with a non-social situation (15%); 4/ Creating an altered physical state. These expectancies were achieved 80, 67, 88 and 100% of the time respectively. The authors suggest two conclusions. First, that since the expectations which the subjects expressed are predominantly about coping, the results of this study are consistent with Marlatt and Gordon's (1985) relapse model which proposes, that as self-efficacy decreases then positive expectancies of alcohol become more pronounced. Thus, the strength of positive expectancies can alter with situational variables. Second, since in the majority of cases these expectancies have been confirmed, expectancies will be strengthened. However, while the authors do offer a caveat that the data was collected retrospectively and hence are subject to distortions, they also suggest that such distortions may nevertheless still reinforce expectancies.

DISCUSSION AND CONCLUSION

Studies of the relationship between positive alcohol-related expectancies and consumption have consistently shown this relationship to be a positive one, that is, the higher the level of positive expectancy held the higher the consumption. However, the direction of causality in this relationship has frequently been questioned.

Stacy, Newcomb and Bentler (1991) specify three classes of theoretical models which could account for these findings. 1/ Expectancies play a cognitive mediational role and are functionally autonomous - expectancies predict behaviour even when a certain amount of experience contradicts these expectancies. 2/ Expectancies are epiphenomenal effects of behaviour - previous consumptive behaviour influences both future behaviour and expectancies but expectancies play no causal role. 3/ Expectancies and behaviour have a reciprocal relationship - expectancy motivates drinking behaviour but is in turn mediated by drinking experience.

In a 9 year longitudinal study Stacy, Newcomb and Bentler (1991) tested the above models. They measured over 230 adolescents (mean age 17.95 years) on drinking and drug variables (frequency, amount and problems) positive expectancy and social conformity, then measured them again 9 years later. The authors suggest that, since adolescent expectancies predicted adult use, while adolescent consumption behaviour did not, this study provides some support for the first class of expectancy model, that is, that expectancies are functionally autonomous. However, their results are not unequivocal since they also found some "*limited support*" for the view that past behaviour affects expectancies, which they suggest is in keeping with the reciprocal relationship model. Thus, there are two important questions which emerge from this study. Firstly, do expectancies motivate alcohol consumption ? Secondly, are expectancies functionally autonomous ?

The role of positive expectancy as a motivator of consumption would appear to be secure and, indeed, the evidence reviewed in this chapter, summarised briefly below, would certainly support such a view.

Positive alcohol-related expectancies are postulated to be the outcomes which individuals believe will result from consuming alcohol. The balanced placebo experiments, reviewed at the beginning of this chapter, have demonstrated that these expectancies have as much, if not more, explanatory power of behaviour while drinking as do the pharmacological effects of alcohol itself, since it has been demonstrated that a strongly held expectancy can produce effects which alcohol itself cannot. It has been suggested that this confirmatory evidence, produced by the self-fulfilling prophecy further, serves to reinforce the expectancy.

Research, into the aetiology of expectancies, suggests that while they predate direct drink-
ing experience they become more specific with direct drinking experience. This research
also suggests that the source of these expectancies is the cultural environment in which the
individual is reared. Although poorly researched, there is evidence which may suggest that
there is a maturation process, where there is a cognitive change, from holding a negative
model of alcohol consumption, to holding a more positive adult model. It would seem that
this process occurs between the age of 10 and 12 years. This point, while fitting the exist-
ing evidence, is speculative and requires more research before any firm conclusion can be
reached.

The literature has also shown expectancies to be involved in the aetiology of problem
drinking. However, as was argued above, no definitive 'alcoholic profile' has, as yet, been
found but alcoholics and problem drinkers appear to have high positive expectancies, re-
gardless of what that expectancy is. What has also been demonstrated is that positive alco-
hol-related expectancies appear to be particularly important in relapse situations, where the
subjects consumed alcohol in order to cope with a specific situation. Thus, the role of posi-
tive expectancy as a motivator of drinking would appear to be firmly established.

However, the second point from Stacy, Newcomb and Bentler's (1991) study - are expec-
tancies functionally autonomous ? - is less well established. Their study provided "*limited
support*" that experience affects behaviour and suggested that, although modest, the evi-
dence is consistent with the reciprocal relationship model. That the relationship between
experience and expectancy is reciprocal, that is, expectancy motivates behaviour and expe-
rience modifies expectancy, would appear to be an obvious relationship and it would be
very surprising if it was otherwise. Indeed, much of the evidence reviewed in this chapter
supports such reciprocity.

For example, Christiansen, Goldman and Inn (1982) suggest that although positive expec-
tancies are in place before direct experience of alcohol, these expectancies are nevertheless
modified (they use the term crystallised) with experience of alcohol. Indeed, Bauman et al
(1985) found a reciprocal relationship between alcohol expectancies and experience, since
adolescents who had drinking experience had altered expectancies.

The study by Connors, O'Farrell and Pelcovits (1988) aptly demonstrates this reciprocity.
In their study, they asked relapsers what expectancies of alcohol prompted their relapse be-
haviour and most of the subjects stated that they had expected alcohol would help them
cope with difficult situations. Hence, although their drinking had been motivated by defin-

able expectancies, the finding that, in the majority of cases, the subjects stated that these expectancies had been realised serves to underline this reciprocal relationship. Of course Connors, O'Farrell and Pelcovits (1988) offer a caveat, that the subjects answers may be a rationalisation of their behaviour, nevertheless such a reinforcing outcome, either real or imagined, would serve to strengthen the link between the expectancy and alcohol. Thus if a similar difficult situation is met at a later time then it would be reasonable to assume that alcohol would be expected to aid coping again.

This may appear to suggest a classic stimulus/response model, with consumption of alcohol being reinforced and so leading to further drinking. However, Donovan and Marlatt (1980) argue that this shaping of behaviour, by pairing responses with reinforcement, occurs only indirectly - by strengthening these expectancies. The strength of reinforcement from alcohol is not inherent within the alcohol per se, rather it is both subjective and relative. Hence, the degree of reinforcement is contained within the utility that the individual places upon the specific expected outcome.

A recent influential model of motivation to consume alcohol (Cox and Klinger 1988) is very much based on reciprocity and offers a multifactorial explanation of reinforcement.

In Cox and Klinger's model of drinking behaviour, they suggest that, although many factors influence drinking, the final common pathway is motivational. Reviewing motivational models, they argue that Hull's concept of incentive motivation is the most appropriate way of explaining drinking behaviour, that is, that individuals are attracted to performing a behaviour by the positive incentives (mainly affective) and repelled from the behaviour by the negative incentives. They propose that individuals make a decision, to drink or abstain, based on an expectation of reinforcement and that this expectation is influenced by multiple factors, for example social/cultural factors, personality factors, physiological reaction to alcohol and past reinforcement from drinking. Thus, they view motivation as a dynamic which is modifiable.

This thesis is built on that very premise, that expectancy can be revised by direct experience. The next chapter will argue that the mechanism for this revision is directly through the negative expectancies that the individual accumulates.

Main points of Chapter 2

The evidence reviewed in this chapter suggests that positive expectancies of alcohol:

1/ are at least as important as the pharmacological effects in mediating behaviour.

2/ are culturally transmitted.

3/ are present before direct experience of drinking.

4/ motivate consumption.

5/ are modifiable.

CHAPTER THREE

The role of negative alcohol-related expectancy in consumption:
A review of previous research methodology and findings.

Contents of Chapter 3

CHAPTER SUMMARY

This chapter suggests that, despite some researchers arguing that it should have potential explanatory value in drinking behaviour, negative expectancy has largely been ignored by researchers. It is suggested that this neglect stems from first, the dominance of the AEQ (which only measures positive expectancy) in expectancy research and second, the equivocal results found in other studies of negative expectancy. However, it is argued that the failure to find a clear relationship between negative expectancy and consumption arises because of the questionable validity of the instruments used.

Evidence is reviewed which suggests two roles for negative expectancy. First, as a statistical predictor of consumption. Negative outcomes are positively correlated with drinking behaviour. Thus, if negative expectancy is learned through personal experience with the aversive outcomes which can occur when drinking, then there should also be a positive relationship between negative expectancy and consumption.

Second, it is suggested that negative expectancy is a motivator of abstinence. Evidence is reviewed which, although not strictly from the expectancy domain, demonstrates that negative expectancy is implicated in recovery. These studies show that negative expectancy is important in: help seeking for addictive behaviours; spontaneous remission from alcohol problems; recovery in treated problem drinkers; and maintaining abstinence when tempted to drinking. Indeed, it has been found that currently abstinent problem drinkers retain a high level of positive expectancy which continues to motivate drinking but abstinence is maintained by recalling aversive outcomes.

The learning process by which people acquire negative expectancies is discussed. It is suggested that not all aversive outcomes surrounding drinking are attributed to alcohol due to a range of cognitive biases. It is a truism that individuals only consider change in alcohol consumption when they recognise that they have problems, however, it is argued that if these problems are considered to be idiosyncratic, not likely to recur, then there will be no reason to change. Thus, this chapter suggests that problem recognition as motivation be redefined as having three stages: 1/ Recognition of current problems; 2/ Recognition of the source of these problems, that is, alcohol; 3/ Prediction of future problems if drinking was to continue.

The chapter ends with the conclusion that a more appropriate instrument is required to investigate negative expectancy.

Chapter Three

The role of negative alcohol-related expectancy in consumption: A review of previous research methodology and findings.

INTRODUCTION

The previous chapter reviewed the research which has investigated the role of positive alcohol-related expectancy and concluded that these expectancies were important mediators in drinking decisions. It was also suggested that negative alcohol-related expectancy had been largely ignored by researchers. Indeed, even when researchers have included negative expectancy it has normally been measured with only a few items, compared to the many items measuring positive expectancy. This neglect is a surprising one since an increasing number of researchers have suggested that negative expectancy should have some explanatory value.

For example, Leigh (1989a) has suggested that, taken from a social learning point of view, both positive and negative expectancies are important predictors of behaviour and this is supported by Connors et al (1986) who have suggested that drinking decisions are influenced by both positive and negative expectancies and hence negative expectancies warrant further attention. Mooney et al (1987) suggest that further research into negative expectancies is needed since a few highly salient negative expectancies may counteract the effect of a long list of moderately desirable positive expectancies. Finally, Cox and Klinger's (1988) model of drinking motivation, described briefly in the previous chapter, suggests that decisions to drink or abstain are based on the extent to which drinking has been reinforced in the past, which includes both positive and negative reinforcement.

Thus, the neglect of negative expectancy cannot be explained by non-recognition of negative expectancy's hypothesised explanatory role in drinking decisions. Instead there are two possible alternative explanations for this neglect. First it could be explained by the dominant role that the AEQ has played in expectancy research. In the previous chapter, when the methodology used in the construction of this instrument was described, it was argued that employing such a methodology precluded the inclusion of negative expectancies, since only positive reinforcing expectancies were requested of the sampled drinkers.

However, despite this deficit, the AEQ continues to be the most widely used instrument in expectancy research. Hence, any research study which employs this instrument alone automatically omits any attempt to measure negative expectancy and, remarkably, this neglect has been perpetuated even when the researchers recognise the possible importance of negative expectancy (for example, Connors et al 1986; Mooney et al 1987). Thus perhaps the convenient availability of a well-validated instrument to investigate positive expectancy and the absence of a similar instrument to investigate negative expectancy has been one reason why negative expectancy has been ignored.

A second explanation, which should be regarded as complementary rather than competing, is the equivocal results obtained from the few studies which have examined the explanatory value of negative expectancy. This research will now be reviewed in the section below and discussed in the section after that.

NEGATIVE EXPECTANCY - PREVIOUS RESEARCH

Negative Expectancy as a Predictor of Drinking Behaviour - Previous Research

Southwick et al (1981) measured the expectancies of 226 undergraduates who represented 4 categories of drinking - Abstainers, Occasional drinkers, Light/Moderate drinkers and Heavy drinkers. Although it was found that there was a dose related effect for negative expectancy - that is, all subjects expected greater behavioural impairment in the heavier drinking situations than in lighter drinking situations - no main effects were found by category of drinker. Hence, Southwick et al (1981) suggest that, on the basis of these results, heavier drinkers expect greater positive effects from alcohol and the same negative effects as lighter drinkers. Thus, for this study, negative expectancy showed no relationship with drinker category.

Rohsenow (1983) using a version of the AEQ which she had modified to include negative expectancies, specifically cognitive and motor impairment and careless unconcern, reports a similar pattern of expectancies to that of Southwick et al (1981). She also found that negative expectancy showed no relationship with drinker category or behaviour.

Collins et al (1990), using the Rohsenow version of the AEQ which she further modified to include a 10 point Likert scale for strength of agreement, also found that there was no relationship between negative expectancies and drinker category. However, like Southwick et al (1981) she presented the AEQ in two versions, varying the instructions to the subjects.

In the first version the subjects were asked to endorse their expectancies associated with a moderate dose of alcohol and in the second their expectancies associated with a large dose of alcohol. Like Southwick et al (1981) they found that for all subjects negative expectancies increased with dose.

Christiansen and Goldman (1983) used the AEQ-A in a study to measure the expectancies of adolescents. They report that there is "*a virtual absence of relationship between negative expectancy and drinking style or age.*"

Leigh (1987), in direct contrast to the above studies, found that there was a positive relationship between negative expectancies and level of drinking. That is, heavier drinkers expected more negative outcomes. She argues that, since numerous surveys have shown that heavy drinkers experience the lion's share of negative alcohol-related consequences, such as hangovers, fights, missing work and accidents, this is an unsurprising result.

In a later study in which she compared the predictive validity of 3 expectancy scales; the AEQ Brown et al (1980), the AES Southwick et al (1981) and the EDA Leigh (1987); she found that it was a negative expectancy (cognitive and physical impairment) which was the best and most consistent predictor of drinking behaviour. It was a predictor of frequency of drinking, quantity per drinking occasion, drinking more than 8 drinks, frequency of intoxication and overall drinking, that is, quantity/frequency (Leigh 1989b).

Williams and Wortley (1991) measured the positive alcohol-related expectancies of 198 first year students using the AEQ. However, they also measured negative alcohol-related expectancies using the Alcohol Dependence Scale (Skinner and Allen 1982). Like Leigh (1987) they found that both positive and negative expectancies increased with consumption.

Finally, Stacy, Widaman and Marlatt (1990) report a series of studies in which they measured both positive and negative expectancy in three ways that is 1/ the three most important self-generated expected outcomes; 2/ a list of expectancies based on previous research (specifically Rohsenow's (1983) modified AEQ); 3/ a generalised outcome, that is, "*How likely is it that bad effects will occur from your drinking in the next four weeks ?*" They conclude from these studies that, in a multiple regression analysis, positive expectancy is a superior predictor of consumption to negative expectancy. Nevertheless, they also found that negative expectancy could not be omitted from the regression equation without significantly reducing the predictive utility.

Negative Expectancy in Abstainers

Only 2 studies have examined the expectancies of abstainers as a specific group (Leigh 1989a). The first by Southwick et al (1981) found that there was little difference in the positive expectancies held by abstainers and the other drinkers although positive expectancy did tend to increase with consumption. They found no differences in negative expectancies between abstainers and other drinkers. Leigh (1987) on the other hand found that abstainers differed significantly from light and moderate drinkers in their negative expectancies. She reports that abstainers had higher expectancies of nastiness but lower expectations of cognitive and physical impairment.

Leigh (1989a) suggests a two fold explanation to account for the different results between her study and Southwick et al's (1981). First she suggests that the scale used by Southwick et al (1981) is questionable in its relevance to cognitive and physical impairment, citing bipolar items like rude/polite, defiant/obedient and indiscreet/discreet. Whereas in her instrument she employs 5 items - sick, dizzy, can't think straight, sleepy and bad. Her second explanation lies in the inherent differences in the subject population. Southwick et al (1981) used undergraduates whereas Leigh's (1987) sample was drawn both from the college campus and the general population. Hence, she argues that there are differences between life long abstainers (as the undergraduate sample is likely to be) and current abstainers. Life long abstainers have, by definition, no direct experience with alcohol whereas, by contrast, a sample of current abstainers is likely to contain a number of reformed drinkers and alcoholics. Thus she suggests that -

"People who give up drinking are likely to be the ones whose experiences were negative, and their current beliefs reflect this history."   (Leigh 1989a p 363)

DISCUSSION

As can be seen from the above review of research on negative expectancy the results found have been inconsistent. However, three of these studies which showed no relationship between negative expectancy and drinking (Christiansen and Goldman 1983; Collins et al 1990; Rohsenow 1983), employed a modified version of the AEQ which is primarily a positive expectancy measure, and the other study by Southwick et al (1981) employed the AES which Leigh (1989a) suggests lacks validity as a measure of negative expectancy.

First the Rohsenow (1983) and the Collins et al (1990) studies both used the version of the AEQ which Rohsenow modified for her study. In modifying the AEQ she retained the five

items which loaded highest on each scale and then added items to form two new scales, cognitive impairment and careless unconcern. Since the original items in the AEQ were obtained from a pool of verbatim statements taken from a large sample of the general population (Brown et al 1980) it would be expected that these items would be generalisable to a larger population and, indeed, this has consistently been shown to be the case. The same cannot be said of the negative items which were included in the instrument, since they were compiled by Rohsenow herself, without any survey of the target population being carried out. Thus the validity of the negative scales, as compared to the positive scales, must be questioned.

A similar criticism can be levelled at the AEQ-A used by Christiansen and Goldman (1983). Again this instrument is a derivative of the AEQ with some negative items added. The methodology employed in this case did involve consulting the target population , but since this consultation consisted of only 10 adolescents the generalisability of the items must again be questionable.

Criticisms of Southwick et al's instrument were made earlier and do not require repetition here. However, it is worth reflecting here on the bipolar measurement scaling used in this study since the use of such a scale makes a number of assumptions. Firstly, in a bipolar scale the end points must be perfectly and negatively correlated if the scale is to have any validity. Since it has been well documented that the effects of alcohol are biphasic (Sher 1988); for example, proximal euphoria but distal dysphoria, it is unlikely that this is the case for an individual may hold both positive and negative expectancies of alcohol quite independently. Second it assumes that for every positive effect there is a negative and vice versa. Again this is unlikely, some negative effects have no direct positive equivalent, for example what would be the bipolar equivalent of cirrhosis ? One solution could be to use only items which fit the above assumptions, however, this would constrain the sensitivity of instrument to an extent which would make its predictive validity extremely low. Indeed, an independent test of the validity of the AES found exactly that. When compared with the AEQ and the EDA, the AES explained almost none of the variance (Leigh 1989b).

Thus far, this chapter has suggested that while alcohol-related negative expectancy has been neglected by researchers, there is, nevertheless, some evidence that it may be an important variable in the prediction of drinking behaviour. Two possible, related, explanations for this neglect were offered. The first explanation concerned the dominant role played by the AEQ in expectancy research. The second concerned the equivocal results

found in the few studies of negative expectancy which have been carried out. It was argued above that these results appear largely to be due to a clear deficiency in the instruments employed: an artifact of the testing tool. Even the EDA (Leigh 1987), which has consistently shown negative expectancy to be a valid predictor of drinking behaviour, was compiled without carrying out any survey of the target population, only a literature search of other instruments.

The above discussion would suggest that if negative expectancy is to be systematically investigated then an empirically derived instrument is required, that is, an instrument which is constructed from a survey of a large sample of drinkers. However, what possible role negative expectancy may play in drinking behaviour has not yet been made clear. The next section will deal with this aspect of negative expectancy.

NEGATIVE EXPECTANCY AS A THEORETICAL CONCEPT

Introduction

The remainder of this thesis will concentrate particularly on negative alcohol-related expectancy. While the majority of the experiments which will be described also incorporate other measures the focus will, nevertheless, be on negative expectancy. In view of the previous discussion and criticisms of the polarised attitudes which have been employed in expectancy research to date, it might be suggested that these very criticisms would apply to this thesis. It might also be suggested that the most productive approach would be to investigate a composite expectancy (that is, both positive and negative) in relation to drinking behaviour. However, positive expectancy is a well-defined and well-researched concept while negative expectancy is not. Whilst the long term goal of expectancy research might be to combine the two concepts in some way, this requires that the content and role of negative expectancy in drinking decisions be investigated using a methodology which has, at least, the same level of sophistication and scientific rigour as that used by Brown and her colleagues for positive expectancy. The core of this thesis, then, reports the use of such a methodology to investigate more fully the content of the negative alcohol-related expectancy that people hold and the role that this expectancy plays in drinking behaviour. First, however, this chapter turns to the questions, what role might negative expectancy play in drinking decisions and how might these expectancies might arise

Negative Expectancy as a Predictor of Drinking Behaviour - Reconsidered

In chapter 2 evidence was presented which suggests that positive alcohol-related expectancy was learned in two ways. First it has been shown that adolescents come to alcohol with expectancies of alcohol already in place and has been suggested that these expectancies are learned vicariously (Casswell et al 1988; Christiansen et al 1982). Second while the adolescents have expectancies of alcohol before drinking, these expectancies are altered by direct experience of drinking (Bauman et al 1985; Christiansen et al 1983). It would be surprising if this were not the case since it is true for most behaviours. However, if such an 'expectancy/behaviour' law does exist then it seems inconceivable that it would not also apply to negative alcohol-related expectancies. To put this argument more concretely, if an individual learns, either vicariously or directly, that alcohol can bring positive effects, either by enhancing pleasure or by decreasing unpleasant feelings, then it is difficult to imagine that he/she would not also learn, either vicariously or directly, that alcohol can bring negative effects. If this is the case and, as Leigh (1987) has suggested, negative outcomes are positively correlated with level of consumption, negative expectancy should be positively related to drinking behaviour and, thus, be a statistical predictor of drinking behaviour.

However, this argument raises, at least, two quite distinct questions. Firstly if, as some researchers have reported, negative expectancy is not associated with drinking behaviour then why not ? Is negative expectancy a special case which does not conform to the 'laws' of learning ? This seems unlikely, instead it seems more plausible that, as has been argued above, the instruments employed to measure negative expectancy were inadequate. Certainly this is an empirical question which is best answered by scientific enquiry and, indeed, evidence will be presented in later chapters which demonstrates that when an instrument, which has been constructed using appropriate and robust methods, is used there is a strong relationship between consumption and negative expectancy.

The second question is less easily answered since if there is a strong relationship between consumption and negative expectancy then why do individuals, who are incurring problems from their drinking, continue to drink at harmful levels ? Of course this is the most crucial question in alcohol research for both treatment and prevention and has evoked many diverse explanations ranging from genotype to denial. However, before even attempting to answer such a question, the role that negative expectancy might play in drinking behaviour should be examined . In other words some understanding of normal mechanisms must be gained before examining so called problematic ones.

Negative Expectancy As A Motivator

The role of positive alcohol expectancy has been well established over the last decade as a motivator of consumption that is people make a decision to drink in order to achieve expected good outcomes. Thus, as has been suggested by other researchers (for example, Connors et al 1986, Cox and Klinger 1988, Leigh 1989a, Mooney et al 1987), negative expectancy should represent motivation to not drink. In other words, if people drink if they expect to get 'good effects' then it would appear to be a reasonable assumption that they would not drink if they expected 'bad effects'. This assertion is not merely speculation since there is some evidence to support it.

Previous Studies

Bauman and his colleagues, examined the Subjective Expected Utility (SEU) of alcohol in adolescents - that is where the expected pros of drinking are weighed against the expected cons of drinking to give an overall utility score. They found that abstainers had a more negative SEU of alcohol than drinkers. This result was replicated in a panel study which took two measures from the subjects one year apart. Again they found that the abstainers had the more negative SEU (Bauman and Bryan 1979; Bauman et al 1985).

Leigh (1987) also found that abstainers had higher negative expectancies (on a scale she called nastiness) than drinkers. She argues that many current abstainers (previous drinkers as opposed to lifelong abstainers) are likely to be reformed alcoholics and problem drinkers and therefore their experiences are likely to have been negative. Thus she suggests that their current beliefs are likely to reflect this history. Which would suggest that negative expectancy was a motivator of maintaining abstinence, if not actually initiating it.

DiClemente et al (1991) recruited 1466 smokers for a study on quitting. There were two parts to this study, a cross sectional part where the subjects were allocated to a stage of change. Prochaska and DiClemente (1982) suggest that not everyone who attends for treatment is actually wanting to change. Thus, they classify individuals according to stages, that is: precontemplator (PC) - not considering quitting; contemplator (C) - thinking about quitting; or preparation for action (PA) - set a date to quit. The second part of the study was longitudinal where subjects were followed up to determine 1/ how many quitting attempts they had made and 2/ length of abstinence. The results of this study showed that for both follow up measures PA > C > PC. Interestingly this study also incorporated measures

of the pros and cons of smoking and a decisional balance measure, which is the arithmeti-
cal difference of these two measures (basically these measures are positive and negative
expectancy measures). They report that the decisional balance measure was exactly as
would be predicted, that is, the decisional balance became more negative with movement
through the stages that is, PA < C < PC.

What is particularly interesting is that, although the pros of smoking decrease significantly
as the subjects move through the stages, the more dramatic shift is seen in the cons. This
would suggest that subjects may retain at least some positive expectancies of smoking but
change is more affected by the negative expectancies. Of course the superior predictive
utility of negative expectancy demonstrated in this study could be merely an artifact of the
items employed in the decisional balance instrument, however, it does suggest that nega-
tive expectancy may be at least as important as positive expectancy as a predictor of absti-
nence.

Taken together these studies represent, at least, tentative support for the assertion that nega-
tive expectancy may motivate abstinence. The Bauman studies suggest that negative ex-
pectancy may be instrumental in the maintenance of abstinence in adolescents who have
never consumed alcohol (Bauman and Bryan 1979; Bauman et al 1985). Leigh's (1987)
study suggests that it is also important in the maintenance of abstinence in recovering alco-
holics and ex-problem drinkers and finally the DiClemente et al (1991) study suggests that
negative expectancy is important in the initiation of abstinence. Of course, the DiClemente
study was carried out with smokers and not drinkers, however, there are no a priori reasons
to suggest that this result does not generalise to drinking. Indeed, the Stages of Change
model (Prochaska and DiClemente 1985) has been adopted by the alcohol research fraterni-
ty for a decade now and has recently become the de rigueur of addiction research (for ex-
ample, DiClemente 1993; Heather 1993; Rollnick 1993).

Two other bodies of research, which have not been regarded as part of the 'expectancy' re-
search domain but which have clear implications for expectancy research in general and
negative expectancy research in particular, support this view of negative expectancy as a
motivator of abstinence. This research will be reviewed in the next section.

Treatment Entry

It is well recognised that people seek help for or change their drinking behaviour because
they are experiencing problems. Indeed, since it has been established that alcoholics and

problem drinkers have higher positive expectancies of drinking than non-problem drinkers it would be an unusual person who decided to reduce his/her intake or initiate abstinence if there were not problems. After all, it would seem illogical to change a behaviour which is perceived (however wrongly) to bring some benefits and no problems. The studies described below provide evidence which supports a problem-motivated change model.

Thom (1987) studied the reasons why 50 people (25 males and 25 females) entered treatment. She found that three reasons accounted for 62% of the sample. Although she found some gender differences in reasons, most of the differences were not significant. These reasons were: 1/ worries about health (28%); 2/ prevent marriage break-up (18%); and 3/ pressure from others (16%). Subjects giving reason 3 were mainly women (7 women versus 1 man) and reported that 'nagging' was the main reason for attending. Interestingly the author reports that these women seemed to be only seeking *"release from the pressure without expecting or hoping for changes in other aspects of their lives"*

(Thom 1987 p 994).

Oppenheimer, Sheehan and Taylor (1988) carried out a similar type of study with 150 drug misusers at three London treatment agencies. In this study the subjects were asked to complete a 54 item questionnaire (the Reasons Questionnaire) which listed possible reasons for seeking help, the results being subsequently factor analysed. This procedure returned six factors: 1/ Becoming Dependent (the highest loading items were - becoming addicted to drugs; needing drugs every day); 2/ Problems with the Supply of Drugs (cannot find a doctor to prescribe; cannot afford to buy drugs); 3/ Problems with Personal Crisis (someone close overdosed; someone close died through using drugs); 4/ Problems with Personal Decline (unable to do a job properly; almost destitute); 5/ Problems with Loss of Assets (have been evicted; lost job); 6/ Unnamed factor (have no veins left).

Nine of the 54 items applied only to those subjects with partners or children, however these items were not included in the factor analysis because of the small number of subjects to which they applied. The authors do report that, although few subjects endorsed these items, when they did occur they had a *"high impact"*. The two items which were deemed most important were: 1/ Spouse or partner threatening to leave; 2/ Child found out about drug use.

The authors conclude that subjects appear to wait until they are unable to manage their lives before they seek help, hence, they will not seek help until they perceive it to be a problem. They further suggest that there appears to be a combination of *"trigger events"* which promotes a subjective re-evaluation of the meaning of these events preceding help-

seeking.

The two studies reviewed briefly above suggest that help-seeking is initiated by recognition of problems. Thom (1987) found that while *"pressure from others"* was associated with treatment entry, these subjects only appeared to want release from the pressure, not to change the behaviour itself. The other two reasons given by Thom (1987) are, of course, negative expectancies since they concern the anticipated future consequences of continuing to drink - that is, deteriorating health and marriage break-up. Oppenheimer, Sheehan and Taylor's (1988) study shows broadly the same results. Although carried out with drug addicts, the first five factors which emerged could quite easily be translated to alcohol problems. What is particularly instructive is that in factor 3 - Personal Crisis - the 2 items which load highest on these factors are not events which have been experienced personally rather they are events which have happened to other addicts; that is someone close overdosed; someone close died through using drugs. This strongly suggests that treatment entry can be motivated by potential future problems which are learned vicariously. This type of learning is well recognised in social psychology as modelling (Bandura 1977). Like Thom (1987), this study also found that the threat of a spouse or partner leaving was a high impact motivator. Taken together these two studies suggest that although current problems may motivate treatment entry, *recognition* of potential *future* problems may also motivate treatment entry and these are, of course, negative expectancies.

Spontaneous Remission Studies

Another source of support for the role of negative expectancy as a motivator of recovery can be found in the studies of spontaneous remitters. These studies investigate the route to recovery of individuals who have recovered from an alcohol problem without the aid of formal treatment, hence it could be argued that they provide an insight into 'natural recovery'. Of course, the data has been collected post hoc and may be thus prone to inaccuracies or bias as the individual rewrites history. However, it does, at least, provide an insight into the attributions which this group make to explain their recovery.

The first study by Tuchfield (1981) solicited subjects through newspapers, radio and television. Of the 162 subjects who volunteered 51 were deemed to have actually resolved their alcohol problem without formal treatment and it was these 51 subjects who were subsequently interviewed and provided the data for the study. Tuchfield calls this an *"explorato-*

ry study" and hence makes no statistical inferences from the data collected. Instead he characterises 9 types of attributions of what initiated commitment to abstinence and illustrates some of them with excerpts from the interviews. The most common of these attributions were: 1/ personal illness or accident; 2/ extraordinary events, including personal humiliation, exposure to negative role models, events during pregnancy, attempted suicide and personal identity crisis. The others were: education in or educational material about alcoholism; religious conversion or experience; direct intervention by immediate family; direct intervention by friends; financial problems created by drinking; alcohol related death or illness of another person; alcohol related legal problems.

There appears to be a remarkable similarity between the attributions made for abstinence in this study and the reasons given for help-seeking by the addicts in the Oppenheimer, Sheehan and Taylor (1988) study and, like the authors of that study, Tuchfield also suggests that the results of his study point to problem recognition as a catalyst to action. Also like Oppenheimer, Sheehan and Taylor's (1988) Tuchfield found that negative example can precipitate that recognition. He quotes extracts from two interviews where the subjects after encountering skid row drunks concluded *"That could be me"*.

Ludwig (1985) in a similar study, investigated the cognitive processes surrounding initiation of recovery in 29 spontaneous remitters. He found that 55% of the subjects claimed to have initiated their recovery when they had reached the lowest point of their lives. Ludwig argues that, although for many of the subjects this 'personal bottom' entailed situations such as: divorce; job loss; and physical illness; these situations, in themselves, have no inherent motivational value, rather it is in the individual's reaction to these events that the motivation lies. He also found that not all subjects required profound, degrading and shameful experiences in order to change as some *"...claimed they clearly saw where they were heading if they continued with their drinking habits "* (Ludwig 1981 p 57). Thus he concludes that for many of these subjects the decision to initiate abstinence was prompted by not just present problems but by the expectations of potential future problems.

"They concluded that the future, negative consequences of continued alcohol consumption far outweighed any potential pleasure gained in the present" (Ludwig 1981 p 57).

Interestingly, he also found that half of his subjects reported having automatic negative images or thoughts associated with the notion of a drink. The other half still experienced positive images of drinking, however, as their train of thought continued, these thoughts became increasingly negative and negated the original urges to drink. What appears to be

very important is that when these subjects imagined the negative consequences of drinking, it was *themselves* in distress which helped maintain abstinence. The image of others in distress as a consequence of their drinking, for example, family or friends, did not appear to enter the frame.

In concluding he points to the commonality of the cognitive processes surrounding recovery and tentatively suggests that these processes may be common to not just this group but to all types of recovery.

"It is facinating that virtually all of the respondents, regardless of their diverse routes toward recovery, arrived at a common cognitive destination: mental associations to alcohol with very unpleasant, sickening, humiliating or distasteful experiences of a personal nature." (Ludwig 1981 p 57).

Like the studies of treatment entry described above, these studies by Tuchfield (1981) and especially Ludwig (1985) strongly support the role of cognitive processes in abstinence initiation and maintenance. Again they suggest that an important element in these processes is negative alcohol-related expectancy. The finding by both of these studies that personal experience of 'hitting bottom', while still the most common route, is not a prerequisite for recovery since vicarious experiences can also have a profound effect, serves to further underline the motivational role in abstinence initiation. Indeed, the evidence becomes even more compelling when maintenance is looked at, since for half of Ludwig's subjects the thought of drink held only negative connotations, while for the other half, for whom alcohol still had some positive connotations, continuing to think about drinking resulted in these thoughts becoming increasingly negative and abstinence being maintained. However, these aversive outcomes had to be of a personal nature.

While this evidence in support of negative expectancy is indeed compelling, it could possibly be explained by suggesting that there are some a priori differences in problem drinkers who can recover without the aid of formal treatment. For example, it is possible that they are less cognitively impaired, possess more 'willpower' or have some other trait which aids recovery but which treatment attenders are deficient in. Although this seems unlikely, especially in view of the similarity of the results of these studies to the results of the studies on help-seeking, it cannot be excluded. The next section will look at studies of treated subjects.

Outcome in Treated Subjects

Edwards et al (1987) conducted a study of the attributions made by 66 treated male alcoholics as to what caused change. They employed a self-completion, 70 item attributions questionnaire. The responses to the questionnaire were factor analysed to give 11 scales which affect recovery either positively or negatively. These scales were: 1/ treatment - for example, type of treatment subject had; 2/ Drugs - for example, tranquilizers, antabuse (Disulfram); 3/ AA - for example, number of attendences, attitude towards AA; 4/ Cognitions - for example, what drinking would do to family, fear of losing mind, fear of losing everything; 5/ Family - for example, spouse threatening to leave; 6/ Dealing with realities - for example, new job; 7/ Emotional - for example, stopping feeling sorry for self; 8/ Drink helps - for example, drink makes shakes better; 9/ Avoidance - for example, keeping out of pubs; 10/ Pre-exempting - for example, no drink in the house; 11/ Risky strategies - for example, keeping company of other drinkers. It can be clearly seen that scale 4, the Cognitions scale, is in fact negative alcohol-related expectancy.

A further factor analysis was carried out on these scales which produced two factors which were then rotated to give an oblique solution. These factors were given the names Active and Responsive, since Edwards et al (1987) argue that the more usual designations of internal and external attributions are inadequate to describe the resulting factors for both factors contained both internal and external attributions. The composition of the 2 new factors (that is, those scales which loaded higher on that factor) were Active - AA, Avoidance, Emotional, Treatment, Dealing with realities, Drugs and Pre-exempting and Responsive - Family reactions, Cognitions, Drink helps, and Risky strategies. One particularly interesting aspect of this factor analysis is that although the Cognitions scale loads higher on the Responsive factor (0.43), it also has a high positive loading on the Active scale (0.34), despite the factors being rotated to give a better differentiated solution. It is also worth noting that it is the only scale to show this characteristic and hence is the only scale which is common to both the Active and Responsive factors.

The authors then carried out a cluster analysis with outcome variables which distinguished between low and high dependence subjects, as measured by the Scale of Alcohol Dependence Questionnaire (SADQ). Outcome clusters were then correlated with attributional factors. The results showed that both Active and Responsive factors were associated with good outcome for low dependence subjects, however, this association was stronger for the Responsive factor than the Active factor. In the high dependence subjects while the Active factor was positively correlated with good outcome the Responsive factor actually showed

a small negative correlation. The authors conclude that these results suggest that different styles of treatment may be appropriate for different levels of dependence. However, it is instructive that the Cognitions scale (negative expectancy) is an important and common element to good outcome in both high and low dependence subjects.

In what was basically a replication of Ludwig's (1985) study, but using a treated population rather than spontaneous remitters, Amodeo and Kurtz (1990) studied 46 male alcoholics. Essentially the results of this study support the findings and conclusions of Ludwig (1985). This study also found that for many (70%) abstinence was initiated at a period described as a 'personal bottom'. It also found that all subjects reported experiencing cravings or urges for alcohol and that length of sobriety made no difference to the frequency of such thoughts. They report that the most common method of dealing with these urges and cravings was by recalling the reasons for initiating abstinence, particularly the trouble caused by alcohol. It is reasonable to assume that this recall process serves to maintain abstinence by alerting the individual that these aversive events can reoccur if drinking was resumed. Hence, it is negative expectancy which is operation here. The authors assert that the role of these memories should not be underestimated and suggest that teaching a strategy for recalling aversive alcohol-related events would be a useful relapse prevention skill to complement the armoury of other skills taught in alcohol programs. However, they point out that, since the reasons are different for each person, such a treatment would have to be individualised.

The evidence from these studies of 'treated' problem drinkers is consistent with the evidence from both the treatment entry studies and the spontaneous remission studies. Again negative expectancy is implicated in recovery as a motivator of both abstinence initiation and maintenance. In fact Amodeo and Kurtz (1990) even go so far as to suggest that it should be formalised and taught in treatment, as an integral part of relapse prevention. The evidence from the Edwards et al (1987) study also suggests that while different treatment regimes appear to be effective for high and low dependent clients, only negative expectancy, out of all the variables they measured, has an important role in both Active and Responsive treatment strategies. Thus the evidence for negative expectancy as a motivator of recovery seems clear and compelling across all types and stages of recovery and it is thus even more surprising that such an important concept has been subject to so much neglect by researchers.

DISCUSSION

This chapter began by stating that despite being recognised by some researchers as having potentially important explanatory utility, negative expectancy has been a largely neglected concept. Two, not unconnected, reasons were suggested for this neglect. First, the dominant role of the AEQ, which measures only positive expectancies, was implicated. However, since this point has already been discussed it will not be discussed any further here. The second reason which was suggested was the equivocal results from previous empirical studies of negative expectancy. The findings from most of these studies have suggested that negative expectancy has, at worst, no predictive validity (for example, Southwick et al 1981) and at best limited predictive validity (Stacy, Widaman and Marlatt 1990). This requires further discussion.

As was discussed earlier, in three of the four studies which showed no relationship between negative expectancy and consumption (Christiansen and Goldman 1983; Collins et al 1990; Rohsenow 1983) and one study which showed that it had limited predictive validity (Stacy, Widaman and Marlatt 1990) the measures used are derivatives of the AEQ. This is significant since, whereas the positive scales of the AEQ were compiled by canvassing a large sample of drinkers about what their anticipated reinforcement from alcohol was (see chapter 2) this procedure is either lacking, or at best cursory, in the construction of the negative scales. To date, it appears that no researcher has applied the considerable scientific rigour, employed in the construction of the AEQ, to the investigation of negative expectancy. Thus the validity of the instruments used in its investigation must be viewed with suspicion. Hence, allusions to 'previous research' for justification of item inclusion or instrument selection (for example, Stacy, Widaman and Marlatt 1990 referring to Rohsenow's modified version of the AEQ) are misleading since consecutive researchers are merely subscribing legitimacy to non-empirically derived instruments of questionable validity and, hence, compounding the possible fallacy that negative expectancy is unimportant and unpredictive.

Even for the one study which did demonstrate that negative expectancy is not only associated with consumption but was, in fact, the best predictor in all consumption variables measured (Leigh 1987), these criticisms apply. Although, the results of that study are encouraging, when one considers the range of negative outcomes which can occur from drinking, then it is quite obvious that the negative expectancy scale employed in the EDA is extremely limited (that is: sick; dizzy; can't think straight; sleepy and bad).

That problems can arise from consumption is indisputable and that there is a positive rela-

tionship between consumption and concomitant problems would seem to be a reasonable assumption. Heather and Robertson (1989) suggest that few individuals who drink have never, at some time, had a hangover, said the wrong thing after a few drinks or felt a little sluggish at work due to drinking and it would seem reasonable to suggest that the more often and the greater quantity one drinks the more susceptible one is to such outcomes. (note: It should be made clear at this point that 'problem' is used in this context in its broadest sense and refers to aversive outcomes as a result of drinking, whether they are liver damage or embarrassing ones self at an office party, it should not be confused with the more restricted usage of the term 'problem', such as alcoholism, dependence or problem drinking.) If, then, it is the case that heavier consumption is positively related to aversive outcomes then it would be assumed that heavier drinkers would have higher negative expectancy of drinking than lighter drinkers. Thus if an empirically derived instrument, which validly measured the full range of negative expectancies which drinkers held, was used, then it should show a positive relationship with consumption. Thus negative expectancy *should* be a statistical predictor of consumption. This is of course is an empirical question and will be investigated in a later chapter.

The evidence from this chapter has also strongly supported the view of negative expectancy as a motivator of both the initiation and maintenance of abstinence. This evidence has shown that negative expectancy is important in life-long abstainers remaining abstinent (Leigh 1987), in motivating individuals to seeking help for alcohol problems and entering treatment (Oppenheimer, Sheehan and Taylor 1988; Thom 1987), in the initiation and maintenance of abstinence in individuals who recover from alcohol problems without formal treatment (Ludwig 1985; Tuchfield 1981) and in the initiation and maintenance of abstinence in individuals who have been treated for alcohol problems (Amodeo and Kurtz 1990; Edwards et al 1987). Indeed, Ludwig (1985) found that negative expectancy of alcohol was so universally cited as a motivator by his subjects that he has suggested that it is extremely likely that it is implicated in all types of recovery. A suggestion which gains support from the study of Edwards et al (1987), who found that, although good outcome was associated with an Active style of treatment in high dependence clients and with a Responsive style in low dependence clients, the Cognitions scale (negative expectancy) had a high positive loading on both styles. Findings like these have prompted Amodeo and Kurtz (1990) to suggest that ways of remembering the trouble which alcohol caused (and presumably could cause again if drinking was resumed) should be formally taught in re-

lapse prevention programmes.

Although these studies have produced compelling evidence for negative expectancy as a motivator of abstinence, it is an inescapable fact that some individuals continue to drink despite numerous, and sometimes quite profound, aversive outcomes. Thom (1987) has pointed to problem recognition as a motivator of help seeking and Tuchfield (1981) has suggested that problem recognition motivates abstinence initiation. However, recognition of having a problem does not necessarily equate with recognizing the source of the problem. For example an individual may be brash and abrasive through over-consumption and as a result, his/her relationships with his/her colleagues at work may be fraught. However, if he/she attributes the discord to jealousy on the part of the colleagues, then the solution which suggests itself is to find a job where the staff are nicer. Indeed, Thom (1987) found that some clients attributed *"pressure from others"* as the reason for seeking help and also that these same clients were only seeking release from the pressure and were neither seeking nor hoping for change in other aspects of their life. Thus, if an individual does not recognise the source of the current problems as alcohol then there would be no motivation to change his/her drinking behaviour. Why this should be will now be discussed.

Mc Mahon and Jones (1992, 1993) use the term 'faulty appraisal' to describe the cognitive distortions and bias surrounding alcohol consumption. Basically, they argue that although an individual is experiencing alcohol-related problems this is not necessarily translated into negative alcohol-related expectancies. They suggest that one reason why this may occur is the prepotency of positive expectancy, that is, because positive expectancy is learned first it is difficult to change. Thus there are two distinct elements to this argument: 1/ positive expectancies are in place prior to negative expectancies; 2/ once in place positive expectancies are difficult to change. For the first element Mc Mahon and Jones (1992, 1993) implicate primacy effects.

It has been shown that alcohol has a biphasic pharmacological effect (Marlatt and Rohsenow 1980, Sher 1987) that is, tension is reduced at low doses but increased at higher doses. Thus Mc Mahon and Jones (1992, 1993) argue that positive expectancy is prepotent since individuals 'learn' the positive effect before the negative effect and through a series of cognitive distortions and bias (which will be discussed below), the individuals continue to hold an expectancy of this positive effect and dismiss the negative effect. Although Mc Mahon and Jones' (1992, 1993) explanation of prepotent positive expectancies and cognitive dis-

tortions and bias to preserve them and dismiss negative expectancy sounds plausible, their suggestion that primacy effects of alcohol usage are responsible for the the individual holding positive alcohol-related expectancy initially do not explain the range of positive effects which people hold. There is a much more convincing explanation of the prepotency of positive expectancy.

It was shown in chapter 2 that individuals come to drinking with expectancies of alcohol already firmly in place (Christiansen and Goldman 1983). Although the evidence was tentative, it was suggested that there appears to be a process of socialization where the child's alcohol expectancies change from a predominantly negative model (Casswell et al 1988) to an adult model which is predominantly positive (Brown et al 1980, Christiansen and Goldman 1983). This model of alcohol consumption appears to be culturally transmitted, since there is evidence to suggest that a society's attitudes to alcohol are related to the per capita consumption (Peele 1987). Thus it would appear that positive alcohol-related expectancy is learned vicariously from parents and later peers and, increasingly, from the media, especially television (Casswell et al 1988). It has also been suggested by Brown et al (1980) and shown empirically (Marlatt and Rohsenow 1980) that these expectancies of alcohol can actually produce effects that alcohol itself cannot produce but will nevertheless be attributed to alcohol by the drinker. Primacy effects cannot explain such phenomena, since these effects would be limited to the 'actual' pharmacological effects of alcohol. Thus, there appears to be a self-fulfilling prophecy at work, which further reinforces the positive expectancies which an individual holds. If this is the case, then the prepotency of positive expectancy would be a function of socialisation rather than the positive first phase of the pharmacological action of alcohol. However, this biphasic action of alcohol may strengthen the expectancies which are held, since if an individual comes to drinking with an expectation of tension reduction then this expectancy will be confirmed by the primary phase of alcohol effects.

In the second element of their argument Mc Mahon and Jones (1992, 1993), suggest that positive expectancies are difficult to alter since people do not translate negative outcomes into negative expectancies. They suggest that these outcomes are subject to cognitive distortions or bias hence their positive expectancies are preserved. They cite the work of Bandura (1977) who, in his formulation of Social Learning Theory, suggests that people learn what outcome to expect from a given behaviour, by both direct and indirect (vicarious) experience. Moreover, he (Bandura) suggests that, once formed, these expectancies are very

robust, that is, a few disconfirming outcomes will have little effect on them, since they will be dismissed as being idiosyncratic. Such a suggestion is not new, indeed preservation of current knowledge in this way has been well documented in Cognitive Psychology (for example, Minsky 1975, Neisser 1976, Rummelhart and Norman 1983). Greenwald (1980) has also identified such mechanisms, for example he suggests that current knowledge is preserved through the employment of a number of strategies which he collectively calls "*cognitive conservatism*". He implicates two processes which help to preserve the current knowledge state: openness to confirming but not disconfirming evidence and reliance on the first opinion rather than subsequent ones. Evidence from consistency theories also support this bias since it suggests that new information which is consistent with prior knowledge is easier to learn than new information which is not consistent (Singer 1968).

Thus, if an individual has a positive expectancy of alcohol and, on drinking, an aversive outcome is encountered then it may attributed to something other than the alcohol itself. For example, getting into an argument while intoxicated may be attributed to the belligerence of others and thereby exonerating both self and alcohol. Also getting drunk may be blamed on the influence of the drinking company. Hanson, Raynor and Wolkenstein (1991) suggest that such failure to make an accurate causal attribution preserves the perception of "*personal immunity*", that is 'bad things can't happen to me'. This would appear plausible since the subjects of Thom's (1987) study who attributed their dilemma to 'nagging' from their partner or spouse are not expecting change in their lives apart from release from the pressure. If then problems, which are in fact alcohol related, are attributed to circumstances other than alcohol, then it is easy to see how positive expectancy of alcohol per se could be preserved and, consequently, motivation to change would be absent. As it was argued earlier, it appears illogical to change a behaviour which brings apparent benefits and no apparent problems.

Thus, the evidence from this chapter suggests that motivation for abstinence arises from problem recognition. However, it would appear that recognition of the existence of a problem is insufficient for abstinence initiation, if the source of the problem is attributed to something other than alcohol. For example, if continually getting intoxicated was attributed to the company that the individual was keeping or the particular beverage which was being consumed, then the solution would simply be to avoid that company or that beverage. There would be no requirement, or motivation, to initiate abstinence in such a scenario. However, if an individual was experiencing problems which he/she attributed to alcohol,

then he/she may predict that further alcohol consumption would result in further, or even more severe, problems (that is, negative expectancy) and treatment may be sought or abstinence initiated.

Why an individual who has been having aversive outcomes for some time and attributing them to circumstances or things other than alcohol should suddenly, or perhaps not so suddenly, recognise that the source of the problem is alcohol is beyond the scope of this thesis. However, some of the evidence in this chapter does suggest, at least, speculative explanations. Oppenheimer, Sheehan and Taylor (1988), for example, suggest that clients appear to wait until they cannot manage their lives before approaching a treatment agency and that there appear to be a combination of *"trigger events"* which promote re-evaluation. Ludwig (1985) suggests that events in themselves have no inherent motivational value rather it is the individual's reaction to the events where the motivation lies. Thus, there could be two factors involved in such a revision of expectancies frequency and salience. Mc Mahon and Jones (1992) have argued that when an individual is experiencing increasing frequency of alcohol-related problems then it becomes more difficult to find *"new alcohol-unrelated reasons"* to account for problems. Hence, if an individual is drinking problematically then the sheer number of problems being experienced may compel the individual to acknowledge the source of the problems. Second, the salience of one particularly aversive outcome could produce an attributional change since the evidence in this chapter has suggested that some negative outcomes can be painful, humiliating and sickening (Ludwig 1985).

If the arguments made in this chapter can be sustained, and the evidence would certainly suggest that they can, then it would suggest not only is negative expectancy a motivator of abstinence initiation and maintenance but it also suggests a strategy for measuring motivation. While other researchers have implicated problem recognition in the motivation for initiation and maintenance of abstinence, this chapter suggests that problem recognition be more rigourously defined. It suggests that problem recognition as motivation has three factors or stages:-

1/ Recognition of current problems

2/ Recognition of the source of these problems, that is, alcohol

3/ Prediction of future problems if drinking was to continue.

If such a definition is valid, then knowing what future problems an individual expected would provide some measure of the extent to which alcohol is considered a problem and consequently the extent to which motivation for abstinence is present. Thus, if an instrument which measured a valid and representative sample of negative expectancies which drinkers hold was employed, then a quantitative and qualitative measure of motivation for abstinence could be obtained. Quantitative since it would provide a number which could be compared with other successful recoverers and qualitative since it would provide the content of these expectancies, that is the infrastructure of motivation.

An Anomaly

This chapter has argued that negative expectancy should be both a predictor of drinking and a motivator of abstinence. However, if it is found to fulfill both of these roles then that would suggest there may be an anomaly for while there may be a linear relationship between negative expectancy and consumption (through learning) it is also claimed that abstainers should have high negative expectancy thus questioning the validity of a linear model.

Conclusion

This chapter has suggested that negative alcohol-related expectancy has been neglected and has implicated the absence of an empirically derived instrument for measuring negative expectancy in this neglect. It has argued that negative expectancy should be an important predictor of drinking behaviour and that a valid instrument is required. It has also shown evidence that negative expectancy is an important factor in recovery. and has argued that measuring negative expectancy should provide a measure of both level and and infrastructure of motivation for recovery from problem drinking.

PART TWO

EXPERIMENTS

CHAPTER FOUR

Compiling the Negative Alcohol Expectancy Questionnaire.

Contents of Chapter 4

CHAPTER SUMMARY

This chapter reports the construction of a new instrument, the Negative Alcohol Expectancy Questionnaire (NAEQ) designed to measure negative expectancy.

This instrument was constructed by canvassing the negative expectancies held by 188 adults: problem drinkers in treatment (n = 104); social drinkers (n = 61); and ex-problem drinkers attending AA (n = 23). It was found that the negative expectancies which the subjects held fell into three temporal contexts: the time of drinking; the day after; and long term consequences. Thus, the NAEQ was designed to reflect this by arranging the items into three sub-scales: That night; Next day; Continued drinking.

In constructing this instrument attention was payed to the criticism of previous instruments and the AEQ in particular. Thus, the items are presented in the first person to measure self-referent expectancies and are scored on a 5-point likert scale.

It is believed that the NAEQ is unique in two respects. First it is the only empirically derived instrument designed to measure negative expectancy. Second, it is the only instrument which measures expectancies by temporal context.

CHAPTER FOUR

Compiling the Negative Alcohol Expectancy Questionnaire.

INTRODUCTION

The previous chapter reviewed the few studies which have investigated the relationship be-
tween consumption and negative expectancy. It was concluded that although the results of
these studies have been equivocal, theoretically this relationship should be clear. An exam-
ination of the instruments, employed in these studies, shows that in no case were they con-
structed using the scientific rigour employed in the construction of the AEQ. Hence, one
explanation for these equivocal results may lie with the validity of these instruments. It
was further suggested that the sparsity of studies investigating negative expectancy may be
due to the lack of an instrument with a comparable validity and reliability to the AEQ.
This chapter reports the construction of a new expectancy instrument, the Negative Alco-
hol Expectancy Questionnaire (NAEQ), based on the methodology employed by Brown et
al (1980).

As the name of the questionnaire indicates this new instrument is designed to investigate
negative expectancy. Since there are many research instruments available which measure
positive expectancy (for example the AEQ) it was decided to restrict this instrument to neg-
ative expectancies.

The content of the instrument comes from the responses of 188 subjects obtained from
three sources: treatment groups for problem drinkers; interviews with problem drinkers in
treatment; interviews with social drinkers and ex-problem drinkers.

METHOD

Treatment Groups

As a therapist in a local hospital, the author organised and ran evening treatment groups on
relapse prevention and alcohol education in the Alcohol Treatment Unit. These groups
were attended by in-patients, day patients and recently discharged patients, either waiting
for a new Group Programme to begin or who required further support. Typically there
were between 8 and 15 attenders at these groups, which were held twice weekly.

One group session which was held once a month, called Pros and Cons, was designed to encourage the group members to examine their attitudes and motivations concerning drinking and abstinence, both as individuals and as a group. All attenders were given paper and pencils and asked to to divide the paper into four squares then write four headings at the top of these squares - the pros of drinking, the cons of drinking, the pros of abstinence and the cons of abstinence. They were then asked to write everything which they considered relevant to themselves under these headings. Interestingly, most of them had some difficulty with this task, particularly with the pros and cons of abstinence. The most common, and most striking, finding was that the pros of abstinence were listed as the absence of the cons of drinking. Perhaps this should not surprise since most of these clients have had little recent experience of abstinence and, hence, have little idea what to expect from abstinence. As the group facilitator, the author then had each attender in turn read out the items from their list, which were then collated on the blackboard as a group list and formed the basis of the subsequent discussion. The list of items, which the each group of attenders had compiled, were collected and formed part of the item pool for the NAEQ.

This procedure was repeated on 6 occasions over a period of 5 months. The participants comprised of 78 subjects, all of whom were problem drinkers. There were 17 females and 61 males, mean age 41.6 years (sd 10.8), Civil status - married n = 34, divorced n = 16, separated n = 21, single n = 16, widowed n = 1. Perceived duration of problem drinking was 10.2 years (sd 7.1) and duration of current treatment was 13.8 days (sd 8.5).

Problem Drinker Interviews

These subjects were both in-patient and day patient attenders at the same Alcohol Treatment Unit. Interviews were conducted privately, with only the subject and the author present. Subjects were asked to list as many 'bad things' which they might expect to happen to them as a result of drinking as they could. Although, 57 subjects took part in these interviews, 31 of them were also attenders at the evening groups, thus there were only 26 new subjects interviewed. The characteristics of this new group are very similar to the group attenders.

Social Drinker Interviews

Subjects for these interviews were recruited from acquaintances, undergraduates, colleagues and staff at the hospital. The only criteria was that they were current drinkers and had no history of treatment for problem drinking. The procedure was identical to that de-

scribed above for the problem drinkers except they were asked to fill in a short socio-demographic questionnaire, listing gender, age, social status, frequency of drinking and amount per session. In all 61 subjects participated, 23 females and 38 males mean age 37.1 years (sd 18.3) Civil status - married n = 41, divorced n = 1, separated n = 1, single n = 18. The majority (n = 37) were light drinkers (less than 12 units per week for females and 21 units per week for males), 19 were moderate drinkers (between 13 and 21 units for females and between 22 and 35 units for males), only 5 subjects (all males) could be classed as heavy drinkers (over 36 units per week).

Ex-problem Drinker Interviews

Subjects for these interviews were recruited from current attenders at Alcoholics Anonymous meetings. The same procedure, which was used with both social drinkers and problem drinkers in treatment, was followed except the socio-demographic questionnaire asked for length of sobriety instead of drinking details. In all 23 subjects participated 7 females and 16 males mean age 46 years (sd 11.2) Civil status - married n = 11, divorced n = 4, separated n = 6, single n = 2. Mean length of sobriety was 5.6 years (sd 5.4).

Constructing the questionnaire

Item Selection

A total of 143 items were offered by the subjects. However, many of the items were rejected or combined because they were: 1/ synonyms of other items; 2/ too idiosyncratic of one particular person's circumstances to be generalisable to a more representative population and finally; 3/ a few, while quite possible outcomes, seemed to be extremely rare, for example one problem drinking subject who thought that he might commit murder.

After eliminating items as described above, the final list contained 55 different items. However, because of the structure of the NAEQ the questionnaire itself actually presents 60 items (3 items are presented twice and 1 item is presented 3 times). The reason for this is explained below.

What is clear from this investigation is that the range of aversive outcomes expected from drinking go far beyond the simple deleterious pharmacological effects (for example, cognitive and behavioural impairment) which other investigators have measured. Such a finding should be unsurprising since it is well recognised that drinking can cause health, social and fiscal problems. For example, Roisen (1985) suggests that the problems resulting from drinking can be categorised by what he calls the 4Ls - Liver, Lover, Livelyhood and Law.

Thus the sample of negative expectancies found in this study would seem to be much more representative of the kind of aversive outcomes which can happen to drinkers than has been measured by any of the instruments which have been used in previous studies.

Temporal Context

It soon became obvious, when these items were collected, that aversive experiences or fears about drinking, fell into (at least) three distinct time frames, that is, what might happen at the actual time of drinking or while still intoxicated, what might happen the day after drinking and what might happen in the future if drinking were to continue. Whereas some individuals (in particular the problem and ex-problem drinkers) felt that any drinking would end in negative outcomes (for example, police problems), some felt that everything would be fine at the time of drinking but the next day they would feel bad and still others felt that negative outcomes would only occur with drinking of a more prolonged nature. There were some subjects who felt that they would have aversive outcomes in all 3 contexts. Hence it soon became obvious that expectations of negative outcome rather than being global, were actually contextually dependant. Thus, in order to reflect these differences, it was decided to place the items within three temporal contexts. The That night sub-scale, made up of items which may be expected to occur at the time of drinking or at least while still under the effects of alcohol. The Next day sub-scale, made up of items which may be expected to occur the day after a drinking session. Finally the Continued drinking sub-scale, made up of items which may be expected to occur with over a lifetime of drinking of a heavy and prolonged nature. A few outcomes were found to be present in two, or even all three, temporal contexts and were thus re-presented in different contexts where appropriate.

Presentation of the Items

The AEQ (Brown et al 1980, Brown et al 1987) has been criticised by a number of researchers (for example, Leigh 1987, Rohsenow 1983, Young and Knight 1989) for confounding general and self-referent expectancies. Although this argument was discussed in chapter 2, it is important to reprise the main point here. It has been shown that people have different expectancies about other peoples drinking than they do about their own. Also, these quite different expectancies have been found to be differentially related to consumption, that is, while self-referent expectancies are good predictors of drinking, general expectancies are either much less so or do not predict at all (Leigh 1987, Oei, Hokin and

Young 1990, Rohsenow 1983). Thus these researchers have argued that for the greatest re-
liability and validity, expectancies of alcohol should be presented in the first person. For
example, an item like "Alcohol relieves tension" should be presented as "I am less tense
when I drink".

For these reasons all items of the NAEQ were written as statements and were presented in
the first person.

Scaling

The AEQ has also been criticised for its lack of sensitivity since it employs a forced choice
agree / disagree format (for example, Collins et al 1990, Leigh 1989a, Rohsenow 1983,
Young and Knight 1989). This would seem sensible, since the belief that performing a cer-
tain behaviour will result in an outcome occurring occasionally is certainly quantitatively,
if not qualitatively, quite different from the belief that that outcome will always occur.
Therefore the strength of a belief may have a quite different motivational effect. Indeed,
Collins et al (1990) have shown that, in positive expectancy, when a measure of strength of
belief is used, as opposed to just endorsement of belief, then a quite different relationship
to consumption is found.

Thus a 5 point Likert scale - highly unlikely, unlikely, possible, likely, highly likely was
used to assess the strength of the expectancy.

Scoring

Item are scored highly unlikely = 1, unlikely = 2, possible = 3, likely = 4, highly likely = 5.
 In the temporal scales, That night, Next day and Continued drinking, the items are aggre-
gated to give scale scores and these scale scores are aggregated to give a Total score. A
distinction is also made between Proximal negative expectancy (aversive outcomes which
may occur at the time of drinking) as represented by the That night scale and Distal nega-
tive expectancy (aversive outcomes which may occur later or in the long term) which is
represented by aggregating the Next day and Continued drinking scales.

Structure of the NAEQ

It can be seen from the above description of the scales, that the NAEQ affords not only a
measure of the level of the individual subject's negative expectancy, it also gives an indica-
tion of where that negative expectancy is temporally located (That night, Next day or long
term, that is, Continued drinking). As far as the author is aware, the structure of the NAEQ

is unique in this respect since an extensive literature search has found no other instrument which is structured in this fashion.

When the items were placed into these three temporal contexts the NAEQ comprised 60 items in total, that is, That night - 21 items; Next day - 18 items and Continued drinking - 21 items. A short instructional note precedes the questionnaire proper, instructing the subject to answer what he/she believes will happen when they drink, not what anyone else thinks. The heading which sets the context for the items which follow and two examples of items from each scale are given below, the complete NAEQ can be found in appendix 1.

That Night Scale

If I went for a few drinks   1. I would become argumentative.

                                                  11. I would end up in jail.

Next Day Scale

If I went for a few drinks then the next day   22. I would miss work.

                                                  32. I would feel guilty.

Continued Drinking Scale

If I continued to drink at my present level   47. I would end up in hospital.

                                                  54. I would feel self-pity.

DISCUSSION

The Negative Alcohol Expectancy Questionnaire (NAEQ) is a 60 item instrument which is designed to measure negative expectancy. As an expectancy instrument it is unique in two quite different ways. First, it is the only measure of negative expectancy which has been empirically derived from a survey of drinkers and ex-drinkers and, thus, reflects what drinkers *themselves* actually expect. This is reflected in the greatly extended range of negative expectancies which the NAEQ measures. Perhaps the greatest extension is that this instrument moves away from measuring only the assumed pharmacological effects. Thus strictly speaking this instrument measures the effects of drinking as a social behaviour rather than alcohol as a drug. Second, it is arranged in three temporal contexts, thus, it not only measures the level of negative expectancy a drinker holds but gives some indication of

where this expectancy is located.

Therefore, the NAEQ should provide a more valid test of the role of negative expectancy than previous instruments have done. It should also allow the role and dynamics of negative expectancy to be investigated in a way which was previously impossible, that is by temporal location.

CHAPTER FIVE

A Comparison of the Predictive Validity of Positive and Negative Expectancy in Social Drinkers

Contents of Chapter 5

CHAPTER SUMMARY

This chapter reports a study designed to test the hypothesis that an empirically derived measure of negative expectancy, the NAEQ, will be associated with consumption. Since positive expectancy, as measured by the AEQ, has consistently been found to be associated with consumption, it was also included in the study. Thus positive expectancy was included in the study as a 'benchmark' with which to compare the performance of the NAEQ.

Subjects were 101 social drinkers who reported no current or previous drinking problems. Three measures of consumption were used in the analyses - amount per week (weekly), amount per session (amount) and frequency of drinking sessions (frequency).

A univariate correlational analysis found that, while both the AEQ and the NAEQ were predictive of all consumption variables, the NAEQ was a more reliable predictor than the AEQ.

A stepwise multiple regression analysis found that the NAEQ total was the most consistent predictor, predicting all consumption variables. In the sub-scale analysis it was found that the negative sub-scale That night is predictive of both weekly and amount while the Next day sub-scale is predictive of frequency. Three explanations of this finding are explored. First, that the negative expectancies held may be a consequence of the different negative outcomes of drinking styles. Second, that different drinking styles may be a response to the negative expectancy held. Third, and most likely, that it is an interactive process, that is, a combination of these two explanations.

Since it was also found that gender was a reliable predictor a separate stepwise analysis was carried out for males and females. It was found that the That night sub-scale predicted all consumption variables for males and the next day sub-scale predicted all consumption for females.

The conclusions of this study are: first, that negative expectancy is, at least, as good a predictor of consumption as positive expectancy; second, that negative expectancy is involved in drinking restraint and, finally, partial support for the hypothesis that negative expectancy is a motivator of recovery derives from this latter conclusion.

Chapter 5

A Comparison of the Predictive Validity of
Positive and Negative Expectancy in Social Drinkers

INTRODUCTION

Chapter 2 of this thesis reviewed evidence from a number of studies which have shown that positive expectancy has consistently been demonstrated to be associated with consumption - that is, the higher the positive expectancy an individual holds the higher will be his/her alcohol consumption (Brown et al 1980; Brown et al 1987). Chapter 3 of this thesis has argued that there should also be a clear relationship between negative expectancy and consumption. Since surveys with problem drinkers have shown that increases in consumption are associated with increased concomitant problems (Makela and Mustonen 1988), this would suggest that such a positive and monotonic relationship should be found across the whole of the drinking population. Although the results of the few existing studies which have measured negative expectancies have been equivocal, it was hypothesised in chapter 3 that if an empirically derived instrument is used then negative expectancy should demonstrate, at least, a similar predictive validity to positive expectancy in respect of consumption. (Note: Prediction is used in this chapter to mean *statistical* prediction of the value of one variable from the value of another. It does _not_ imply causality). Chapter 4 described the construction of such an instrument, the Negative Alcohol Expectancy Questionnaire (NAEQ).

This chapter describes a study which has been designed to test the above hypothesis by comparing the predictive validity of both positive and negative expectancy in a survey of 101 non-problem social drinkers. Since positive expectancy, as measured by the AEQ, has been well researched and found to have a robust relationship with consumption its inclusion in this study is mainly to provide a 'benchmark' with which to compare the performance of the NAEQ. However, the main purpose of the study is to test the predictive validity of negative expectancy. This study also represents an exploratory investigation, to determine whether the different temporal contexts of negative expectancies are differentially predictive and is the first time such a study has been undertaken.

Omnibus Hypothesis

The main hypothesis that this study will examine is that both positive and negative expectancy will be reliably associated with measures of consumption, that is, weekly consumption, amount per session and frequency of drinking.

METHOD

Subjects

Subjects consisted 108 volunteers, however, in seven cases the information given was incomplete and had to be discarded. The final sample consisted of 52 males mean age 30.1 years (sd 11.6) and 49 females mean age 26.2 years (sd 10.1). No subject reported ever having received treatment for an alcohol problem, or perceived themself to be a problem drinker.

Drinking Details of Subjects

All drinking quantities are measured in units: 1 unit = 1/2 pint of beer or a standard measure of spirits or a standard glass of wine.

Frequency in sessions per week - All 2.2 (sd 1.1); Males 2.3 (sd 1.1); Females 2.1 (sd 1.1)

Amount per session in units   - All 7.0 (sd 4.6); Males 8.7 (sd 5.4); Females 5.2 (sd 2.7)

Amount per week in units - All 15.7 (sd 13.3); Males 20.6 (sd 15.9) Females 10.4 (sd 6.8)

Measures Collected from Subjects

A brief sociodemographic/drinking questionnaire which collected details of gender, age, frequency of drinking, average amount per session and satisfaction with current drinking. Consumption is measured in three ways -

Frequency - the number of drinking sessions per week.

Amount - the average number of units consumed per session.

Weekly - the product of amount and frequency to give units consumed per week.

The Alcohol Expectancy Questionnaire (AEQ) - a 90 item instrument designed to measure the positive expectancies of alcohol, which an individual holds (Brown et al 1987). Scoring is on a forced choice, agree/disagree format. This instrument has 6 sub-scales: Global positive change; Sexual enhancement; Physical and social pleasure; Assertiveness; Relaxation and Power. A total positive expectancy score is obtained from summing the sub-scale scores.

The Negative Alcohol expectancy Questionnaire - (NAEQ) a 60 item instrument designed to measure the negative expectancies of alcohol which an individual holds. This instrument employs a 5 point likert scale measuring the subjects estimate of how likely these outcomes are to happen to him/her, that is: highly unlikely = 1; unlikely = 2; possible = 3; likely = 4; highly likely = 5. It is arranged in three temporal contexts and these represent three sub-scales: That night (21 items); Next day (18 items); and Continued (21 items). two alternative sub-scales can also be generated: Proximal which are outcomes that may happen at the time of drinking (that is the That night sub-scale) and Distal negative expectancies which are outcomes that may happen subsequent to drinking or from prolonged drinking (that is, the sum of the Next day and Continued sub-scale). A total negative expectancy score is obtained from summing the three sub-scale scores (That night; Next day and Continued).

Procedure

Subjects for this study were volunteers who were approached around the campus of the university and asked to take part in the study. About 50% of the subjects were students (n = 55), the others were university staff or people who either lived or worked locally (n = 53).

108 volunteers were given the AEQ and NAEQ in a self-complete format, in seven cases the information given was incomplete and had to be discarded. Presentation was counterbalanced, so that half the subjects completed the AEQ followed by the NAEQ and the other half completed the NAEQ followed by the AEQ. Although subjects completed the questionnaires in the presence of the researcher, the researcher was as unobtrusive as possible to give the subject as much privacy as possible. The whole procedure lasted between 30 and 45 minutes.

RESULTS

The analysis of this data will begin at the simplest level, first correlating expectancy totals against weekly consumption, and progress to a more detailed level of analysis, that is stepwise multiple regression of the sub-scales of the AEQ and the NAEQ against three different measures of consumption.

This systematic method of analysis has been chosen in an effort to clarify the dynamics of how expectancy per se and negative expectancy in particular relate to consumption.

Univariate Analysis

Total Scores vs Weekly Consumption

Table 1 shows the Pearson product moment correlations for positive and negative expectancy totals and weekly consumption. As would be expected, the results of this study replicate the robust finding that positive alcohol-related expectancy is related to weekly consumption (r = 0.235; p = .0184; df 1, 99) (Brown et al 1980; Brown et al 1987; Collins et al 1990; Leigh 1989b; Mooney et al 1987). However, negative expectancy is also related to weekly consumption (r = 0.461; p = .0001; df 1, 99). Thus, this result is consistent with the hypothesis that, when an empirically derived instrument is employed (the NAEQ), negative expectancy should show a positive relationship with consumption. What may surprise is that, for this sample of social drinkers, total negative expectancy proves to be a superior predictor of weekly consumption than total positive expectancy since it explains almost 4 times more of the variance than does positive expectancy (21.2% by negative expectancy as opposed to positive expectancy's 5.5%). Reasons why this should occur will be a feature of the discussion section which concludes this chapter.

Sub-scale Scores vs Weekly Consumption

Table 2 shows the Pearson product moment correlations for each of the sub-scales of the AEQ and the NAEQ and weekly consumption. Two of the sub- scales, Global positive change and Assertiveness, show a reliable positive relationship with weekly consumption (r = 0.308; p = .0018: r = 0.342; p = .0005 respectively; df 1, 99). That these two sub-scales demonstrate reliable relationship with consumption is consistent with previous findings (for example Leigh 1989b; Mooney et al 1987). No other positive sub-scale comes close to showing a reliable relationship.

All sub-scales of the NAEQ show a reliable relationship with weekly consumption (That night r = 0.474; p = .0001: Next day r = 0.394; p = .0001: Continued r = 0.327; p = .0008: Distal r = 0.417; p = .0001; df 1, 99).

Ambiguity of Measures of Weekly Consumption

These results demonstrate that, when an empirically derived instrument for measuring negative expectancy is employed, negative expectancy shows an orderly and reliable relationship with consumption. They also strongly suggest that drinkers (even social drinkers such as these) have negative expectancies associated with consumption which span (at least) three temporal contexts. Although the That night sub-scale (a proximal measure) shows

the strongest association with weekly consumption, these drinkers also show a reliable positive association between consumption and both Next day and Continued drinking subscales (distal measures).

However, although weekly consumption is the most widely used measure of drinking behaviour it is, nevertheless, only one way of representing drinking behaviour. Since this measure is a product of two other variables, such a procedure may produce a variable which actually confounds two quite different styles of drinking and this may be particularly true in a sample of non-problem drinkers such as this. For example, the sample may contain a subset of individuals who are frequent but light drinkers (individuals who drink daily but never, or at least seldom, to intoxication) and another sub-set of individuals who are infrequent but heavy drinkers (individuals who drink once a week and usually to intoxication). Thus although a measure of weekly drinking for an individual from each sub-set may be identical, it is reasonable to speculate that different negative consequences may arise from different styles of drinking and that their profile of negative experiences also may be quite different. Indeed, Vogel-Sprott (1983) has demonstrated that these two elements of drinking behaviour (frequency and amount consumed per session) are, in fact, orthogonal in social drinkers. The data reported above is quite consistent with a view of orthogonality since frequency and consumption per session show no reliable association (r = 0.062; p = .5363). Hence, in order to investigate whether these two elements of drinking behaviour are differentially predicted by expectancy they have both been correlated against first the totals of the AEQ and the NAEQ and then against their respective sub-scales. The following sections report the results of this analysis.

Total Scores vs Amount (Consumed per Session)

Table 3 shows the Pearson product moment correlations between each of the two expectancy totals and amount consumed per session. The AEQ total shows a slight improvement in prediction (r = 0.252; p = .0116; df 1, 99) when this more specific measure of consumption is used rather than the more global measure of weekly consumption. Conversely, the NAEQ total shows a slight deterioration of prediction (r = 0.421; p = .0001; df 1, 99). However, while both the AEQ and the NAEQ have a degree of predictive validity, the NAEQ is again superior, since it explains 17.7% of the variance as opposed to 6.3% by the AEQ.

Sub-scale Scores vs Amount

Table 4 shows the Pearson product moment correlations between each of the sub-scales of the AEQ and the NAEQ and amount consumed per session. Similar to the result obtained with weekly consumption, Global positive change and Assertiveness are both reliable predictors ($r = 0.274$; $p = .0059$: $r = 0.311$; $p = .0017$ respectively; df 1, 99). However, for this measure of drinking behaviour Physical and social pleasure is also reliable ($r = 0.249$; $p = .0126$; df 1, 99).

All the NAEQ sub-scales are again reliable predictors: That night ($r = 0.448$; $p = .0001$; df 1, 99); Next day ($r = 0.331$; $p = .0007$; df 1, 99); Continued drinking ($r = 0.286$; $p = .0037$; df 1, 99); and Distal ($r = 0.335$; $p = .0003$; df 1, 99).

The results of the correlation of expectancy with amount consumed per session are remarkably similar to the previous results with weekly consumption. Again, both the AEQ and the NAEQ are reliable predictors of consumption and, as before, the AEQ is out-performed by the NAEQ.

The final consumption variable in this study is Frequency of drinking, the results of the correlation analysis between this variable and expectancy is reported below.

Total Scores vs Frequency (of Drinking Sessions)

Table 5 shows the Pearson product moment correlations between each of the two expectancy totals and frequency of drinking sessions. Although the total AEQ score shows a positive correlation with frequency ($r = 0.135$; $p = .1791$; df 1, 99) it is very modest and hence unreliable for this size of sample. However, the total NAEQ does show a reliable association with frequency ($r = 0.342$; $p = .0005$; df 1, 99) explaining 11.7% of the variance, which is considerably less than it explains for weekly consumption or amount per session. Thus both instruments predict frequency of drinking sessions less well than they predict amount.

Sub-scale Scores vs Frequency

Table 4 shows the Pearson product moment correlations between each of the sub-scales of the AEQ and the NAEQ and frequency of drinking sessions. As before both Global positive change and Assertiveness are reliable predictors ($r = 0.204$; $p = .0416$: $r = 0.2$; $p = .0416$ respectively; df 1, 99). No other AEQ sub-scale approaches reliability.

Again all NAEQ sub-scales are reliable: That night ($r = 0.311$; $p = .0016$; df 1, 99); Next

day (r = 0.314; p = .0014; df 1, 99); Continued drinking (r = 0.267; p = .0069; df 1, 99); and Distal (r = 0.335; p = .0006; df 1, 99).

Linearity

A test of the residuals, for all expectancy variables against all consumption variables found a zero relationship. Thus, it may be assumed that a linear model is the most appropriate model for this data.

Pearsons Product Moment Correlation Coefficients between positive and negative expectancy totals and weekly consumption, in units (n = 101).

Expectancy	r	r^2	p
Total positive	.235	.055	.0184
Total negative	.461	.212	.0001

Table 1

Pearsons Product Moment Correlation Coefficients between the subscales of the AEQ and the NAEQ and weekly consumption, in units (n = 101).

Expectancy	r	r^2	p
AEQ subscales			
Global	.308	.095	.0018
Sex	.062	.004	.5399
Pleasure	.156	.024	.1205
Assert	.342	.117	.0005
Relax	.01	.0001	.9174
Power	.123	.015	.2222
NAEQ subscales			
That night	.474	.225	.0001
Next day	.394	.155	.0001
Continued	.327	.107	.0008
Distal	.417	.174	.0001

Table 2

Pearsons Product Moment Correlation Coefficients between positive and negative expectancy totals and amount consumed per session, in units (n = 101).

Expectancy	r	r^2	p
Total positive	.252	.063	.0116
Total negative	.421	.177	.0001

Table 3

Pearsons Product Moment Correlation Coefficients between the subscales of the AEQ and the NAEQ and amount consumed per session, in units (n = 101).

Expectancy	r	r^2	p
AEQ subscales			
Global	.274	.075	.0059
Sex	.14	.02	.1642
Pleasure	.249	.062	.0126
Assert	.311	.096	.0017
Relax	.062	.004	.5375
Power	.123	.015	.2231
NAEQ subscales			
That night	.448	.201	.0001
Next day	.332	.11	.0007
Continued	.286	.082	.0037
Distal	.335	.126	.0003

Table 4

Pearsons Product Moment Correlation Coefficients between positive and negative expectancy totals and frequency of consumption (n = 101).

Expectancy	r	r^2	p
Total positive	.135	.018	.1791
Total negative	.342	.117	.0005

Table 5

Pearsons Product Moment Correlation Coefficients between the subscales of the AEQ and the NAEQ and frequency of consumption (n = 101).

Expectancy	r	r^2	p
AEQ subscales			
Global	.204	.042	.0416
Sex	.003	.000	.9803
Pleasure	.037	.001	.7114
Assert	.2	.04	.0457
Relax	.032	.001	.7519
Power	.143	.021	.1551
NAEQ subscales			
That night	.311	.097	.0016
Next day	.314	.099	.0014
Continued	.267	.071	.0069
Distal	.335	.112	.0006

Table 6

Correlation Matrix of Expectancy Variables

	a	b	c	d	e	f	g	h	i	j	k
a Postot	1										
b Negtot	.285	1									
c Global	.905	.389	1								
d Sex	.782	.122	.62	1							
e Pleasure	.682	.06	.539	.504	1						
f Assert	.795	.373	.655	.475	.511	1					
g Relax	.816	-.023	.645	.715	.507	.52	1				
h Power	.698	.276	.586	.457	.407	.556	.418	1			
i Thatnight	.304	.884	.403	.158	.13	.372	-.014	.266	1		
j Nextday	.215	.887	.327	.044	.006	.312	-.077	.261	.674	1	
k Continued	.155	.724	.223	.036	-.012	.243	.004	.108	.507	.522	1

DISCUSSION

The results of this study lend support to the robust finding that the AEQ is a reliable predictor of alcohol consumption. The total score from the AEQ predicted both amount consumed per session and amount consumed per week. It did not, however, predict frequency of consumption. That frequency of drinking sessions is less well predicted in this study than amount per session, is consistent with previous research (for example Leigh 1989b; Mooney et al 1987). Vogel-Sprott (1974) suggests that while amount per session is under cognitive control, frequency may be influenced largely by social factors such as accessibility. Mooney et al (1987) found a similar result in a study of college students and suggested that the number of drinking sessions individuals achieved was largely a function of opportunity. In a wider context, Greenfield (1986) suggests that occupational role demands often force an individual into patterns of drinking.

Thus, if frequency of drinking is socially ordered rather than cognitively controlled, it is easy to see that cognitive variables, such as expectancy, would demonstrate reduced predictive validity. This might be particularly true of positive expectancy since, if this construct does represent motivation to drink but drinking frequency is actually controlled by opportunity then, a relationship between these two variables should not be found. For example, an individual with a high positive expectancy (high motivation) but with restricted opportunities may only drink once per week, but not through choice. However, since amount per session is not subject to the same restrictions, it would, consequently, be expected to demonstrate a more reliable relationship, which is what this study has found.

That negative expectancy does show a reliable relationship with frequency, albeit smaller than with amount, is testimony to the robustness of the concept. It suggests that any drinking, whether cognitively controlled or socially determined, can result in negative consequences from which negative expectancies can derive. Further, it again provides evidence for the validity of the NAEQ.

Two sub-scales emerged as reliable predictors of all consumption variables, that is, Global positive change and Assertiveness. Physical and social pleasure was found to be a reliable predictor of amount consumed per session but did not reliably predict any other consumption variable. The remaining sub-scales, although always showing a modest positive correlation with the consumption variables, did not achieve reliability on any of these variables. The NAEQ total, on the other hand was found to be reliably predictive of all consumption variables and this same result was found of all sub-scales.

What may seem surprising, particularly in light of previous research, is that positive expectancy, as measured by the AEQ, should be consistently out-performed by the NAEQ. There are three possible explanations of this finding relating to the design of this experiment. The first explanation is that the subject population are too homogeneous, that is, unrepresentative of the range of drinkers in the population. This would appear to be a justifiable criticism since there is a preponderance of light drinkers in this sample and relatively few moderate and heavy drinkers. However, if this was the reason for the AEQ's poor performance then it begs the obvious question, why did the NAEQ perform well within this same sample ?

The second is that the forced choice format, (agree/disagree) being only a two point scale, lacks the sensitivity required to discriminate between individuals who drink at a relatively moderate level. This point will be taken up again at greater length in the discussion at the end of this chapter.

Of course a third explanation is that negative expectancy per se is a better predictor of drinking behaviour than positive expectancy, rather than the NAEQ being being a superior predictor to the AEQ. It is possible that the concept of negative expectancy is more sensitive to changes in drinking behaviour than positive expectancy, which may be more stable. Thus, the explanation may lie in the concepts being measured rather than in the measuring instruments.

The results of this study have demonstrated that the NAEQ, as an empirically derived extended instrument for measuring negative expectancy, is a reliable predictor of consumption. It has been shown that heavier drinking and more frequent consumption is associated with higher levels of negative expectancy.

While both the totals and the sub-scales of the AEQ and the NAEQ show a reliable relationship with consumption, it can readily be seen from the correlation matrix (Table 7) that these scales are not orthogonal. Indeed, there are substantial correlations between the individual sub-scales within each instrument and, to a lesser degree, between the instruments. Thus, employing univariate analyses in the way that has been carried out above, while giving some indication of predictive validity, is both limited in its scope and misleading. Much of the variance which is ostensibly being explained by totals and individual sub-scales in these discrete analyses will in reality be common to two or more scales. Therefore, in order to determine the unique contribution made by each of these measures a multivariate analyses is required - for this study Stepwise Multiple Regression has been chosen

as the most appropriate.

It might be considered that Standard Multiple Regression would be a more suitable choice than Stepwise Multiple Regression for this purpose. However, the lack of orthogonality between the sub-scales means that there is considerable covariance and, hence, many of the sub-scales are likely to make non-reliable contributions to the equation, rendering it unwieldy and difficult to interpret. Thus, for the sake of clarity a Stepwise Multiple Regression analysis will be employed, since the methodology of this procedure ensures that only those scales which actually make a reliable unique contribution to explaining the variance in drinking behaviour are included in the final equation.

Stepwise Regression Analysis

These analyses were carried out using the Statview 512+^{TM} statistical package for the Macintosh computer (Abacus Concepts Inc 1986). The F-to enter was set at a value of 4 and the F-to remove at 3.996, the values recommended by this package (Abacus Concepts Inc 1986) All the analyses which are reported below employed these settings.

Gender, Age and Expectancy Totals on Weekly Consumption

Table 8 shows the results of a stepwise regression of gender, age and expectancy totals on weekly consumption. As can be seen only two variables were entered into this equation, first, Negative Total (b = .416; F = 24.338) and second, Gender (b = -.34; F = 16.211). These two variables explain 30.1% of the variance between them. Neither age nor positive Total were sufficiently reliable to be entered into the equation.

Gender, Age and Expectancy Totals on Amount

Table 8 shows the results of a stepwise regression of gender, age and expectancy totals on amount per session. Again only two variables were entered into this equation, negative Total first (b = .382; F = 19.589) and Gender second (b = -.335; F = 15.037) and between them they account for 26.7% of the variance. Again neither age nor the positive Total are entered into the equation.

Gender, Age and Expectancy Totals on Frequency

Table 8 shows the results of a stepwise regression of gender, age and expectancy totals on frequency. This time only the negative Total is reliable (b = .335; F = 12.389) and by itself accounts for 10.3% of the variance.

In view of previous research, it is perhaps surprising that the positive expectancy Total has not been found to be a reliable predictor of any consumption variable in this analysis. However, in view of its relatively weak performance in the univariate analysis, that is modest correlations with both weekly and amount and its unreliable correlation with frequency, its performance in this analysis is less surprising.

Gender, Age and Expectancy Sub-scales on Weekly Consumption

Table 9 shows the results of a multiple regression of gender, age and expectancy sub-scales on weekly consumption. Three variables were entered first the negative sub-scale That-

night (b = .341; F = 15.142) second Gender (b = -.361; F = 19.596) and lastly the positive sub-scale Assertiveness (b = .239; F = 7.482). These three variables accounted for 35.7% of the variance.

Gender, Age and Expectancy Sub-scales on Amount

Table 10 shows the results of a stepwise regression of gender, age and expectancy sub-scales on amount per session. This result is remarkably similar to the result obtained for amount per week by this method since the same three variables are entered in the same order that is first the negative sub-scale That night (b = .329; F = 13.376) second Gender (b = -.352; F = 17.681) and lastly the positive sub-scale Assertiveness (b = .211; F = 5.548). These variables accounted for 32.1% of the variance.

Gender, Age and Expectancy Sub-scales on Frequency

Table 11 shows the results of a stepwise regression of gender, age and expectancy sub-scales on frequency. Only one variable enters the equation, that is the negative sub-scale Next day (b = .307; F = 10.205) which explains 10.3% of the variance.

Stepwise Regression of Gender, Age and Expectancy Totals on Consumption

	Weekly	
Variables Entered	**beta**	**F**
Gender	-.34	16.211
Negtot	.416	24.338
Variance explained	30.1%	

Variables not in equation

age	-.113	1.237
Postot	.168	2.784

	Amount	
Variables Entered	**beta**	**F**
Gender	-.335	15.037
Negtot	.382	19.589
Variance explained	26.7%	

Variables not in equation

age	-.124	1.498
Postot	.196	3.821

	Frequency	
Variables Entered	**beta**	**F**
Negtot	.335	12.389
Variance explained	10.3%	

Variables not in equation

Gender	-.08	.625
age	.013	.015
Postot	.044	.191

Table 8

Stepwise Regression of Gender, Age and Expectancy Sub-scales on Weekly

Variables Entered	beta	F
Gender	-.361	19.596
That night	.341	15.142
Assertiveness	.239	7.482
Variance explained	35.7%	

Variables not in equation

age	-.113	1.223
Global	-.017	.026
Sex	-.049	.227
Pleasure	-.065	.401
Relaxation	-.124	1.429
Power	-.091	.802
Next day	.139	1.86
Continued	.013	.017

Table 9

Stepwise Regression of Gender, Age and Expectancy Sub-scales on Amount

Variables Entered	beta	F
Gender	-.352	17.681
That night	.329	13.376
Assertiveness	.211	5.548
Variance explained	32.1%	

Variables not in equation

age	-.122	1.433
Global	-.034	.111
Sex	.083	.657
Pleasure	.095	.867
Relaxation	-.023	.051
Power	-.063	.383
Next day	.065	.406
Continued	-.015	.021

Table 10

Stepwise Regression of Gender, Age and Expectancy Sub-scales on Frequency

Variables Entered	beta	F
Next day	.307	10.205
Variance explained	8.5%	

Variables not in equation

Gender	-.115	1.292
age	.034	.115
Global	.115	1.311
Sex	-.017	.027
Pleasure	.037	.135
Assertiveness	.116	1.313
Relaxation	-.009	.008
Power	.069	.459
That night	.139	1.902
Continued	.12	1.415

Table 11

DISCUSSION

In one respect, the results of these analyses are quite clear. It has been demonstrated that negative expectancy is, at least, as important as positive expectancy in predicting drinking behaviour. Indeed, in this study the NAEQ has actually out-performed the AEQ since the NAEQ Total has emerged as the most consistent predictor for it reliably predicts all consumption variables at all levels of analysis and is the only variable (see table 12 for a summary of the results). What may be surprising is that the NAEQ Total has also been found to be a better predictor of consumption than Gender, which has previously been found to be one of the most robust predictors of drinking (Dawson and Archer 1992; Dawson 1993). Although in this study, as in other studies, gender makes a reliable contribution in a multivariate analysis, it does not reliably predict frequency of drinking whereas the NAEQ total does. Moreover, in the stepwise regression, its entry into the equation has consistently been as the variable entered on the second step, with a negative expectancy variable as the variable entered first.

Thus, for the NAEQ Total, the hypothesis that an empirically derived measure of negative expectancy should show a positive relationship to consumption, has been supported.

When the analysis descends to the sub-scale level the results are less clear. In the univariate analysis two positive sub-scales predict all three consumption variables - Global positive change and Assertiveness. One other positive sub-scale, Physical and social pleasure, is predictive of amount per session but no other positive sub-scale was found to be predictive of any drinking variable. By contrast, all negative sub-scales were found to be reliably predictive of all consumption variables at this level of analysis.

However, it was found that there were multiple significant intercorrelations between the sub-scales, both within each instrument and, to a lesser extent, between the instruments. Thus, a multivariate analysis was carried out, using Stepwise Regression; a method which only enters those variables which make a reliable independent contribution to the equation. For both amount per week and amount per session the prediction equations were remarkably similar with the same three variables, entered in the same order, predicting consumption - That night, Gender, Assertiveness (in order of entry). The prediction of frequency of sessions, however, was completely different with only one variable, the negative sub-scale Next day, being reliable.

Thus, the results of this study, even at the sub-scale level, support the hypothesis that negative expectancy is predictive of consumption. However, they also raise two anomalies.

Summary Table of Results: Variables found to be reliably related to consumption.

	Weekly	**Amount**	**Frequency**
Univariate analysis			
Totals	AEQ Total NAEQ Total	AEQ Total NAEQ Total	NAEQ Total
Sub-scales	Global Assertiveness That night Next day Continued	Global Assertiveness Pleasure That night Next day Continued	Global Assertiveness That night Next day Continued
Stepwise Regression			
Totals	Gender NAEQ Total	Gender NAEQ Total	NAEQ Total
Sub-scales	Gender Assertiveness That night	Gender Assertiveness That night	Next day

Table 12

First, since negative expectancy predicts consumption, why does the Continued sub-scale not predict consumption ? Second, why is amount per week and amount per session predicted by the That night sub-scale while frequency of drinking is predicted by the Next day sub-scale ?

The first question is reasonably easy to deal with (that is, why does the Continued sub-scale not predict consumption ?). It can be seen that although in the univariate analysis Continued drinking reliably predicts all three consumption variables, the associations found, while reliable, are quite modest. Indeed, of all the negative expectancy variables, Continued drinking is the least reliable and, hence, does not figure in the multivariate analysis. Since these subjects are non-problem drinkers with a relatively modest level of consumption, they would not be expected to encounter, or be expecting to encounter, many long term negative consequences of drinking, consequently it is unsurprising that this sub-scale shows the least reliable association with consumption.

The second question is more difficult and requires more of a discussion. The next two sub-sections provide that discussion.

Negative Expectancies, a Result of Different Styles of Drinking ?

The other anomaly concerns why there is a reliable differential prediction of amount per session and frequency of sessions. This is not a new finding since, as discussed earlier in this chapter, previous expectancy studies have also found a differential prediction with consumption variables (Leigh 1989b; Mooney et al 1987), although these studies have seldom included measures of negative expectancy. For example, Mooney et al (1987) in a study of undergraduates, found that different positive expectancies predicted frequency and amount consumed. They suggested that, while consumption may be motivated by positive expectancy, actual frequency of consumption may be more a matter of opportunity. This agrees with Vogel-Sprott (1974), who suggests that frequency of consumption is under social control while amount consumed, once drinking has actually been initiated, is under cognitive control. Thus, if positive expectancy represents motivation to drink then it would be expected that there would be a stronger relationship between positive expectancy and consumption than between positive expectancy and frequency. Which is exactly what this study has found, since the positive sub-scale Assertiveness is reliably predictive of amount and weekly drinking but not frequency.

However, while this does demonstrate that frequency and amount have previously been found to be differentially predicted, the same argument could not be used to explain why

different negative expectancies predict different consumption variables.   While drinkers may consume alcohol to obtain the positive outcomes which they expect to occur, it would be unusual if they consumed alcohol to obtain the negative outcomes. Thus, it may be more reasonable to assume that negative expectancy is a consequence rather than a cause of drinking. If that is the case, then the explanation for differential expectancies related to these drinking variables may be sited in the types of consequences which may result from different styles or patterns of drinking.

Many have suggested that different problems arise from different patterns of drinking (for example Greenfield 1986; Heather and Robertson 1989; Thorley 1985). For example, the negative outcomes surrounding the act of drinking, (for example accidents or violence), may be the consequence of heavy but infrequent drinking (Greenfield 1986) or may be a direct result of intoxication (Heather and Robertson 1989). It is easy to see then, that if these negative outcomes are occurring and if, as was suggested in chapter 3, they translate into negative expectancies through learning, then an individual who drinks heavily but infrequently may have negative expectancies surrounding the act of drinking itself (That night expectancies). It has also been suggested that other consequences, (for example cirrhosis, social or psychological problems), may result from comparatively more moderate but frequent drinking (Greenfield 1986; Heather and Robertson 1989; Thorley 1985). Thus, an individual who drinks in this style may have quite different negative expectancies from the individual who drinks infrequently but to intoxication. Therefore, if this sample is composed of two sets of subjects with quite different styles of drinking then these results are less surprising.

Although this explanation has been couched in terms of different styles of drinking by different individuals, it could just as easily apply to different aspects of the same individual's drinking or stages of a drinking career. For example, when Mr A drinks a large quantity certain negative outcomes may be expected at the time of drinking or immediately afterwards (for example, an argument with his wife) but when he drinks relatively moderately but regularly a different set of negative outcomes may be expected to occur the next day (for example, feeling depressed, difficulty in sleeping). Thus Mr A could hold two (or even more) quite different sets of negative expectancies related to drinking. Which would also explain the differential prediction of drinking variables found in this study.

However, a caveat should be offered here. The above explanation treats the expectancy variables as if they were orthogonal and quite clearly this is not the case. Indeed, there are

significant intercorrelations between these variables. Thus, although this explanation may be valid, it may also be an oversimplification since if Mr A was to drink to intoxication and suffer a number of negative outcomes one night, then the next day he would also suffer negative outcomes (for example, hangover, remorse). Hence, the above explanation that different styles or aspects of drinking lead to different negative expectancies should be modified to suggest that different styles, or elements, of drinking behaviour are *more* associated with different negative expectancies.

The above argument assumes that the causal direction between drinking variables and negative expectancy is that negative expectancy represents a consequence of drinking behaviour, thus, treating negative expectancies merely as epiphenomena of drinking. However, it would seem unlikely that such a unidirectional explanation is complete since it would seem highly unlikely that negative expectancies play no part in drinking decisions. Indeed, a substantial part of chapter 3 was given over to presenting evidence which suggests that, not only should negative expectancy be a predictor of consumption, it should also represent motivation for abstinence. If, then, negative expectancies do influence drinking, a second possible explanation of the differential prediction found in this study arises which would require a re-examination of this cause/consequence direction.

Different Styles of Drinking, a Result of Negative Expectancies ?

The previous explanation of differential prediction suggested that styles of drinking vary on (at least) two dimensions, frequency and amount. A second explanation would suggest that rather than these styles resulting in negative expectancies, instead the pattern of negative expectancies which the individual held would result in s/he adopting a style of drinking. For example, an individual may hold high expectancies that drinking will result in negative outcomes at the time of drinking (That night), thus, s/he may attempt to control the frequency of consumption (type F drinker) as a strategy of avoiding these outcomes. If that was the case then a group of type F drinkers would show a strong association between amount and the negative sub-scale That night. They would also show a weak association between frequency and the negative sub-scale Next day since their frequency of drinking would be artificially curtailed.

Alternatively, another individual may hold high expectancies that drinking will result in negative outcomes following on from drinking (Next day), thus s/he may attempt to control the amount of consumption (type A drinker) while continuing to drink with the same fre-

quency. Thus a group of type A drinkers would show a strong association between frequency and the negative sub-scale Next day. They would also show a weak association between amount and the negative sub-scale That night since the amount which they drink would be artificially curtailed. Therefore, if this sample does comprise of two different types of drinkers who control their drinking in two different ways then the differential prediction of consumption found here would be explained.

Evidence for the existence of the type F drinker is provided by the recent identification of a 'restrained style' of drinking which is characterised by periods of abstinence followed by binges (Collins and Lapp 1992; Curry, Southwick and Steele 1987; Greenfield, Guydish and Temple 1989). A style which would appear to be remarkably similar to the type F drinker suggested above. In one study Curry, Southwick and Steele (1987) found that there was a relationship between restrained drinking and drinking related problems and that this relationship remained even when heavy drinkers were excluded from the sample. Thus, it would appear that this style of drinking is not just confined to the upper problematic levels of drinking behaviour, in which case it would be detectable in a group of social drinkers such as these. However, they report that the causal direction between problem and style could not be determined from that study. In a postal study of college students, Greenfield, Guydish and Temple (1989) identified a style of limiting drinking they called self-reform which is very similar to the restrained drinking style described by Curry et al and, like Curry et al, they also suggest that abusive drinkers may develop strong self-reform motives as a consequence of alcohol-related problems.

Thus, although this explanation is speculative there would appear to be some evidence to support it, at least for the type F style of drinkers, since this 'restrained' style of drinking appears to be a response to drinking-related problems, or the perception of problems. However, Collins and Lapp (1992), as well as the authors of these studies, suggest that this style of reform or restraint is both maladaptive and potentially problematic.

Evidence for a type A drinker is more sparse, nevertheless Greenfield, Guydish and Temple (1989) do provide some tentative support for the type A style of drinkers. They identify another style of limiting drinking which they call self-control, characterised by less extreme drinking behaviour, that is, limiting amount rather than the abstinence/binge style of the self-reform style. Although also prompted by beliefs of negative consequences of alcohol, they suggest that the self-control style represents a more internalised and less problematic style of limiting drinking than the self-reform style. This would seem to be consis-

tent with the results of this study since many of the the items in the Next day sub-scale could be described as cognitive/emotional (for example guilt, remorse) and hence internalised, which is a contrast to the more behavioural items in the That night scale (for example getting in a fight, arguing with spouse). In a treatment outcome study, Guydish and Greenfield (1987) found that the self-control style of limiting drinking was predictive of a successful outcome while self-reform style was predictive of unsuccessful outcome. Thus, these studies suggest that there are indeed (at least) two different styles of drinking/control which are a response to the problems which the individual drinkers perceive are resulting from their drinking behaviour. These studies, then, provide support, albeit tentatively, for this second explanation that negative expectancy may influence drinking style.

Although two explanations have been posited for the finding that frequency and amount are differentially predicted by negative expectancies (that is, styles of drinking result in negative expectancies or negative expectancies result in drinking styles), it would be surprising if they were mutually exclusive. Rather, it would seem reasonable to suggest that they are in fact interactive. Indeed, the above studies on restrained drinking almost demand an interactive explanation. That is, that negative expectancies are learned from the negative outcomes which accompany a style of drinking, however, the style of drinking may be a response to the negative expectancies held. Thus it could be viewed as a vicious circle - heavy/infrequent drinking (restraint) = negative outcomes = restraint (heavy/ infrequent drinking). If this is indeed the case then it would seem that negative expectancies are not just a consequence of drinking but may indeed be an important element in drinking decisions. The next chapter will return to this point.

GENDER

One other variable, apart from negative expectancy, was found to make a consistent and reliable contribution in this study, that is Gender, which was found to be predictive of amount and weekly but not frequency. That gender is predictive is unsurprising, since it is one of the most secure generalisations of the alcohol field that males drink more than females (Dawson and Archer 1992). However, the fact that Gender makes such a reliable contribution in these analyses begs the question - do expectancies differentially predict consumption (that is, frequency and amount) for males and females ? This is, of course, an empirical question which can only be answered by re-analysing the data for males and females separately. Nevertheless, there are a priori grounds to expect that differences might be found.

In chapter 2 the evidence from some controlled laboratory studies was reviewed which suggests that males and females are both, differentially affected by alcohol and have different positive expectancies. For example, Wilson and Abrahms (1977) found that for males the expectation of having consumed alcohol reduces tension in males and increases tension in females (Abrahms and Wilson 1979; Wilson and Abrahms 1977). Similarly, in a study which investigated what has been hypothesised to be a common expectancy, that is that alcohol is sexually enhancing, it was found that for males, both drinking alcohol and the expectancy that alcohol has been consumed, appears to lead to physiological and subjective sexual arousal. However, for females actually drinking alcohol was found to be physiological sexually inhibiting, nevertheless, the expectancy of having consumed alcohol was found to be subjectively arousing (Williams and Lawson 1976).

Also in chapter 2 it was shown that differences have been found between males and females by 'field' research studies of both positive and negative expectancies (Leigh 1987; Mooney et al 1987; Rohsenow 1983; Williams and Wortley 1991). For example, Mooney et al (1987) found that drinking in males was best predicted by Global positive changes, Sexual enhancement and Physical and social pleasure while in females the best predictor was Relaxation and tension relief. Gender differences have also been found for negative expectancies. Two studies, one by Rohsenow (1983) and one by Leigh (1987), found that females had higher expectancies of impairment than males. Since there are physiological differences between males and females which result in females being more affected than males by the same dosage of alcohol (Dawson and Archer 1992), this result would be expected.

In order to test the hypothesis that consumption will be differentially predicted by expec-

tancies for males and females, the data was re-analysed for males and females separately. the results of this re-analysis are reported below.

RESULTS

Consumption and expectancy data for males and females were first compared using t-tests and then analysed separately using a stepwise regression on all 3 consumption variables. The results of these analyses follow below.

T-test Analysis of Consumption Variables

No differences were found in frequency of drinking, with males and females drink approximately the same number of times per week, 2.3 times for males and 2.1 times for females (Table 13).

Not surprisingly, males drink a greater amount per session on these occasions, 8.7 units compared with the females' 5.2 units (t = 4.032, p = .0001; df 99). Thus males consume more units of alcohol per week, 20.6 units compared with the females' 10.4 units (t = 4.162, p = .0001; df 99).

The male / female ratio found for consumption variables in this study is very much in accordance with those found elsewhere. Dawson (1993) cites the results from 41 national surveys from 15 different countries which consistently show that males drink about twice as much as females, which is what has been found here. Moreover, she also suggests that in terms of frequency of drinking males and females differ little.

T-test Analysis of Expectancy Variables

In table 14 it can be seen that no reliable gender differences were found on the positive or negative expectancy Totals. One positive sub-scale, Sexual enhancement, did discriminate between the genders, with females scoring reliably higher than males (mean score males 1.6; females 2.4: t = -2.012, p = .047; df 99). One negative sub-scale, Continued, also discriminated between the genders, with males scoring reliably higher than females (mean score males 25.3; females 23.1: t = 2.091, p = .0391; df 99).

However, it should be noted that since analysis of the sub-scales entails multiple comparisons (ten), it is possible that any differences found are actually an artifact of the number of comparisons. Hence, to ensure that differences found are not in fact spurious, the alpha level needs to be adjusted to take account of the number of comparisons made, thus, to be safely accepted, differences should reach the p < .005 level (that is p = .05 divided by 10).

It can be seen that none of these results achieve this level and no other differences in expectancy were found.

It is, perhaps, surprising that the marked gender differences found in consumption are not reflected by correspondingly large differences in expectancies. However, that some differences in the expectancy sub-scales were found here adds weight to the suggestion that expectancies may differentially predict consumption for males and females. This suggestion will be empirically tested below using stepwise regression.

Stepwise Regression Analysis - Age and Expectancy Totals vs Consumption

Table 15 shows the results of the stepwise regressions for both males and females on age, positive and expectancy Totals on all three consumption variables - weekly, amount and frequency. For both males and females negative Total is the only reliable predictor on all consumption variables, however the amount of variance explained is quite different across genders. For males negative Total explains 17.6% of weekly (b = .439; F = 11.704), 17.5% of amount (b = .438; F = 11.608) and 11.5% of frequency (b = .364; F = 4.217). For females negative Total explains 28% of weekly (b = .543; F = 19.642), 11.9% of amount (b = .37; F = 7.467) and 6.3% of frequency (b = .287; F = 4.217). As in the all subject analysis, neither age nor positive Total are reliable predictors of any consumption variables for either gender.

Stepwise Regression Analysis - Age and Expectancy Sub-scales vs Consumption

Table 16 shows the results of the stepwise regressions for both males and females on age, positive and expectancy Totals on weekly. It can be seen that at this level of analysis the variables which predict weekly consumption for males and females are really quite different. For males weekly is predicted by one positive and one negative sub-scale, Assertiveness (b = .33; F = 6.119) and That night (b = .327; F = 5.995) which explains 28.3% of the variance. This is very similar to the result obtained in the all subject analysis. However, for females only one variable, the negative sub-scale Next day (b = .637; F = 32.041), predicts weekly consumption, accounting for 39.3% of the variance.

Table 17 shows the results of the stepwise regressions for both males and females on age, positive and expectancy Totals on amount and, again, there is a differential prediction. For males the result of this analysis is almost identical to the previous one with the same two

sub-scales, Assertiveness (b = .328; F = 6.012) and That night (b = .328; F = 6.016), pre-dicting 28.1% of the variance. For females the Next day sub-scale (b = .438; F = 12.62) is still predictive but is joined by the positive sub-scale Sexual enhancement (b = .31; F = 6.311) to predict 27.3% of the variance.

There is one interesting aspect to this result. It can be seen in table 16 that, for females, the positive sub-scale Relaxation and tension relief, while not quite reaching a level of reliabil-ity to be entered into the equation, is in fact negative. Which would lend partial support to the finding of Wilson and Abrahms that women expect increased tension when drinking.

Table 18 shows the results of the stepwise regressions for both males and females on age, positive and expectancy Totals on frequency. In this analysis only one variable was found to be predictive for each group. Consistent with the above analyses, these were the nega-tive sub-scale That night (b = .336; F = 6.233) for males, explaining 9.5% of the variance, and the negative sub-scale Next day (b = .288; F = 4.257) for females, explaining 6.4% of the variance.

Comparison of Male and Female Social Drinkers on Age (in years); Weekly Consumption (in units); Amount per Drinking Session (in units); and Frequency of Drinking Sessions per Week.

	Male	Female	t-value	p (2-tail)
Age				
Frequency	2.3	2.1	1.125	.26
Amount	8.7	5.2	4.032	.0001
Weekly	20.6	10.4	4.162	.0001

Table 13

Comparison of Male and Female Social Drinkers on Positive and Negative Expectancy, Totals and sub-scales.

	Male	Female	t-value	p (2-tail)
Positive Total	29.3	30.4	-.466	.64
Negative Total	94.7	90.1	1.091	.28

Positive Sub-Scales

Global	7.0	6.5	.645	.52
Sex	1.6	2.4	-2.012	.047
Pleasure	7.2	6.9	.917	.36
Assertiveness	5.6	5.9	-.656	.51
Relaxation	4.7	5.1	-.773	.44
Power	3.1	3.5	-1.122	.26

Negative Sub-Scales

That night	38.0	35.6	1.093	.28
Next day	31.9	31.8	.058	.95
Continued	25.3	23.1	2.091	.0391
Distal	57.2	54.9	.9	.37

NOTE: Since analysis of the sub-scales entails multiple comparisons (ten), it is possible that any differences found are actually an artifact of the number of comparisons. Hence, to ensure that differences found are not in fact spurious, the alpha level needs to be adjusted to take account of the number of comparisons made. Thus to be safely accepted, differences should reach the $p < .005$ level (that is $p = .05$ divided by 10). It can be seen that none of these results achieve this level.

Table 14

Stepwise Regression of Age and Expectancy Totals on Consumption by Gender

	MALES		FEMALES	
Variables Entered		Weekly		
	beta	F	beta	F
Negtot	.439	11.704	.543	19.642
Variance explained	17.6%		28%	

Variables not in equation

age	-.081	.318	-.223	2.412
Postot	.201	2.022	.187	1.661

	MALES		FEMALES	
Variables Entered		Amount		
	beta	F	beta	F
Negtot	.438	11.608	.37	7.467
Variance explained	17.5%		11.9%	

Variables not in equation

age	-.117	.662	-.143	.963
Postot	.22	2.437	.219	2.138

	MALES		FEMALES	
Variables Entered		Frequency		
	beta	F	beta	F
Negtot	.364	7.498	.287	4.217
Variance explained	11.5%		6.3%	

Variables not in equation

age	.09	.394	-.111	.579
Postot	.125	.765	.009	.004

Table 15

Stepwise Regression of Age and Expectancy Sub-scales on Weekly by Gender

Variables Entered	MALES		FEMALES	
	beta	**F**	**beta**	**F**
That night	.327	5.995		
Next day			.637	32.041
Assertiveness	.33	6.119		
Variance explained	28.3%		39.3%	

Variables not in equation

age	-.08	.306	-.255	3.193
Global	.003	.0004	.273	3.699
Sex	-.017	.013	.137	.878
Pleasure	-.191	1.774	.253	3.15
Assertiveness			.197	1.862
Relaxation	-.02	.018	.009	.003
Power	-.167	1.356	.196	1.836
Thatnight			.093	.401
Next day	.043	.087		
Continued	.011	.006	-.157	1.16

Table 16

Stepwise Regression of Age and Expectancy Sub-scales on Amount by Gender

Variables Entered	MALES		FEMALES	
	beta	**F**	**beta**	**F**
That night	.328	6.016		
Next day			.438	12.62
Assertiveness	.328	6.012		
Sex			.31	6.311
Variance explained	28.1%		27.3%	

Variables not in equation

age	-.118	.666	-.163	1.231
Global	-.057	.154	-.054	.131
Sex	.021	.022		
Pleasure	-.007	.002	.145	.966
Assertiveness			-.108	.532
Relaxation	.059	.165	-.278	3.757
Power	-.179	1.556	.034	.051
Thatnight			-.016	.011
Next day	-.024	.028		
Continued	-.014	.009	-.086	.334

Table 17

Stepwise Regression of Age and Expectancy Sub-scales on Frequency by Gender

Variables Entered	MALES		FEMALES	
	beta	F	beta	F
That night	.336	6.223		
Next day			.288	4.257
Variance explained	9.5%		6.4%	

Variables not in equation

age	.05	.122	-.124	.715
Global	.146	1.041	.085	.334
Sex	.142	.989	-.14	.914
Pleasure	-.019	.018	.016	.012
Assertiveness	.174	1.499	.047	.1
Relaxation	.11	.592	.074	.25
Power	.118	.673	.196	1.836
Thatnight			.081	.306
Next day	.143	1.008		
Continued	.197	1.941	.001	.00003

Table 18

DISCUSSION

This analysis clearly shows that consumption is differentially predicted for males and fe-
males by negative expectancy, and to a lesser extent positive expectancy. At the Totals
level of analysis it is the negative expectancy Total and not the positive expectancy Total
which is the more reliable predictor for both males and females. Thus, at this level of anal-
ysis, it is the same variable which predicts but it predicts different amounts by Gender.
When the analysis descends to the sub-scale level a quite different picture for males and fe-
males emerges.

For males the results of the by-Gender analysis was markedly similar to the all subject
analysis, with the same two sub-scales, Assertiveness and That night, predicting weekly
consumption and amount per session and the That night sub-scale alone predicting frequen-
cy. For females the best predictor of all consumption variables is the negative sub-scale
Next day, which is predictive of all consumption variables. The positive sub-scale Sexual
enhancement also enters the equation for females, reliably predicting amount.

From these results, it would now appear that the findings of the all-subject analysis may be
a function of the greater variance and range in the males' drinking, and that this has over-
shadowed the more limited variance in the females' drinking. For example, on amount per
session males have a range of from 1 to 24 units (mean 8.7 units, sd 5.4), whereas females
have a more limited range of 1 to 14 units (mean 5.2 units sd 2.7). On weekly consump-
tion males have a range of from 2 to 60 units (mean 20.6 units, sd 15.9), whereas females
range from 1 to 30 units (mean 10.4 units sd 6.8).

This same argument cannot, however, be used to explain the finding that, in the all-subjects
analysis, frequency was explained by the negative sub-scale Next day. Frequency of drink-
ing is more homogeneous between males and females with males having a range of from 1
to 5 sessions per week (mean 2.3 sessions, sd 1.1), and females having a range from 1 to 5
sessions per week (mean 2.1 sessions, sd 1.1). Instead, it would appear that the stronger re-
lationship that females show between frequency and Next day has produced this result in
the all subject analysis.

However, while these arguments may explain the statistical vagaries found in this study
and provide a caveat about assuming homogeneity of males and females, they do not ex-
plain why gender differences have been found. In particular, why does the negative sub-
scale That night predict consumption for males while the negative sub-scale Next day pre-
dicts consumption for females ?

It was suggested that a priori grounds for differences in the expectancies held by males and females existed, that previous expectancy research had also found such differences. However, this study has failed to replicate the findings of Mooney et al (1987) in regard to positive expectancies. In particular their study found that males scored higher than females on the positive sub-scale Sexual enhancement. This study has found a reversal of that result, which may be a result of cultural differences between the USA and Scotland. An earlier study found that celtic males (Irish) had lower expectancies of Sexual enhancement than American males (Teahan 1988). Hence one explanation of these apparently contradictory findings could be that, Scottish females do not have particularly high expectancies of Sexual enhancement, instead Scottish males may be particularly low in this expectancy. Alternatively, Rohsenow (1983) found that females expected others to be more affected than themselves by alcohol on every positive scale except Sexual enhancement. Also, the Williams and Lawson (1976) study found that, despite alcohol being physiologically sexually inhibiting for females, the expectancy of having consumed alcohol was subjectively arousing. Thus there would seem to be some evidence to support the findings of this study.

In the discussion of the all-subjects analysis, it was suggested that the differential prediction of consumption variables by negative expectancy may indicate that there are two quite different groups of drinkers in this sample. It was also suggested that the differential prediction was a result of either contrasting drinking styles leading to different consequences or contrasting drinking styles in response to the different negative expectancies held. In view of the results of the gender analysis, it may appear that such a discussion was premature. However, this is by no means the case.

In chapter 2 it was argued that gender differences in expectancy should exist, due to the process of acquisition of expectancies. It was suggested that there were two routes to acquiring expectancies, experience and acculturation , both of which should result in differential expectancies for males and females. These differences, while obviously important in positive expectancies, may be even more important in negative expectancy. For example, it has been shown that females have higher expectancies of impairment (Rohsenow 1983, Leigh 1987) and that this finding is consistent with females being more affected than males by the same dosage of alcohol. Thus physically, females may experience greater, or different, aversive affects from alcohol and, hence, form quite different negative expectancies from males. Also Marlatt and Rohsenow (1980) have suggested that females are subject to greater social sanctions regarding alcohol. Hence again, gender differences in negative ex-

pectancies would be expected.   Therefore, if negative expectancies are a consequence of drinking then the explanation of differential prediction in terms of different consequences due to different styles of drinking is no less valid.

In the discussion of the all-subjects analysis it was also suggested that there were two elements to drinking, frequency and amount, and that individuals may attempt to control their drinking on either of these elements.   It was suggested that individuals who have higher negative expectancies relating to the Next day will attempt to control the amount of their drinking, while individuals who have higher negative expectancies relating to That night will attempt to control the frequency of their drinking.   If this argument can be sustained, then it would suggest that males and females may differ in their patterns of control of drinking, that is that females attempt control by amount while males attempt control by frequency.   In partial support of this suggestion, this study has found that females drink on the same number of occasions as males but differ significantly as to the amount which they drink.   This is a common finding and has led Wilsnack and Wilsnack (1991) to suggest that *"In the United States, women's greater temperance is expressed more by drinking smaller quantities per drinking occasion than by having fewer drinking occasions."*
Again it would seem that there is some validity to the suggestion that different styles of drinking are a response to the negative expectancies held.

GENERAL DISCUSSION AND CONCLUSIONS

Although this study has produced evidence which is consistent with the hypothesis that an empirically derived instrument for measuring negative expectancy (the NAEQ) would be a predictor of consumption, there are two possible criticisms of the methods used. First, it might be argued that the correlations between negative expectancy and consumption are spurious, being merely an artifact of the bias produced by self-reports of both drinking and negative expectancy. While this criticism is a plausible explanation of the somewhat high correlations found in this study, there is evidence from a previous study which suggests that this may not be the problem it might first appear. Stacy, Widaman and Marlatt (1990) investigated the relationship between both self-reported consumption and expectancy and peer-reported consumption and expectancy and found that there was no reliable differences. Hence, they concluded that this relationship was not a spurious one as a result of bias.

The second criticism, although partly answered by the above study, would suggest that self-reported measures of alcohol consumption may not be valid. However, there is now large body of evidence which suggests that self-reported alcohol consumption is, indeed, accurate (Midanik 1982) having been compared with collateral reports and physical measures (Sobell, Sobell and Vanderspek 1979).

Previous Studies

It is difficult to compare the results of this study with previous research since there are so few previous studies which are comparable, since rarely, if ever, have positive and negative expectancies been put 'head to head' as they have been in this study.

Two studies which did employ some measure of negative expectancy, found no relationship with consumption (Christiansen and Goldman 1983; Rohsenow 1983). However, both of these studies employed a modified form of the AEQ which has been discussed earlier. A further two studies, although replicating the finding that negative expectancy was not associated with drinking style, did find that all subjects (irrespective of drinking status) expected an increase in negative outcomes at increased levels of drinking (Collins et al 1990; Southwick et al 1981). Williams and Wortley (1991) employed the Alcohol Dependency Scale as a measure of negative expectancy and found that scores increased with drinking.

The only two studies which are comparable with this study are the Stacy, Widaman and Marlatt (1990) study and the Leigh (1989b) study. Stacy, Widaman and Marlatt (1990) employed a measure of negative expectancy and, while they found that positive expectancy was a superior predictor of consumption to negative expectancy, they demonstrated that

negative expectancy could not be omitted without significantly reducing the predictive validity of the regression equation. Leigh's (1989b) study compared the predictive validity of three expectancy instruments the AEQ (Brown et al 1980), the AES (Southwick et al (1981) and her own instrument the EDA (Leigh 1987). Consistent with the findings of this study, she found that negative expectancy (cognitive and physical impairment), as measured by the EDA, was a superior and more consistent predictor of consumption than positive expectancy.

NAEQ Superior to AEQ - Another Artifact ?

Since the much extended sample of items employed in the NAEQ demonstrate such a reliable association with consumption, these results would support the assertion made in chapter 3 that the equivocal results found by previous studies may merely be an artifact of using poorly-researched instruments which have been derived from unrepresentative pools of items. However, if this is the case, then it begs the question, is negative expectancy a better predictor of consumption than positive expectancy or are the differences demonstrated in this study merely a further artifact of the instruments employed ? In other words is negative expectancy more reliably associated with consumption than positive expectancy or would an improved positive expectancy instrument (than the AEQ) show a more reliable relationship with consumption measures. While it is impossible to arrive at a secure conclusion to this question on the strength of this study alone, it could, nevertheless, be argued that if a comparable degree of investigative rigour has been employed in the construction of these instruments, then they should have comparable reliability. If this assumption can be made, then we are left with the conclusion that negative expectancy is, in fact, a better predictor of consumption than positive expectancy. However, while tempting, this is not a conclusion which is secure, and hence not advisable, since the AEQ has been the subject of much criticism over the past decade and hence the lack of relationship found here may, indeed, be a deficiency of the instrument.

The main criticisms of the AEQ have been discussed in chapter 2, and also in chapter 4 in relation to the compilation of the NAEQ, however the main points will be recapitulated here since they have relevance to this question. The main thrust of the criticisms are that two flaws in the AEQ's design may render it less sensitive than it might otherwise be. First, it confounds general and self-referent expectancies and it has been found that general beliefs and self beliefs differentially predict consumption. Second, it employs a forced-choice agree/disagree scoring format which would seem to be insensitive to the strength of

the expectancy, having only two points on its scale. Thus, if the sensitivity of the AEQ is reduced by these design flaws, while the NAEQ has avoided these flaws, then the difference in prediction may be purely an artifact of design. However, even if this is the case, it has nevertheless been shown that negative expectancy is, at least, as valid as as positive expectancy in predicting consumption and that, for this group of subjects, the NAEQ has been demonstrated to be a better predictor of consumption than the AEQ.

CONCLUSION

This chapter has reported the results of a study which support the hypothesis that an empirically derived instrument for measuring negative expectancy (the NAEQ) would predict consumption. The NAEQ total was reliably predictive of amount per week, amount per session and frequency of drinking, outperforming the highly validated and much used AEQ at all levels of analysis. When a stepwise multiple regression was employed, the That night sub-scale emerged as the most powerful predictor of both amount per week and amount per session, and the Next day sub-scale as the best, and for that matter only, predictor of frequency.

However, when the the data was re-analysed by gender a quite different picture emerged for males and females. Although the negative expectancy Total predicted all consumption variables for males and females the amount of the variance explained differed markedly.

Also, at the sub-scale level of analysis it was found that the That night sub-scale was the best predictor for males, predicting all consumption variables, while the Next day sub-scale was the best predictor for females, again predicting all consumption variables.

This study has also provided tentative evidence consistent with the view that negative expectancy may be involved in drinking restraint and, hence, partial evidence for the hypothesis that negative expectancy is a motivator of recovery.

CHAPTER SIX

Negative Expectancy as Motivation for Abstinence 1: The Evidence from Social Drinkers and Abstainers.

Contents of Chapter 6

CHAPTER SUMMARY

This chapter describes the results of two studies designed to test the hypothesis that negative alcohol-related expectancy motivates abstinence. The first study compares the expectancies of satisfied and dissatisfied social drinkers, arguing that since dissatisfied drinkers will be more motivated to abstain, they should hold higher negative expectancies of alcohol. The results of this study show that this is, indeed, the case with the most reliable differences found in the Next day sub-scale. No reliable differences were found between these two groups in any positive expectancies variables. However, since differences were also found in drinking variables which could account for this result 20 satisfied drinkers matched for gender, age and consumption were compared with the dissatisfied drinkers. Although the levels of probability were reduced, reliable differences in the Total negative expectancy, Distal and Next day sub-scales remained.

The second study compares the the expectancies of satisfied social drinkers and non-problem abstainers. In this study, reliable differences were found for both positive and negative expectancies, with abstainers holding lower positive expectancies and higher negative expectancies than the social drinkers.

An analysis of the expectancies of all three groups is then carried out, which demonstrates that while dissatisfied social drinkers most resemble satisfied drinkers in the positive expectancies which they hold, in negative expectancies they most resemble abstainers.

It is concluded that the results of these two studies support the main hypothesis of this thesis, that is that negative expectancy represents motivation to abstain from alcohol. The chapter ends with a discussion of the possible utility of arranging negative expectancies into temporal contexts, as has been done in the NAEQ.

Chapter Six

Negative Expectancy as Motivation for Abstinence 1:
The Evidence from Social Drinkers and Abstainers.

INTRODUCTION

In chapter 3, evidence was presented which suggests that negative alcohol-related expectancy is a motivator of abstinence. In particular, evidence from spontaneous remission studies was cited which suggests that change in problem drinking is a response to both current problems related to consumption and the anticipation of continued and further problems, if drinking were to continue. The previous chapter also provided evidence, albeit tentative, which is consistent with this view of negative expectancy as a motivator of benign change in drinking.

This chapter is designed to investigate the hypothesis that negative expectancy motivates abstinence, by examining the positive and negative expectancies of clearly defined groups: social drinkers who are satisfied with their current drinking, social drinkers who are dissatisfied with their current drinking and non-problem abstainers.

STUDY 1: SATISFIED SOCIAL DRINKERS VS DISSATISFIED SOCIAL DRINKERS

INTRODUCTION

Recent research has increasingly suggested that client motivation is a desirable, if not essential, prerequisite for successful outcome of treatment for alcohol problems (Heather 1992; Miller 1983, Miller and Rollnick 1991; Prochaska and DiClemente 1985; Rollnick et al 1992; Saunders and Allsop 1985; Stockwell 1992). Indeed, it has become so much a part of the current rhetoric of alcohol abuse (and related areas) research and treatment that the entire proceedings of the 6th International Congress on the Treatment of Addictive Behaviours (1993) was devoted to the theme of motivation for recovery.

One influential approach to motivation comes from the work of two American psychologists, James Prochaska and Carlo DiClemente. Over the last decade the Stages of Change model, as formulated by Prochaska and DiClemente has been almost universally adopted

as the bench-mark for visualising change. Ironically, this model which has become such a mainstay of the addiction field, was not formulated either for or within addiction research but instead emerged from their work in psychotherapy (Prochaska and DiClemente 1982). Nevertheless, the addiction field has not been slow to recognise the merits of this model as both a heuristic for classifying change and as a source of hypothesis generation.

Basically they suggest that not all clients who attend for treatment want to change or even regard change as necessary and, certainly, the high relapse rates would support this suggestion. However, they further suggest that motivation for change is not an 'all or nothing' characteristic, rather it is better regarded as a continuum. Hence, they argue that change is best viewed as a series of stages of increasing commitment through which an individual progresses. Depending on which version of the model is used, there are between four and six stages. The stages of the most recent formulation are: precontemplation - not considering change; contemplation - aware of a problem and considering change; preparation - decided to change and will change in the near future; action - carrying out change and maintenance - maintaining the changes that have now been made (Prochaska et al 1992; DiClemente 1993).

Thus, the basic premise of this model is that, in intentional behavioural change, individuals progress from having little, or no, desire to change to actually activating and maintaining change and that this occurs through clearly definable stages It is further suggested that progression through the stages is facilitated by the use of cognitive and behavioural processes which are stage-specific. Prochaska and DiClemente argue that this model is not confined to change which is brought about through treatment but is just as relevant to change occurring outwith treatment.

As would be expected of a model of *intentional change*, a central role in their theoretical position is given to the concept of the individual changer making a decision and then acting on that decision. Within this model, Prochaska and DiClemente have identified approximately ten distinct processes (the number has varied as the model has been elaborated upon over the years), five cognitive and five behavioural, which the individual employs to facilitate change Prochaska and DiClemente 1985). In the early stages, movement from one stage to another is facilitated by the cognitive processes while the behavioural processes, not surprisingly, are almost exclusively restricted to the action and maintenance stages. Four of the five cognitive processes identified by this model deal with raising the individual's awareness that a problem exists. They are: 1/ consciousness raising - an openness to

information about the problem; 2/ self-reevaluation - appraising how the behaviour affects self; 3/ environmental reevaluation - appraising how the behaviour affects significant others; 4/ dramatic relief - becoming emotionally affected by information about the behaviour. It is implicit in this model that the information gleaned when employing these cognitive processes will be negative, otherwise there will be no movement through the stages. After all, as was argued in chapter 3, if a behaviour was perceived to bring benefits and no problems then why should anyone want to change ? Indeed, in support of this, DiClemente et al (1991), using a short pros and cons questionnaire, found that as smokers moved through the stages of change they endorsed fewer pros and more cons and this result has since been replicated with drinkers (DiClemente 1993). Thus, it would be reasonable to suggest that as individuals became increasing dissatisfied with the results of the behaviour in question then there would be a greater likelyhood of change.

In support of this view, Miller and Rollnick (1991) have integrated their motivational interviewing approach with the stages of change model. Like Prochaska and DiClemente, they suggest that quite different treatments are required at each stage of change and they provide a menu of techniques and interventions appropriate to each stage. Items from this menu include: "*raising doubt*" and "*tipping the balance by evoking reasons to change and the risks of not changing*". Explicit to this approach is their view that it is the therapist's task to increase motivation for change in the client by "*decreasing the desirability*" of the behaviour and thus raise the "*probability of behavioural change*". [Note: Many researchers are now using terms such as 'probability of change' and 'readiness to change' as synonyms of motivation, thus signifying motivation to be a continuum. The adoption of such terms has been a reaction against the often held view that motivation is a stable personality trait (Miller 1983, Miller and Rollnick 1991). However, fundamentally, these terms have an identical meaning, or at least, a very close approximation to the way 'motivation' has been and will continue to be used in this thesis. Henceforth the term motivation will be used.]

The above discussion summarises the view that as an individual becomes increasingly dissatisfied with her/his drinking behaviour then s/he will be more motivated to change that behaviour. Thus, it has been argued in chapter 3 that negative expectancy represents motivation for abstinence, and consequently drinkers who are satisfied with their current drinking should have lower negative expectancies (because they are less motivated) than drinkers who are dissatisfied with their current drinking (because they are more motivated). In terms of the stages of change model, satisfied drinkers would be categorised as precontem-

plators, because they are not considering change. In the same vein, dissatisfied drinkers are aware of some problems associated with their drinking and would be categorised as (at least) contemplators. The subjects who took part in the study described in chapter 5 have been used to test the hypothesis that dissatisfied social drinkers will have higher alcohol-related negative expectancies than satisfied social drinkers.

METHOD

Subjects

Subjects consisted 108 volunteers, however in seven cases the information given was incomplete and had to be discarded. The final sample consisted of 52 males mean age 30.1 years (sd 11.6) and 49 females mean age 26.2 years (sd 10.1). No subject reported ever having received treatment for an alcohol problem, or perceived themselves to be problem drinkers. Drinking details - frequency 2.12 (sd 1.1) sessions per week; amount per session 7.01 (sd 4.6) units; amount per week 15.7 (sd 13.3) units.

For this study the social drinkers of the previous study (chapter 5) were asked to indicate if they were satisfied or dissatisfied with their current drinking.

Measures

A brief sociodemographic/drinking questionnaire was used to collect details of: gender; age; frequency of drinking and average amount per session. Also on this instrument was the question "Are you satisfied/dissatisfied with your current drinking ?"

The Alcohol Expectancy Questionnaire (AEQ) - a 90 item instrument designed to measure the positive expectancies of alcohol, which an individual holds (Brown et al 1987). Scoring is on a forced choice, agree/disagree format. This instrument has six sub-scales: Global positive change; Sexual enhancement; Physical and social pleasure; Assertiveness; Relaxation and Power. A total positive expectancy score is obtained from summing the sub-scale scores.

The Negative Alcohol Expectancy Questionnaire - (NAEQ) a 60 item instrument designed to measure the negative expectancies of alcohol which an individual holds. This instrument employs a 5 point likert scale measuring the subjects estimate of how likely these outcomes are to happen to him/her, that is: highly unlikely = 1; unlikely = 2; possible = 3; likely = 4; highly likely = 5. It is arranged in three temporal contexts and these represent

three sub-scales: That night (21 items); Next day (18 items); and Continued (21 items). Two alternative sub-scales can also be generated: Proximal which are outcomes that may happen at the time of drinking (that is the That night sub-scale) and Distal negative expectancies which are outcomes that may happen subsequent to drinking or from prolonged drinking (that is, the sum of the Next day and Continued sub-scale). A total negative expectancy score is obtained from summing the three sub-scale scores (That night; Next day and Continued).

Procedure

Subjects for this study were volunteers who were approached around the campus of the university and asked to take part in the study. About 50% of the subjects were students (n = 55), the others were university staff or people who either lived or worked locally (n = 53).

108 volunteers were given the AEQ and NAEQ in a self-complete format, in seven cases the information given was incomplete and had to be discarded. Presentation was counterbalanced, so that half the subjects completed the AEQ followed by the NAEQ and the other half completed the NAEQ followed by the AEQ. Although subjects completed the questionnaires in the presence of the researcher, the researcher was as unobtrusive as possible to give the subject as much privacy as possible. The whole procedure lasted between 30 and 45 minutes.

RESULTS

Satisfaction / Dissatisfaction

Of the sample 20 subjects (9 females and 11 males) endorsed the dissatisfaction category. All others 81 (40 females and 41 males) endorsed the satisfaction category.

Consumption Variables

The results of this analysis (table 1) show that there are no reliable differences between satisfied and dissatisfied drinkers in the amount that they drink in a session with both groups drinking an almost identical amount - about 7 units. There is, however, a reliable difference in the frequency of drinking, with the dissatisfied group drinking on 3.6 occasions per week compared to the satisfied group's 2.1 occasions (t = -4.784; p = .0001; df 99). Thus the reliable difference (satisfied (s) 15.3 units and dissatisfied (d) 25.1 units; t = -2.582; p = .0111; df 99) found in weekly consumption is obviously a function of the frequency of

drinking rather than the amount per session.

Expectancy - Total

It can be seen from the results in table 2 that there are no reliable differences between satisfied and dissatisfied drinkers in the levels of Total positive expectancy which they hold (means s 29.8, d 29.5; t = -.11, p = .91; df 99). Dissatisfied drinkers do, however, hold reliably higher levels of negative expectancies on the Total (means s 90.8, d 113.8; t = -3.866, p = .0002; df 99).

Expectancy - Sub-scales

No differences were found on any positive expectancy sub-scale the largest difference being found on the positive sub-scale Power (means s 3.2, d 3.8; t = -1.252, p = .21; df 99) Differences were found on all negative sub-scales: That night (means s 36.2, d 42.7; t = -2.359, p = .0201; df 99); Next day (means s 31.1, d 41.5; t = -4.173, p = .0002; df 99); and Continued (means s 24.0, d 29.5; t = -3.212, p = .002; df 99) and also on the Distal sub-scale (means s 55.1, d 71.0; t = -4.181, p = .0001; df 99).

As discussed in chapter 5, due to multiple comparisons, differences require to reach the p < .005 level (that is p = .05 divided by 10) to be safely accepted. All negative sub-scales, with the exception of the That night sub-scale, reach this level.

Preliminary Discussion

Although all negative sub-scales show reliable differences (subject to the above caveat), it is interesting that the more robust differences are found in the Distal negative expectancies and, in particular, the Next day sub-scale. In the previous chapter it was found that this sub-scale was the most powerful predictor of frequency of consumption and, in this analysis, it has been found that dissatisfied drinkers differ from satisfied drinkers on frequency, which is consistent with the previous chapter's analysis.

However, in the previous chapter it was also demonstrated that negative expectancy was reliably and positively associated with consumption and these results show that the dissatisfied group have a higher weekly consumption than the satisfied group. Thus, although this result is quite consistent with the hypothesis that negative expectancy is a motivator of abstinence, it cannot be excluded that the result is merely an function of levels of consumption.

A second explanation could account for these differences, that is, lack of homogeneity of

variance.   In a t-test p-values indicating a reliability criterion has been reached can be found for two reasons: first, a real difference between group means and, second, differences in group variances. When a large group is compared with a small group, as is the case in this study, differences in group variances becomes a problem. Of course, the risk could be avoided by employing a t-test which allows for heterogeneity of variance (Bruning and Kintz 1968). However, in view of the relationship between drinking levels and negative expectancy it was considered that the best solution was to carry out a second analysis comparing a sample of 20 satisfied and 20 dissatisfied drinkers matched, as far as possible, for gender, age and consumption.

In order to eliminate the possibility that the reliable differences found were artifactual, the analysis was repeated, this time using a group of satisfied drinkers matched for gender, age and consumption variables.

Analysis: Matched Groups

Consumption Variables

It can be seen from table 3 that these groups are reasonably well matched since there are no reliable differences between the satisfied and dissatisfied group in consumption variables or age.

Expectancy - Total

As before, there are no reliable differences in positive expectancy (table 4) Total positive expectancy (means s 31.8, d 29.5; t = .592, p = .56; df 38). The dissatisfied group do continue to show a reliably higher negative expectancy Total (means s 93.1, d 113.8; t = -2.354, p = .0239; df 38).

Expectancy - Sub-scales

As before, no differences were found on any positive expectancy sub-scale but differences were found on negative expectancy sub-scales.

Although, the dissatisfied group consistently score higher on all sub-scales, it is Distal (means s 56.4, d 71.0; t = -2.412, p = .021; df 38) and not Proximal (means s 37.7, d 42.7; t = -1.439, p = .16; df 38) negative expectancy which is reliable. Indeed, the differences seem to be sited in the Next day sub-scale (means s 31.3, d 41.5; t = -2.767, p = .009; df 38). In fact, the only result which can be safely accepted as reliably discriminating between these two groups is the Next day sub-scale, since it is the only scale which

reaches the adjusted p < .005 level. Even this sub-scale can only be accepted if a one-tailed prediction is used, producing a probability level of p = .0045.

Comparison of Satisfied and Dissatisfied Social Drinkers on Age (in years); Weekly Cosumption (in units); Amount per Drinking Session (in units); and Frequency of Drinking Sessions per Week.

	Satisfied	Dissatisfied	t value	p (2 tailed)
Age	28.6	30.3	-.584	.56
Weekly	15.3	25.1	-2.582	.0111
Amount	7.0	6.9	.036	.97
Frequency	2.1	3.6	-4.784	.0001

Table 1

Comparison of Satisfied and Dissatisfied Social Drinkers on Positive and Negative Expectancy, Totals and Sub-scales.

	Satisfied	Dissatisfied	t value	p (2 tailed)
Positive Total	29.8	29.5	.11	.91
Negative Total	90.8	113.8	-3.866	.0002

Positive Sub-scales

Global	6.7	6.8	-.135	.89
Sex	2.1	1.7	.8	.43
Pleasure	7.1	7.1	-.002	.91
Assertiveness	5.7	5.6	.215	.83
Relaxation	5.0	4.5	.663	.5
Power	3.2	3.8	-1.252	.21

Negative Sub-scales

That night	36.2	42.7	-2.359	.0201
Next day	31.1	41.5	-4.173	.0002*
Continued	24.0	29.5	-3.212	.002*
Distal	55.1	71.0	-4.181	.0001*

NOTE: Due to multiple comparisons the alpha level needs to be adjusted to the p < .005 level (that is p = .05 divided by 10). Results marked with an asterisk (*) achieve this level.

Table 2

Comparison of Satisfied and Dissatisfied Social Drinkers (Matched for gender, age and consumption) on Age (in years); Weekly Cosumption (in units); Amount per Drinking Session (in units); and Frequency of Drinking Sessions per Week.

	Satisfied	Dissatisfied	t value	p (2 tailed)
Age	32.1	30.3	.433	.67
Weekly	21.2	25.1	-.683	.5
Amount	7.3	6.9	.291	.77
Frequency	2.95	3.6	-1.384	.17

Table 3

Comparison of Satisfied and Dissatisfied Social Drinkers (Matched for gender, age and consumption) on Positive and Negative Expectancy, Totals and sub-scales.

	Satisfied	Dissatisfied	t value	p (2 tailed)
Positive Total	31.8	29.5	.592	.56
Negative Total	93.1	113.8	-2.354	.0239

Positive Sub-Scales

Global	7.1	6.8	.235	.82
Sex	2.2	1.7	.772	.44
Pleasure	7.3	7.1	.613	.54
Assertiveness	6.1	5.6	.53	.6
Relaxation	5.65	4.5	1.316	.2
Power	3.4	3.8	-.7	.49

NegativeSub-Scales

That night	37.7	42.7	-1.439	.16
Next day	31.3	41.5	-2.767	.009*
Continued	25.1	29.5	-1.515	.14
Distal	56.4	71.0	-2.412	.021

NOTE: Due to multiple comparisons the alpha level needs to be adjusted to the $p < .005$ level (that is $p = .05$ divided by 10). Results marked with an asterisk (*) achieve this level, if a one-tailed prediction is employed.

Table 4

DISCUSSION

In the all-subjects analysis reliable differences were found between the satisfied and dissatisfied group in all negative expectancy variables, that is, Total and all sub-scales. However, reliable differences were also found between the satisfied and dissatisfied group in frequency of drinking, although not in amount per session. It was, thus, suggested that, in view of the finding in the previous chapter that negative expectancy was reliably associated with consumption, this finding could possibly be accounted for by these differences in consumption. Further, since the difference in group sizes was considerable, the differences found could be an artifact of the lack of homogeneity of variance that frequently accompanies large size differences of this type. Thus, the analysis was repeated using groups of identical size and matched for gender, age and consumption.

In the matched analysis, the previously reliable differences for the That night and Continued sub-scales disappeared. Thus suggesting that it was, indeed, important to address the group size differences. However, reliable differences differences remained, although substantially reduced, for Total negative expectancy and Distal. The reliable expectancy for the Next day sub-scale also remained and continued to be highly reliable. No reliable differences were found on any positive expectancy variables on either analysis.

Since dissatisfied social drinkers were found to have reliably higher negative expectancies than satisfied social drinkers, these results support the hypothesis that negative expectancy represents motivation for abstinence. In terms of the stages of change model cited earlier, it was argued that the satisfied drinkers in this study could be considered to be precontemplators (that is not considering change) while the dissatisfied drinkers could be considered to be contemplators (that is considering change). If this was the case then the dissatisfied drinkers would be higher in motivation than the satisfied drinkers, which is what this study has found.

There is, however, an alternative explanation which has to be considered. It is possible that these results are actually an artifact of the subjects' attempts to, consciously or unconsciously, present a consistent picture of themselves. That is, when a subject endorses the dissatisfied category on the questionnaire s/he will then inflate his/her negative expectancies to justify this endorsement. While this explanation cannot be ruled out, it does appear unlikely for two reasons.

First, if the subjects are in fact presenting a consistent picture, then it might be expected

that this effect would be seen in consumption variables, as well as expectancy variables. However, it was found, in the all-subjects analysis, that, although there were reliable differences between satisfied and dissatisfied social drinkers on the frequency of drinking, there were no differences in the amount which they drank per session. Yet it would seem that the most obvious consumption variable on which to present a 'consistent' picture of dissatisfaction would be amount. For it is on this variable, rather than on frequency, which the lay person tends to judge problematic drinking.

Second, when the subjects were matched for consumption, why should this effect only be present on distal negative expectancy ? Indeed, at the sub-scale level of analysis the differences were only found on the Next day sub-scale.

It is impossible to discuss this finding in the light of previous expectancy research since, an extensive literature search has failed to unearth any other study which has investigated the role of expectancies in this way. However, two studies by DiClemente and his colleagues cited earlier, while not strictly considered part of the expectancy domain, do nevertheless have some relevance. In these studies, one with smokers (DiClemente et al 1991) and the other with drinkers (DiClemente 1993) it was found that, as individuals progressed through the processes of change, they endorsed more cons and less pros. Indeed, in the smoking study (which was reviewed in chapter 3) it was found that the largest shift was in the cons scale, a finding which is quite consistent with the results of this study. Which suggests, as this study also does, that negative expectancy may have a greater utility to predict change in drinking behaviour than positive expectancy.

It is interesting that dissatisfied drinkers differed from satisfied drinkers on distal rather than proximal negative expectancies and that this difference was, in fact, sited in the Next day sub-scale. Also, since no reliable differences were found between dissatisfied drinkers and the satisfied drinkers on the amount which they drank per session, it may suggest that a problematic element of this group's drinking is the frequency with which it occurs. Since in the study in chapter 5, it was found that the Next day sub-scale was associated with drinking frequency, this result would appear to be quite consistent with that finding.

One explanation of these results could involve drinking restraint. It was suggested in chapter 5, that there may be two different types of drinking restraint, as a response to the negative expectancies held. First the type F drinker, who expects aversive outcomes to occur at the time of drinking (That night) and consequently attempts to control her/his drinking by

limiting the frequency of drinking. Second the type A drinker, who expects aversive outcomes to occur following drinking (Next day) and consequently attempts to control her/his drinking by limiting the amount per session, while retaining the frequency. The results of this study could suggest that the dissatisfied drinkers in this study are of the latter variety. Since they do not differ in negative expectancies on the That night sub-scale nor in the amount which they drink per session, this may suggest that they are controlling the amount which they drink in a session. However, if this is the case then it raises the question - If they are controlling how much they drink then why do they have negative expectancies about the next day ? This point will be taken up again in the final discussion of this chapter.

In the previous chapter it was found that the drinking of males and females was differentially predicted from expectancy variables and it was suggested that this may signify gender differences in drinking restraint. If that is the case, then males and females may also be differentially motivated to abstain. In order to test this possibility a 2 x 2 Analysis of Variance could be carried out examining satisfaction by gender. However, descending to this level of analysis would necessitate further sub-dividing the subjects into even smaller groups, that is two groups of 9 and two of 11, which would seriously reduce the power of using a statistical test of this type. Indeed, unless differences between these groups were very large, there is a high probability of a type 2 error (that is, accepting the null hypothesis when there is, in fact, a difference). Consequently, since the reliable differences found in the matched analysis are fairly modest it is unlikely that reliable differences will result from such an analysis. Nevertheless, it would seem to be an important topic for future research.

STUDY 2: SATISFIED SOCIAL DRINKERS VS ABSTAINERS

INTRODUCTION

Study 1 demonstrated that dissatisfied social drinkers hold higher negative expectancies than satisfied social drinkers and it was argued that this represents a higher level of motivation to abstain. This study extends that comparison, by examining the positive and negative expectancies held by the satisfied drinkers of the previous study and a group of non-problem abstainers. If these groups were to be viewed within the stages of change model (Prochaska and DiClemente 1985), as in the previous study, then it can be seen that the satisfied social drinkers would be classified as precontemplators (which was argued earlier) while the abstainers would be classified as maintainers. Within that framework, maintainers should be more motivated to abstain than precontemplators.

Previous studies of abstainers have tended to examine ex-problem drinkers (for example Amodeo and Kurtz 1990; Ludwig 1985; Tuchfield 1981). The findings of these studies, reviewed in chapter 3, are clear, it is the expectancy of negative outcomes which motivate and maintain abstinence rather than a reduction of positive expectancies. However, it might be expected that ex-problem drinkers would be quite different in their expectancies from non-problem abstainers, especially lifelong abstainers with no experience of alcohol. Nevertheless, these studies also found that 'negative example' was a powerful influence, hence, aversive experience with alcohol may not have to be personal, it may be acquired vicariously.

As a group non-problem abstainers have been little researched. Indeed, within the expectancy research domain, only been two studies have been carried out with this population (Leigh 1987; Southwick et al 1981). Southwick et al (1981) found little difference in both positive and negative expectancy between abstainers and other drinkers. However Leigh (1987) found that abstainers did, in fact, hold higher negative expectancies than other drinkers. Leigh (1987) gives two reasons for this discrepancy, that is, the instrument employed and the sample. First, the instrument employed was the AES (Southwick et al 1981), the validity of which has been discussed previously in this thesis. Second, the sample for Southwick et al's (1981) study was drawn from university students who have little or no experience of alcohol, whereas Leigh's (1987) sample was drawn from the general population who are much more experienced, if only vicariously.

Thus, since this thesis has argued that negative expectancy represents motivation for abstinence and since this sample is comprised of adults from the general population, it is hypo-

thesised that abstainers will hold reliably higher negative expectancies than satisfied social drinkers.

METHOD

Subjects

The satisfied social drinkers from the previous study were used in this analysis. Only the satisfied social drinkers were used since the aim of this study is to compare abstainers against 'normal' social drinkers, whereas dissatisfied social drinkers could be argued to represent a problem population.

Abstainers consisted of 25 subjects, 11 males and 14 females Mean age 45.8 yrs (sd 13.3). 10 subjects were life-long abstainers, 15 had become abstainers in later life, mean length of abstinence 8.2 yrs range 1 - 24 years. No abstainer had ever attended for treatment for, or admitted to having had, an alcohol problem. Indeed, most of the later abstainers stated that they had never ever really been drinkers .

Measures

Socio-demographic questionnaire - 16 items asking for sex, age, details of any alcohol use now, how long abstinent and details of any alcohol-related problem. Also on the questionnaire were two question which asked the subject's reason for abstinence and length of time abstinent. The first item gave five categories: ex-problem drinker; health reasons; religious reasons; bad example of others and other (please specify).

This instrument was used for the abstainers only.

The Alcohol Expectancy Questionnaire (AEQ) - a 90 item instrument designed to measure the positive expectancies of alcohol, which an individual holds (Brown et al 1987). Scoring is on a forced choice, agree/disagree format. This instrument has 6 sub-scales: Global positive change; Sexual enhancement; Physical and social pleasure; Assertiveness; Relaxation and Power. A total positive expectancy score is obtained from summing the sub-scale scores.

The Negative Alcohol Expectancy Questionnaire - (NAEQ) a 60 item instrument designed to measure the negative expectancies of alcohol which an individual holds. This instrument employs a 5 point likert scale measuring the subjects estimate of how likely these outcomes are to happen to him/her, that is: highly unlikely = 1; unlikely = 2; possible = 3;

likely = 4; highly likely = 5. It is arranged in three temporal contexts and these represent three sub-scales: That night (21 items); Next day (18 items); and Continued (21 items). two alternative sub-scales can also be generated: Proximal which are outcomes that may happen at the time of drinking (that is the That night sub-scale) and Distal negative expectancies which are outcomes that may happen subsequent to drinking or from prolonged drinking (that is, the sum of the Next day and Continued sub-scale). A total negative expectancy score is obtained from summing the three sub-scale scores (That night; Next day and Continued).

Procedure

All subjects were given the questionnaire as a self-completion instrument. This was done in the presence of the researcher. The whole procedure took between 20 and 40 minutes.

RESULTS

Reasons for Abstinence

The most common reason given for abstinence was the "bad example of others" which was endorsed by 40% (10) of the subjects. The next most common reasons were: "nothing specific" given by 24% (these were subjects who had endorsed the 'other' category); (6) and "health reasons" also endorsed by 24% (6) for example, "duodenal ulcer" and "migraine type headaches". Only 12% (3) endorsed "religious reasons.

Expectancy - Total

It can be seen in table 5, that social drinkers have a reliably higher positive expectancy Total score than abstainers (means social (s) 29.8, abstainers (a) 11.8; t = 6.481, p = .0001; df 104). In contrast the abstainers also have a reliably higher negative expectancy Total than the social drinkers (means s 90.8, a 115.8; t = -3.661, p = .0004; df 104).

Expectancy - Sub-scales

Differences were also found on all positive sub-scales: Global positive change (means s 6.7, a 2.8; t = 3.917, p = .0002; df 104); Sexual enhancement (means s 2.1, a 0.5; t = 4.082, p = .0001; df 104); Social and physical pleasure (means s 7.1, a 2.4; t = 11.453, p = .0001; df 104); Assertiveness (means s 5.7, a 1.6; t = 6.854, p = .0001; df 104); Relaxation and tension relief (means s 5.0, a 2.2; t = 4.981, p = .0001; df 104) and Power (means s 3.2, a 2.4; t = 2.127, p = .0356; df 104).

The differences found in the negative sub-scales are sited in the Distal negative expectancy (means s 55.1, a 78.6; t = -5.233, p = .0001; df 104) with both Next day (means s 31.1, a 38.7; t = -2.891, p = .0046; df 104) and Continued (means s 24.0, a 48.1; t = -6.848, p = .0001; df 104) sub-scales showing reliable differences. No differences were found in proximal negative expectancy (the That night sub-scale) (means s 36.2, a 37.4; t = -.418, p = .68; df 104).

As before, due to multiple comparisons the alpha level needs to be adjusted to the p < .005 level (that is p = .05 divided by 10). All sub-scales, with the exception of the positive sub-scale Power and the negative sub-scale That night, reach this level.

Although it has been found that abstainers have reliably higher negative expectancies and lower positive expectancies, as in the previous study, the sample sizes are not equal and, hence, as was argued previously it cannot be excluded that the differences found here are not due to heterogeneity of variance, rather than true differences in the means. However, unlike before, it is not practical to match the subjects since, obviously, they could only be matched for gender and age but not consumption. Thus, a second analysis was carried out, this time using a t-test which takes account of the difference in variance - T-test for Heterogeneity of Variance (Bruning and Kintz 1968)

Analysis 2

Expectancy - Total

Table 6 shows the results of this second analysis. Although this method represents a more rigorous test, the story told by this method is essentially the same as before with few exceptions. Reliable differences were found for both positive expectancy Total (means s 29.8, a 11.8; t-critical = 3.464; t-observed = 5.781; p < .001; df 104) and negative expectancy Total (means s 90.8, a 115.8; t-critical = 2.061; t-observed = -2.364; p < .05; df 104).

Expectancy - Sub-scales

Reliable differences were found for positive sub-scales: Global positive change (means s 6.7, a 2.8; t-critical = 3.465; t-observed = 3.513; p < .001; df 104); Sexual enhancement (means s 2.1, a 0.5; t-critical = 3.602; t-observed = 6.172; p < .001; df 104); Social and physical pleasure (means s 7.1, a 2.4; t-critical = 3.436; t-observed = 8.052; p < .001; df 104); Assertiveness (means s 5.7, a 1.6; t-critical = 3.476; t-observed = 6.584; p < .001, df 104); Relaxation and tension relief (means s 5.0, a 2.2; t-critical = 3.485; t-observed =

4.538; p < .001; df 104). One positive sub-scale, power, (means s 3.2, a 2.4; t-critical = 1.704; t-observed = 1.834; p < .1; df 104) which was previously reliable is no longer so. Reliable differences were found on negative sub-scales: Continued (means s 24.0, a 40.1; t-critical = 3.422; t-observed = -3.971; p < .001; df 104) and Distal (means s 55.1, a 78.6; t-critical = 2.79; t-observed = -3.217; p < .01; df 104). The negative sub-scale Next day, (means s 31.1, a 38.7; t-critical = 1.708; t-observed = -1.999; p < .1; df 104) which was previously reliable is no longer so. The negative sub-scale That night remains unreliable.

With the adjusted alpha level of p < .005, all positive sub-scales with the exception of Power are reliable. The only negative sub-scale to reach reliability is Continued.

Comparison of Abstainers and Social Drinkers on Age (in years); Positive and Negative Expectancy, Totals and sub-scales.

	Social	Abstainers	t value	p (2 tailed)
Positive Total	29.8	11.8	6.481	.0001
Negative Total	90.8	115.8	-3.661	.0004

Positive Sub-Scales

	Social	Abstainers	t value	p (2 tailed)
Global	6.7	2.8	3.917	.0002*
Sex	2.1	.5	4.082	.0001*
Pleasure	7.1	2.4	11.453	.0001*
Assertiveness	5.7	1.6	6.854	.0001*
Relaxation	5.0	2.2	4.498	.0001*
Power	3.2	2.4	2.127	.0356

Negative Sub-Scales

	Social	Abstainers	t value	p (2 tailed)
That night	36.2	37.4	-.418	.68
Next day	31.1	38.6	-2.891	.0046*
Continued	24.0	40.1	-6.848	.0001*
Distal	55.1	78.6	-5.233	.0001*

NOTE: Due to multiple comparisons the alpha level needs to be adjusted to the p < .005 level (that is p = .05 divided by 10). Results marked with an asterisk (*) achieve this level.

Table 5

Comparison of Abstainers and Social Drinkers on Age; Positive and Negative Expectancy, Totals and sub-scales: T-test for Hetrogeneity of Variance

	t-critical	t-observed	p (2 tailed) <
Positive Total	3.464	5.781	.001
Negative Total	2.061	-2.364	.05

Positive Sub-Scales

Global	3.465	3.513	.001*
Sex	3.602	6.172	.001*
Pleasure	3.436	8.052	.001*
Assertiveness	3.476	6.584	.001*
Relaxation	3.485	4.538	.001*
Power	1.704	1.834	.1

Negative Sub-Scales

That night	-.	-.	.ns
Next day	1.708	-1.999	.1
Continued	3.422	-3.971	.001*
Distal	2.790	-3.217	.01

NOTE: Due to multiple comparisons the alpha level needs to be adjusted to the p < .005 level (that is p = .05 divided by 10). Results marked with an asterisk (*) achieve this level.

Table 6

DISCUSSION

The findings of this study are consistent with the view that positive expectancy represents motivation to drink. Since if positive expectancy was low then motivation would be comensurately low and hence, drinking may not be initiated. Nevertheless, it is quite clear that abstainers do hold some positive expectancies of drinking and it would seem anomalous that this group remain total abstainers, since it could be expected that there would be some consumption to obtain the positive expectancies held. One explanation of this anomaly might be to suggest that there is a 'motivational threshold' below which positive expectancy has no effect. In other words, positive expectancy may have to reach a certain level, probably individually determined, before drinking will occur.

However, a second explanation is supported by this data, that is that negative expectancy has an inhibiting effect. It can be seen from tables 5 and 6 that, although proximal negative expectancy does not discriminate between social drinkers and abstainers, there are marked reliable differences in distal negative expectancies (especially in the Continued sub-scale). This finding suggests that the positive expectancy which the abstainers do hold may be offset by the negative expectancies which they also hold. Thus, it would appear that in drinking decisions, for this group, the comparatively high negative expectancy which they hold overcomes their relatively low positive expectancy and results in abstinence.

If this is the case, and the data from this study would certainly support such an interpretation, then the results of this study are quite consistent with the hypothesis that negative expectancy represents motivation for abstinence. However, although consistent with the hypothesis, it in no way constitutes proof that negative expectancy has a causal effect in abstinence *initiation*. Hence, the only secure statement that can be made from this study is that negative expectancy appears to represent motivation to *maintain* abstinence.

These findings do raise one very important question - why do abstainers have high negative expectancies when they have little or no experience of alcohol ? Thus far this thesis has made the working assumption that negative expectancy is learned by experiencing the negative alcohol-related outcomes concomitant with consumption. This finding challenges the implied exclusiveness of that assumption and suggests that there may be an alternative route to negative expectancy acquisition.

It was shown in chapter 2 that positive positive expectancies are acquired at an early age, before alcohol has even been consumed, and that there were three routes to acquiring ex-

pectancies: 1/ cultural transmission; 2/ vicarious learning; 3/ personal experience. It would be unusual if negative expectancies were not acquired by similar mechanisms.

First, the negative expectancies held by abstainers could be a result of cultural transmission. In chapter 2, evidence of cultural differences in drinking was presented. It has been shown that some cultures have a prescriptive norm while others have a proscritive norm and that the drinking patterns of these cultures tend to reflect these norms (Peele 1987). Peele (1987) further argues that the children in these cultures are inculcated with the norms of that culture. Therefore, it would seem reasonable to assume that adherence to these norms should be normally distributed within that culture, hence there should be a small group at opposite ends of the scale who either adhere rigidly to the norms or reject them. Thus, within a particularly proscriptive culture it would be expected that a small sub-group would be abstinent and have very negative views of alcohol, without ever having personally experienced its effects. Conversely, it would also be expected that there would be another sub-group who would be heavy drinkers but within a proscriptive culture these individuals would be deemed to have a 'worse problem' than they would in a prescriptive culture (Linsky, Colby and Straus 1986, Peele 1987).

However, if this argument of normal distribution can be sustained, then even in a prescriptive culture it would be expected that there would be abstainers. In contrast to the abstainers described above, this group would be the individuals who actually reject the norms rather than accept them, while the heavy drinkers would be more tolerated within such a culture. Thus it is reasonable to assume that the abstainers within a prescriptive culture would hold more negative beliefs of alcohol than the majority of the population who would be drinkers.

Although essentially an empirical question for future research, it could be hypothesised that the negative expectancies of both drinkers and abstainers from these two types of culture may be quite different. Nevertheless, it can be seen that both cultures would produce abstainers, albeit by different methods, and for both cultures the abstainers would have higher negative expectancies compared with the social drinkers within those cultures, which may explain the findings in this study.

However, while such an explanation may have merit in a large country like the USA with its diverse cultures and ethnic backgrounds due to extensive emigration, can it have any explanatory value in a small country like Scotland, where culture and drinking habits would be expected to be more homogeneous ?

Scotland has long been regarded as a heavy drinking nation, especially in regard to its neighbour, England. Hence, it could be regarded as having a prescriptive norm. Although according to Plant (1992) over 90% of the adult population of Scotland do drink, if only occasionally, Paton (1992) argues that the "*legend of drunken Scotland*" is a legacy of the past. He suggests that in the 19th century this reputation for excess was probably deserved but norms have changed, especially since the second world war, and that drinking habits in Scotland now are no longer any different from England. Nevertheless, the evidence for the homogeneity of drinking habits with England comes from measures of per capita consumption, which take a nation's total consumption and divides it by the number of adults in the population, producing a mean value. It can be seen that such a 'blunt instrument' approach can do little to capture the variations in consumption patterns. Indeed, although using this method, Scotland and England have been judged homogeneous in drinking patterns, Scotland continues to have a higher incidence of alcohol problems than England (Crawford and Plant 1986). Paton suggests that this finding may well be a result of the way problems are defined in the two countries or alternately that "*half of the Scots are drinking the other half's share*".

There would seem to be some evidence for Paton's latter suggestion, as a survey of the drinking habits of four Scottish towns found wide regional variations (Plant and Pirie 1979). Also Scotland has wide variations of drinking patterns by sex, age, occupation, social class and religion (Brunt 1992, Chick 1982). Thus, even within a small country such as Scotland the drinking habits cannot be said to be homogeneous and, thus, Peele's (1987) suggestions of prescriptive and proscriptive norms may have some validity. Hence, if some individuals are highly inculcated by the proscriptive norms of their culture then they may be abstainers with high negative expectancies of alcohol. Conversely, if they are reared within a culture which has a prescriptive norm then a rejection of that norm may also result in high negative expectancies of alcohol.

The second explanation is vicarious learning which gains support from the data from this study. Of this sample 40% of the subjects endorsed the category of "bad example of others" as the main reason for their abstinence, suggesting that the negative expectancies, which this sub-set of subjects hold, may have been learned vicariously through observing the deleterious effects of alcohol on relatives or friends. The evidence from the Miller, Smith and Goldman (1990) study (reviewed in chapter 2), which found that children who lived with alcoholic parents had lower positive expectancies, would offer partial support

for this suggestion. Since if these children were exposed to the aversive effects of alcohol on their parents, then they may acquire negative expectancies vicariously and this may inhibit the acquisition of positive expectancies.

Although it would appear that personal experience is not relevant to life-long abstainers, it is, nevertheless, possible that some of this group experimented when young and had aversive experiences which coloured their expectancies of the effects of alcohol. However, it would seem rather unlikely that all of the members of this group would have had this type of experience.

The above discussion suggests that, like positive expectancy, there may be three routes to acquiring negative expectancy. It also raises a number of questions for further research. For example - if an individual is raised in a prescriptive culture, why should they reject the norms of that culture ? However, since this thesis will turn to the role of negative expectancy in recovery from problem drinking questions such as these will be left aside. Instead, in preparation for the next chapter, the next section will consist of a comparison of the expectancies of three groups which have been studied thus far, they are: abstainers; satisfied social drinkers and dissatisfied social drinkers

COMPARISON OF SATISFIED AND DISSATISFIED SOCIAL DRINKERS AND ABSTAINERS

A re-analysis of the data from these two studies will allow a comparison of expectancy by stages of change, since they contained groups representing precontemplators (satisfied social drinkers), contemplators (dissatisfied social drinkers) and maintainers (abstainers). Although for an analysis of this type, which examines the role of expectancies in stages of change, the study should strictly be a longitudinal within subjects design, nevertheless, this data will allow a study which is analogous to that design. This analysis follows below.

METHOD

Subjects

The subjects for this analysis comprised: satisfied social drinkers (n = 81); dissatisfied social drinkers (n = 20) and abstainers (n = 25). The characteristics of all of these subjects have been described in earlier studies.

Measures

For this analysis, the subjects' scores on the AEQ and NAEQ were used. Both the instruments and the data collection procedure have also been described earlier.

RESULTS

Expectancy - Total

Table 7 shows the results of the Anova comparing satisfied, dissatisfied and abstainers. Reliable differences were found for both positive and negative Totals. Positive Total (means s 29.8, d 29.5, a 11.7; f = 21.494; p = .0001; df 2, 123; differences between groups: s vs d - NS; s vs a - p < .01; d vs a - p < .05); negative Total (means s 90.8, d 113.8, a 115.8; f = 9.158; p = .0002; df 2, 123; differences between groups: s vs d - p < .05; s vs a - p < .05; d vs a - NS). The positive Total scores are shown graphically in figure 1 and the negative Total scores in figure 2.

Expectancy - Sub-scales

Reliable differences were also found on all sub-scales. Positive sub-scales: Global (means s 6.7, d 6.8, a 2.8; f = 7.835; p = .0006; df 2, 123; differences between groups: s vs d - NS; s vs a - p < .01; d vs a - p < .05); Sexual enhancement (means s 2.1, d 1.7, a 0.5; f = 7.71; p = .0007; df 2, 123; differences between groups: s vs d - NS; s vs a - p < .01; d

vs a - NS); Social and physical pleasure (means s 7.1, d 7.1, a 2.4;   f = 74.569; p = .0001; df 2, 123; differences between groups: s vs d - NS; s vs a - p < .01; d vs a - p < .01); Assertiveness (means s 5.7, d 5.6, a 1.6;   f = 22.708; p = .0001; df 2, 123; differences between groups: s vs d - NS; s vs a - p < .01; d vs a - p < .01); Relaxation (means s 5.0, d 4.5, a 2.2;   f = 10.07; p = .0001; df 2, 123; differences between groups: s vs d - NS; s vs a - p < .01; d vs a - p < .05); Power (means s 3.2, d 3.8, a 2.4;   f = 3.55; p = .0329; df 2, 123; differences between groups: s vs d - NS; s vs a - p < .05; d vs a - p < .05);

Negative sub-scales: Next day (means s 31.1, d 42.7, a 37.4;   f = 8.465; p = .0003; df 2, 123; differences between groups: s vs d - p < .01; s vs a - p < .05; d vs a - NS); Continued (means s 24.0, d 29.5, a 40.1;   f = 22.832; p = .0001; df 2, 123; differences between groups: s vs d - p < .01; s vs a - p < .01; d vs a - NS); Distal (means s 55.1, d 71.0, a 78.6;   f = 15.016; p = .0001; df 2, 123; differences between groups: s vs d - p < .01; s vs a - p < .01; d vs a NS). Only the negative sub-scale That night is unreliable (means s 36.2, d 42.7, a 37.4;   f = 2.157; p = .12; df 2, 123).

Satisfied vs Dissatisfied Drinkers vs Abstainers

	Social	Dissatisfied	Abstainers	f value	p
Positive Total	29.8	29.5	11.7	21.494	.0001 *#
Negative Total	90.8	113.8	115.8	9.154	.0002 ¥§

Global	6.7	6.8	2.8	7.835	.0006 *#
Sex	2.1	1.7	.48	7.71	.0007 *
Pleasure	7.1	7.1	2.36	74.569	.0001 *†
Assertiveness	5.7	5.6	1.64	22.708	.0001 *†
Relaxation	5.0	4.5	2.24	10.07	.0001 *#
Power	3.2	3.8	2.36	3.5.5	.0329 §#

That night	36.2	42.7	37.36	2.157	.12
Next day	31.1	41.5	38.56	8.465	.0003 ¶§
Continued	24.0	29.5	40.08	22.832	.0001 ¶*
Distal	55.1	71.0	78.64	15.016	.0001 ¶*

Key   ¥ Social vs Dissatisfied p < .05;   ¶ Social vs Dissatisfied p < .01;

      § Social vs Abstainer p < .05;   * Social vs Abstainer p < .01;

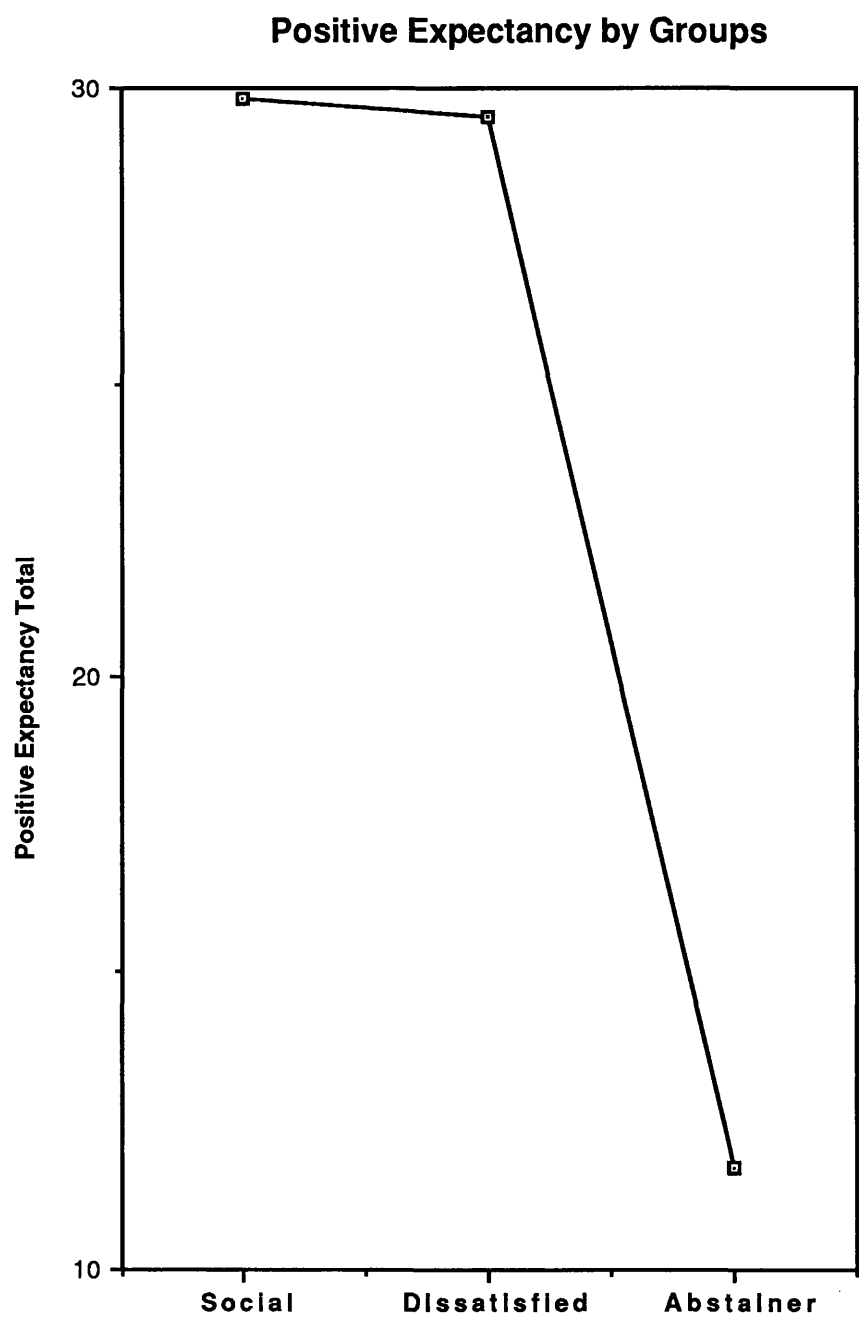   # Dissatisfied vs Abstainer p < .05;   † Dissatisfied vs Abstainer p < .01;

Table 7

Positive Expectancy by Groups

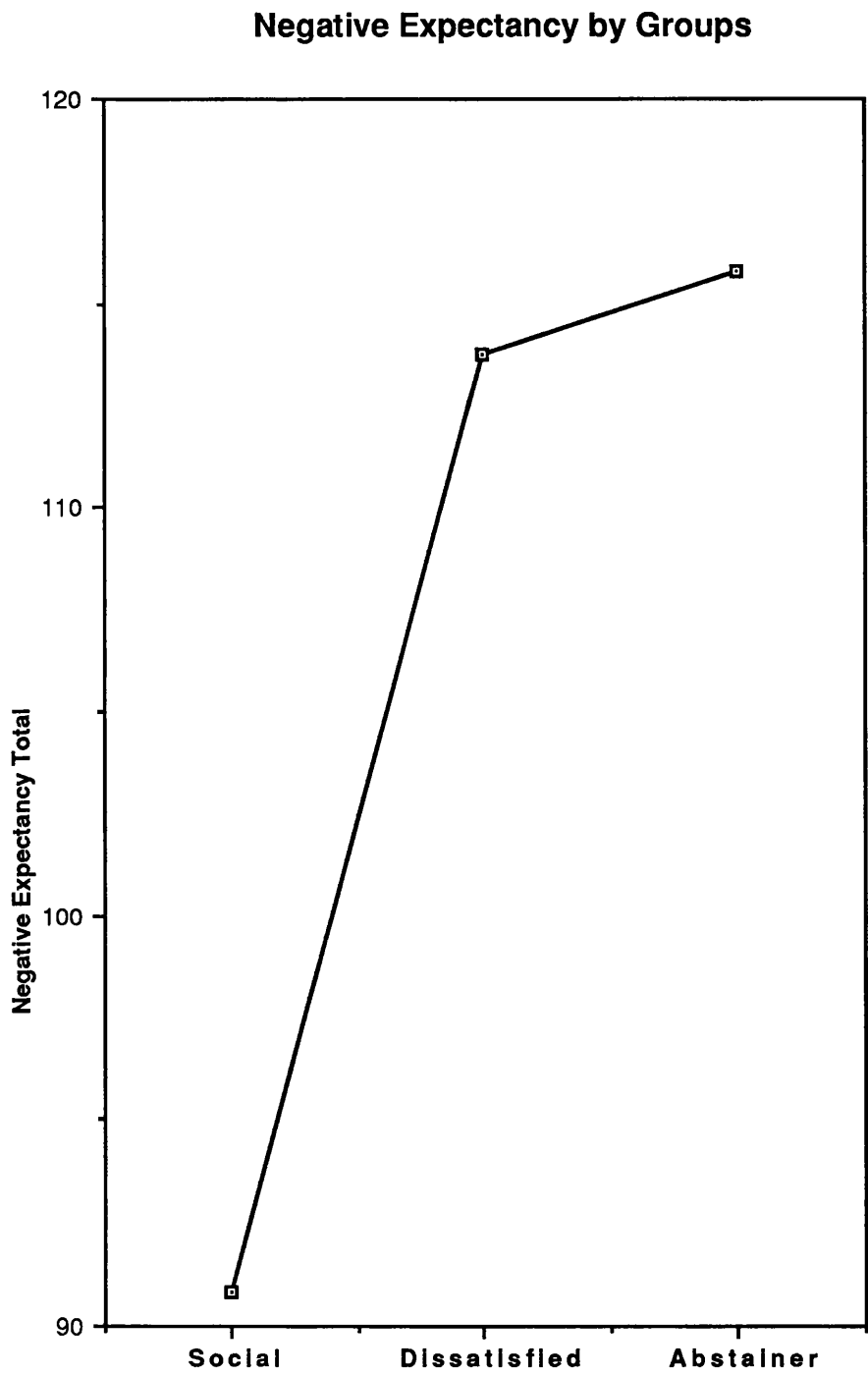**Figure 1**

Negative Expectancy by Groups

Figure 2

DISCUSSION

What is clear from this analysis is that, satisfied social drinkers have (comparatively) high positive expectancies and low negative expectancies, which explains their drinking. Conversely abstainers have (comparatively) low positive expectancies and high negative expectancies, which accounts for their abstinence. However, the expectancy profile for the dissatisfied drinkers falls between these groups.

Figure 1 shows the positive expectancy Totals of the three groups. It can be clearly seen from this graphic representation that both sets of social drinkers are very similar to each other, but differ markedly from the abstainers. Thus, it could be suggested that, compared to the abstainers, motivation to drink is high in these two groups. However, figure 2 shows the negative expectancy Totals of the three groups, and here the picture is quite different. In this case the abstainers and the dissatisfied social drinkers most resemble each other and differ markedly from the satisfied social drinkers.

Thus, if the argument that positive expectancy represents motivation to drink and negative expectancy represents motivation to abstain can be sustained then it can be seen that dissatisfied drinkers appear to be ambivalent about alcohol. For, while they hold similar positive expectancies to satisfied social drinkers they also hold similar negative expectancies to abstainers. Which raises the question - If dissatisfied drinkers hold the same level of negative expectancies as the abstainers, why are they not also abstainers ?

It was suggested earlier that the abstainer group maintained, if not initiated, abstinence because their positive expectancy was overcome by their negative expectancy. From the results of the studies presented in this thesis so far, this would seem to be a reasonable suggestion. If this was the case, then it would also suggest that positive and negative expectancy may be processed against each other, such that the effect of negative expectancy for any individual would be dependent on the strength of the positive expectancy which s/he held and vice versa. Thus, as was observed in the abstainer group, a modest level of positive expectancy, coupled with a relatively high level of negative expectancy results in abstention. Whereas, in the dissatisfied social drinking group, a similar level of negative expectancy has to compete with a much higher positive expectancy and results in continued, but unsatisfactory, drinking. Not only does this seem intuitively correct, many authors have suggested that the best hope for modelling recovery lies in 'decision making' (Orford 1986; Prochaska and DiClemente 1985; Mc Mahon and Jones 1992; Miller and Rollnick 1991). This point will be discussed in much greater depth in the next chapter and in the final chapter.

GENERAL DISCUSSION

In this chapter two studies were presented, which investigated the levels of positive and negative expectancies in clearly identifiable groups. It was found that both dissatisfied social drinkers and abstainers held higher negative expectancies than satisfied social drinkers which supports the main hypothesis of this thesis, that negative expectancy represents motivation to abstain. Thus, the results presented in this chapter provide strong support for the importance of investigating negative expectancy. Moreover, these results refute assertions made by other researchers that negative expectancies play no part in drinking decisions (Rohsenow 1983, Goldman et al 1991).

To date, expectancy research has mainly focussed on positive expectancy and largely ignored negative expectancy. Even in the few studies where negative expectancy has been included, the aims of those studies have been to identify motivation to drink. The rationale being that if an individual's drinking motivation can be identified then it may provide a focus for treatment by providing alternative routes to obtaining these perceived benefits (Brown 1993, Goldman et al 1991, Brown, Miller and Passman 1988). However, that approach does beg the question - why should an individual expend time and effort learning skills to obtain an effect (for example, relaxation) that can obtained by simply drinking ? Indeed, if recovery does entail a decision, based on the pros and cons of drinking, then attending to the individuals motivation to drink is not sufficient, attention must also be paid to motivation to abstain, that is to methods of assessing and increasing it. This is, perhaps, where the strengths of future negative alcohol-related expectancy lies and will be the subject of the next chapter.

Temporal Contexts

These studies have found differences in negative expectancies between the groups sited in different temporal contexts. For satisfied versus dissatisfied drinkers the differences were found in the Next day sub-scale, whereas for satisfied versus abstainers the most robust differences were found in the Continued sub-scale. It is tempting to suggest that it is distal and not proximal negative expectancies which motivate change, and that the more distal an individual's negative expectancies are from the drinking act the more likelyhood of change. However, such an assertion, while fitting the data of these studies, is premature without replication of these findings. What is interesting is that, although proximal negative expec-

tancy (the That night sub-scale) was found to be the best predictor of drinking in chapter 5, that is showing a reliable linear relationship with consumption, it has failed to show any reliable differences between these groups. Indeed, even abstainers have been found to have comparable proximal negative expectancies to satisfied drinkers.

An explanation for this finding may lie in the items of this scale. It could be quite comfortably argued that the That night sub-scale is comprised of anti-social, or embarrassing, behaviours, for example - becoming aggressive or violent, arguing with spouse, borrowing money and ending up in jail. Such items, then, may be prone to response bias. Indeed, Rohsenow (1983) found a similar lack of differentiation, when she employed a negative expectancy scale consisting mainly of behavioural items which may occur at the time of drinking, and, hence, she concluded that her subjects were exhibiting a self-enhancing bias. Thus, if these results can be said to show that social drinkers, and in particular dissatisfied social drinkers, are under-reporting proximal negative expectancy, then Rohsenow's (1983) explanation of a self-enhancing bias would fit the data.

Leigh (1987), also found this homogeneity of proximal negative expectancies, however, she suggested that it was mainly due to media influences, which portrayed peoples' behaviour under the influence of alcohol as being anti-social. Thus, if it could instead be argued that abstainers have unrealistically high proximal negative expectancy scores then Leigh's (1987) explanation of media influences would fit the data. This would, again, seem to point to a topic for further research.

Leigh's media explanation could also explain the finding that abstainers hold reliably higher negative expectancies on the Continued sub-scale than both the satisfied and dissatisfied drinkers. Since, it would be expected that the media influences would have a greater effect on abstainers, who have less direct experience with alcohol from which to formulate expectancies.

However, neither explanation accounts for the finding that dissatisfied drinkers have higher Next day expectancies than satisfied social drinkers. Previously it was suggested that the results were consistent with the view that dissatisfied drinkers may be controlling the amount which they consume in a session. If that was the case, then why should this group expect to have more adverse effects than a satisfied group who were drinking a similar quantity ?

One explanation could be that alcohol had a greater effect on the dissatisfied subjects than on the satisfied subjects. However, if that was the case. then it would be expected that the

effect would manifest at the time of drinking and, thus, be seen in the That night expectancies. Alternately, it is possible that these subjects, while having the same tolerance to alcohol, may be more sensitive to the withdrawal phase of drinking and, therefore, the expected aversive effects would be sited in the Next day, hence showing an increase in Next day expectancies and no change in That night expectancies.

A more plausible, but nevertheless speculative, explanation would lie in the items which comprise this scale. It is entirely possible that dissatisfaction does not arise from the pharmacological effects of alcohol but rather from the social meaning, or consequences, attached to drinking behaviour. For, whereas for the That night sub-scale most of the items are behavioural, for the Next day sub-scale most of the items could be described as being cognitive/emotional, for example - feel depressed, have low self esteem, feel guilty and feel anxious. For example, one could reasonably speculate that if an individual was spending a great deal of time drinking, even though not to intoxication, then this would be time which was not spent with family and this could, conceivably, result in negative feelings the next day (for example, guilt and anxiety). This would seem plausible, since guilt and anxiety may not arise at the time of drinking due to the effects of alcohol.

Some support for this explanation can be found in the work of Cox and his colleagues (Cox and Klinger 1987, 1988; Cox, Klinger and Blount 1991; Cox 1993) who suggest that, when an individual holds conflicting goals, for example drinking and spending time with family, then this can result in negative emotional states (for example, depression). This pharmacological / social dichotomy may be an important point for future research.

CONCLUSION

The evidence from this chapter support the hypothesis that negative expectancy represents motivation for abstinence. It was argued that both that abstainers and dissatisfied drinkers would have higher motivation to abstain than satisfied drinkers and indeed it was found that negative expectancy differentiated between these groups in the hypothesised direction, that is, both dissatisfied drinkers and abstainers were found to have higher negative expectancies than social drinkers.

Further, the results of these studies support the decision to compile a much extended instrument to measure negative alcohol-related expectancy. For they suggest that the information utilised in drinking decisions may not only concern the pharmacological effects of alcohol, for example, cognitive and physical impairment, but may instead concern the social

meaning attributed to drinking behaviour. It would further seem that the innovation of arranging the items in temporal contexts may be an effective method of investigating this pharmacology / social meaning dichotomy. This point will be taken up again in the next chapter and in the final chapter.

CHAPTER SEVEN

Negative Expectancy as Motivation for Abstinence 2: The Evidence from Problem Drinkers in Treatment

Contents of Chapter 7

CHAPTER SUMMARY

This chapter extends the investigation of the previous chapters by examining the positive and negative expectancy of male problem drinkers. It was found that the results were consistent with the findings of the previous chapters. First, consumption was best predicted by the That night sub-scale as it was with social drinkers. Second, change was best predicted by distal rather than proximal negative expectancy and was sited in the Continued drinking sub-scale.

A one month and three month follow-up study of 53 male problem drinkers in treatment found that abstinence was predicted by higher distal negative expectancies, lending support to the suggestion that negative expectancy represents motivation for abstinence. Positive expectancy did not predict outcome. This result is discussed in relation to other studies which found that positive expectancy was predictive of outcome. Why distal, rather than proximal, negative expectancy should predict change is also discussed, suggesting that there are two possible explanations, distal expectancies represent: 1/ greater distress or; 2/ greater severity.

In order to test the NAEQ's utility as an instrument to match clients to treatment by motivational level, subjects were allocated to groups according to their admission negative expectancy scores, both Total score and Distal score. Both measures gave similar results, although the distal score was slightly superior. It was found that there was little difference in outcome between subjects with high and moderate negative expectancies, however, there was a marked difference between these groups and the low group, where only one subject was abstinent at 3 months. Hence, the NAEQ may have some utility for 'matching'. It was also suggested that the NAEQ may have utility in the planning of motivational treatments since an examination of the items and temporal contexts should allow an assessment of the client's motivational infrastructure.

Finally, it was again shown that when positive and negative expectancy were processed against each other a coherent and plausible picture of drinking decisions emerged. What was, perhaps, most striking was the similarity between dissatisfied social drinkers and treatment relapsers. For although these two groups have quite different expectancies when positive and negative are assessed separately, when a combined expectancy measure is used they are almost identical. Suggesting that in stages of change terms they are at the same point regarding a decision to change.

Chapter Seven

Negative Expectancy as Motivation for Abstinence 2: The Evidence from Problem Drinkers in Treatment

INTRODUCTION

The previous chapter presented two studies which lend support to the hypothesis that negative expectancy represents motivation for abstinence since it was found that dissatisfied social drinkers had higher negative expectancies than satisfied social drinkers and also abstainers had higher negative expectancies than satisfied social drinkers. This chapter extends the investigation of this hypothesis to problem drinkers. In the first section, the positive and negative expectancies of problem drinkers in treatment will be compared with social drinkers and abstainers. If, as has already been observed (in chapter 5), there is a positive linear relationship between expectancy and consumption and if this relationship holds for problem drinkers, then problem drinkers should have higher positive and negative expectancies than social drinkers.

Second, it will be investigated how expectancy relates to treatment outcome by reporting the results of a follow-up study of 53 treated problem drinkers. Brown (1985a) has already reported a study which demonstrates that lower positive expectancy is predictive of abstinence and Connors, O'Farrell and Pelcovits (1988) in a study which investigated 'reasons for relapse' found evidence which also suggests that positive expectancy is important. However, no study has investigated the role of negative expectancy in treatment outcome. Nevertheless, the evidence reviewed in chapter 3, from studies not strictly part of the expectancy domain, suggests that negative expectancy is an important factor in recovery from alcohol problems for spontaneous remitters (Ludwig 1985; Tuchfield 1981) and for successful outcome in treated subjects (Amodeo and Kurtz 1990; Edwards 1987). Hence it is hypothesised that post treatment abstainers will have lower positive expectancies and higher negative expectancies than relapsers.

Before that study is reported the nature of problem drinkers' expectancies will be investigated, that is level in comparison to social drinkers and abstainers and factors which may affect expectancies. The next section turns to these investigations.

A COMPARISON OF POSITIVE AND NEGATIVE EXPECTANCIES OF SOCIAL DRINKERS, ABSTAINERS AND PROBLEM DRINKERS.

INTRODUCTION

The positive relationship between consumption and positive expectancy is a well established one, that is higher positive expectancy higher consumption (Brown et al 1980; Brown et al 1987; Connors et al 1986; Leigh 1989a). Thus problem drinkers should hold reliably higher positive expectancies than social drinkers and abstainers. Less clear is the relationship between negative expectancy and consumption, since while some studies have found no relationship (Christiansen and Goldman 1983; Collins et al 1990; Rohsenow 1983; Southwick et al 1981), others have found a positive relationship (Leigh 1987; Stacy, Widaman and Marlatt 1990; Williams and Wortley 1991). Indeed, Leigh (1987) found negative expectancy (cognitive and physical impairment) to be the best predictor of consumption.

This thesis has argued that, these equivocal findings are the result of employing instruments which are limited in the scope of negative expectancies which they measure and, hence, have questionable validity. The evidence from the study reported chapter 5 supports this argument, since it was found that, in social drinkers, negative expectancy also showed a positive relationship with consumption. Indeed, consistent with Leigh (1987), it was found that negative expectancy was a better predictor of all consumption variables than was positive expectancy. If this relationship can be generalised to problem drinkers, who have a high consumption, problem drinkers should hold reliably higher negative expectancies than social drinkers. Despite the finding that abstainers were found to have higher negative expectancies than social drinkers, it is also hypothesised that problem drinkers will have higher negative expectancies than abstainers. For it was suggested that abstainers acquired their negative expectancies by vicarious learning, however, problem drinkers will have acquired their negative expectancies by direct personal experience.

METHOD

Subjects

The social drinkers and abstainers subjects from the studies reported in chapter 6 were used for this comparison. The subject make up and data collection procedures are reported in that chapter.

Problem drinker subjects consisted of 53 males who had been admitted to the alcohol treat-

ment unit of the local psychiatric hospital - Gartnavel Royal Hospital, Glasgow. Although at the time of this study the unit functioned as an in-patient facility, with 6 beds dedicated to alcohol treatment, it is now purely a day patient unit. The main treatment focus is detoxification, which is carried out using a reducing regime of Chlordiazepoxide and vitamin supplements and normally lasts about two weeks. Each client is allocated a personal counsellor on admission, usually a nurse, who deals with all aspects of counselling and alcohol education in a one-to-one setting. Relapse prevention tends to be on an after care basis, where the clients may elect to attend a four week course consisting mainly of group work. The clients of this study were day patients attending the unit for detoxification.

The mean age of the subjects was 44.6 years (sd 10.9 range 25 - 69 years). Civil status was - married 34% (n = 18); Single 17% (n = 9); Separated 18.9% (n =10); Divorced 28.3% (n = 15); Widowed 1.9% (n = 1). Occupational status was - employed 24.5% (n= 13); Unemployed 69.8% (n = 37); Retired 5.7% (n = 3).

This group perceived that they had had a problem with alcohol for a mean of 10.4 years (sd 8.8 range 1 - 40 years). They had been previously treated a mean of 2.7 times (sd 2.4 range 0 - 12 times)

Since almost without exception, when this group drink they drink on a daily basis, consumption was measured in units per day. The mean consumption was 31 units per day (sd 10 .8 range 15 - 60 units)

Tenure (that is Time spent in treatment) was a mean of 14.5 days (sd 6.5 range 5 - 33 days).

All subjects in this study were male since by far the majority of clients attending for treatment were males. During the time of this study only 4 females attended as day patients. More females did attend for admission to in-patient status, however, they are admitted to a general psychiatric ward rather than the unit.

Measures

A brief sociodemographic/drinking questionnaire which tapped details of gender, age, civil status, employment status, consumption, duration of problem (how long the subject perceived that s/he had had a problem with drinking), details of previous treatment (that is have you been treated for an alcohol problem before, if yes how many times).

The Alcohol Expectancy Questionnaire (AEQ) - a 90 item instrument designed to measure

the positive expectancies of alcohol, which an individual holds (Brown et al 1987). Scoring is on a forced choice, agree/disagree format. This instrument has six sub-scales: Global positive change; Sexual enhancement; Physical and social pleasure; Assertiveness; Relaxation and Power. A total positive expectancy score is obtained from summing the sub-scale scores.

The Negative Alcohol Expectancy Questionnaire - (NAEQ) a 60 item instrument designed to measure the negative expectancies of alcohol which an individual holds. This instrument employs a 5 point likert scale measuring the subjects estimate of how likely these outcomes are to happen to him/her, that is: highly unlikely = 1; unlikely = 2; possible = 3; likely = 4; highly likely = 5. It is arranged in three temporal contexts and these represent three sub-scales: That night (21 items); Next day (18 items); and Continued (21 items). Two alternative sub-scales can also be generated: Proximal which are outcomes that may happen at the time of drinking (that is the That night sub-scale) and Distal negative expectancies which are outcomes that may happen subsequent to drinking or from prolonged drinking (that is, the sum of the Next day and Continued sub-scale). A total negative expectancy score is obtained from summing the three sub-scale scores (That night; Next day and Continued).

Procedure

Subjects were approached by one of the nursing staff as soon after admission as their mental and/or physical state would allow, usually within three days of admission. The study was explained to them and they were then asked if they would consent to take part. Only four potential subjects refused. If they agreed, and signed a consent form, then they were given the questionnaire package as a self completion instrument. A nurse was on hand to answer any questions arising from the completion of the instruments. Completion of the questionnaire ranged from about 20 minutes to 40 minutes.

RESULTS

Anova of Expectancy Totals

Table 1 shows the expectancies of social drinkers (s); problem drinkers (p) and abstainers (a). As predicted problem drinkers hold higher Total positive expectancies than social drinkers and abstainers (mean s 29.8; p 49.7; a 11.7; F = 95.663; p = .0001; df 2, 176). Using a Scheffe F test post hoc differences were found between all groups (s vs a: F =

23.529; p < .01: s vs p: F = 49.921; p < .01: p vs a: F = 86.574; p < .01).

Also as predicted problem drinkers hold higher Total positive expectancies than social drinkers and abstainers (mean s 95.0; p 195.5; a 115.8; F = 133.115; p = .0001; df 2, 176). Using a Scheffe F test post hoc differences were found between all groups (s vs a: F = 3.209; p < .05: s vs p: F = 132.032; p < .01: p vs a: F = 39.348; p < .01).

Anova of Expectancy Sub-scales

Differences were found on all positive sub-scales. Global (mean s 6.7; p 16.6; a 2.8; F = 107.255; p = .0001; df 2, 176). Using a Scheffe F test post hoc differences were found between all groups (s vs a: F = 7.445; p < .01: s vs p: F = 81.58; p < .01: p vs a: F = 76.446; p < .01). Sexual enhancement (mean s 2.0; p 3.0; a 0.5; F = 14.889; p = .0001; df 2, 176) and differences were found between all groups (s vs a: F = 6.446; p < .01: s vs p: F = 4.859; p < .01: p vs a: F = 14.696; p < .01). Social and physical pleasure (mean s 7.1; p 7.7; a 2.4; F = 96.11; p = .0001; df 2, 176). Differences were found between social drinkers and abstainers and between problem drinkers and abstainers, but not between social drinkers and problem drinkers (s vs a F = 80.581; p < .01: s vs p: F = 2.72; NS: p vs a: F = 83.318; p < .01). Assertiveness (mean s 5.7; p 8.7; a 1.6; F = 66.444; p = .0001; df 2, 176) and differences were found between all groups (s vs a: F = 26.09; p < .01: s vs p: F = 24.268; p < .01: p vs a: F = 64.86; p < .01). Relaxation (mean s 5.0; p 7.7; a 2.2; F = 45.553; p = .0001; df 2, 176) and differences were found between all groups (s vs a: F = 12.423; p < .01: s vs p: F = 22.38; p < .01: p vs a: F = 42.006; p < .01). Power (mean s 3.2; p 5.9; a 2.4; F = 46.167; p = .0001; df 2, 176). Differences were found between problem drinkers and social drinkers and between problem drinkers and abstainers but not between social drinkers and abstainers (s vs a: F = 2.99; NS: s vs p: F = 35.481; p < .01: p vs a F = 32.515; p < .01).

Differences were also found on all negative sub-scales. That night (mean s 36.2; p 60.9; a 37.4; F = 54.951; p = .0001; df 2, 176). Differences were found between problem drinkers and social drinkers and between problem drinkers and abstainers but not between social drinkers and abstainers (s vs a: F = 1.7E-5; NS: s vs p: F = 51.7; p < .01: p vs a: F = 24.446; p < .01). Next day (mean s 31.1; p 64.9; a 38.6; F = 91.608; p = .0001; df 2, 176). Differences were found between problem drinkers and social drinkers and between problem drinkers and abstainers but not between social drinkers and abstainers (s vs a: F = 1.565; NS: s vs p: F = 90.4; p < .01: p vs a: F = 29.174; p < .01). Continued (mean s 24.0; p 69.9; a 40.1; F = 45.553; p = .0001; df 2, 176) and differences were found between all

groups (s vs a: F = 11.98; p < .01: s vs p: F = 186.616; p < .01: p vs a: F = 38.969; p < .01). Distal (mean s 55.1; p 134.8; a 78.6; F = 158.602; p = .0001; df 2, 176) and differences were found between all groups (s vs a: F = 7.45; p < .01: s vs p: F = 81.58; p < .01: p vs a: F = 76.446; p < .01).

Comparison of Social Drinkers, Problem Drinkers and Abstainers on Positive and Negative Expectancy, Totals and Sub-scales.

	Social	Problem	Abstainers	f value	p
Positive Total	29.8	49.7	11.7	95.663	.0001 ¥*#
Negative Total	95.0	195.5	115.8	133.115	.0001 ¥§#

Positive Sub-Scales

	Social	Problem	Abstainers	f value	p
Global	6.7	16.6	2.8	107.255	.0001 ¥*#
Sex	2.0	3.0	.48	14.889	.0001 ¥*#
Pleasure	7.1	7.7	2.36	96.11	.0001 *#
Assertiveness	5.7	8.7	1.6	66.444	.0001 ¥*#
Relaxation	5.0	7.7	2.2	45.553	.0001 ¥*#
Power	3.2	5.9	2.4	46.167	.0001 ¥ #

Negative Sub-Scales

	Social	Problem	Abstainers	f value	p
That night	36.2	60.9	37.4	54.951	.0001 ¥ #
Next day	31.1	64.9	38.6	91.608	.0001 ¥ #
Continued	24.0	69.9	40.1	186.634	.0001 ¥*#
Distal	55.1	134.8	78.6	158.602	.0001 ¥*#

Key   ¥ Social vs Problem p < .01;   # Problem vs Abstainer p < .01
         § Social vs Abstainer p < .05;   * Social vs Abstainer p < .01;

Table 1

DISCUSSION

The results of this study lend further support to the suggestion that positive expectancy represents motivation to drink, since it was found that problem drinkers in treatment have reliably higher positive expectancies than both social drinkers and abstainers. However, it would appear that the exception to this is the positive sub-scale Social and physical pleasure where social drinkers and problem drinkers both hold similar expectancies. This is, perhaps, not surprising since social drinkers have been previously shown to drink for positive reinforcement rather than negative reinforcement, for example tension relief (Paton and Saunders 1981).

At the most conservative level of interpretation, this result lends weight to the linear positive relationship between negative expectancy and consumption which was found in chapter 5. Although it was shown in chapter 6 that life long abstainers held comparatively high negative expectancies, and hence, it was suggested that there may be more than one route to acquiring negative expectancy, it has been nevertheless suggested in this thesis that the most common route to negative expectancy acquisition was by learning, through direct experience with the aversive effects of alcohol. Indeed this result would certainly support such an assertion, for it can be reasonably assumed that the drinkers from this latest sample are incurring problems, otherwise they would not be attending for treatment.

The result of this study stands in stark contrast to, at least, four other studies which have examined negative expectancies in this way, that is, by drinker status (Christiansen and Goldman 1983; Collins et al 1990; Rohsenow 1983; Southwick et al 1981). These studies found no relationship between negative expectancy and drinker status. However, as has already been discussed at length, the instruments which were employed in these studies are very limited in the scope of the negative expectancies which they measure and are of dubious validity. However, three further studies do provide some support for this result (Leigh 1987; Stacy, Widaman and Marlatt 1990; Williams and Wortley 1991) who all found a positive relationship between drinking status and negative expectancy.

This chapter will now turn to an examination of the factors which may affect expectancy in problem drinkers that is, consumption; duration of problem drinking; number of times previously treated.

FACTORS AFFECTING EXPECTANCY IN PROBLEM DRINKERS

INTRODUCTION

This section reports an investigation of three factors which may affect expectancy: consumption; the length of time the drinkers perceive that they have had a drinking problem; and the number of times that the drinkers have been treated previously.

In chapter 5 it was found that there was a reliable relationship between consumption and negative expectancy. Further, at the sub-scale level of analysis, it was found that the best predictor of amount consumed (either weekly or per session) was the That night sub-scale. There is now an opportunity to extend this analysis to problem drinkers. It has been hypothesised in this thesis that, heavier drinking should be associated with higher negative expectancies. Indeed, this has already been demonstrated in chapter 5 and would also seem to follow from the comparison of social drinkers, abstainers and problem drinkers which began this chapter. It would be surprising, then, if it were not also the case that negative expectancy predicted consumption with problem drinkers. However, it is possible that, while problem drinkers do indeed have higher levels of negative expectancy than social drinkers, the linear relationship with consumption may disappear at higher levels of drinking, due to ceiling effects in the instruments used or to greater homogeneity in the outcomes experienced. This will be tested below.

This section will also investigate if there is a relationship between expectancy and the length of time the drinkers perceive that they have had a drinking problem. For it would be reasonable to assume that the longer an individual drinks problematically, the more likely, and more often, s/he will encounter negative outcomes. If, then, negative expectancy is acquired through direct experience of the negative outcomes of drinking, then there should be a relationship between the length of time that drinkers perceive that they have had an alcohol problem and the level of negative expectancy which they hold. That is a longer duration of problematic drinking should be associated with higher negative expectancy.

Finally, it would also be reasonable to expect that previous treatment for problem drinking would have an effect on negative expectancy. As with duration of problem, it might be expected that having been in receipt of treatment would increase the negative expectancy which an individual holds. For it would be reasonable to assume that any treatment received would contain elements of feedback and education. Feedback would act as confirmatory evidence of a personal nature, that the negative events which were occurring were, in fact, alcohol related and were likely to recur with further drinking (Miller 1993, Chick

1999). Education would serve to increase general awareness of further physical and social problems which can occur with problem drinking (Miller and Rollnick 1991).

It might also be expected that positive expectancies would be reduced by similar techniques, since some of the problem drinkers' positive expectancies may be disconfirmed.

METHOD

Subjects

Subjects consisted of 53 male problem drinkers in treatment described earlier.

Measures

All subjects were given a brief sociodemographic/drinking questionnaire which tapped details of gender, age, civil status, employment status, consumption, duration of problem (how long the subject perceived that s/he had had a problem with drinking), details of previous treatment (that is have you been treated for an alcohol problem before, if yes how many times).

Expectancy was measured by the AEQ for positive expectancy and the NAEQ for negative expectancy.

RESULTS

Expectancy Totals and Consumption

Table 2 shows the stepwise regression analysis of positive and negative expectancy totals on consumption (measured in units per day). Only the negative expectancy Total was entered into the equation (b = .335; F = 5.544) which explained 9.2% of the variance.

That positive expectancy Total does not enter the equation is consistent with the results in chapter 5, where it was also found that, when put 'head to head' with negative expectancy in this fashion, positive expectancy Total did not predict consumption.

Expectancy Sub-scales and Consumption

Table 3 shows the stepwise regression analysis of positive and negative expectancy sub-scales on consumption (measured in units per day). Only the negative expectancy sub-scale That night was entered into the equation (b = .377; F = 7.303) which explained 12.3% of the variance. No positive sub-scales were entered.

Expectancy and Duration of Problem

In a stepwise regression analysis, neither the positive nor negative expectancy Total were found to reliably associated with the length of time the subjects perceived that they had had a problem with alcohol (measured in months). However, as can be seen in table 4 the negative expectancy sub-scale Continued is reliably associated (b = .285; F = 4.341) and explains 6.3% of the variance. No other expectancy sub-scale approaches reliability.

Expectancy and Times Treated

As in the previous analysis, neither positive or negative expectancy Total was found to be reliably associated with the number of times the subjects had been treated for problem drinking. However, as can be seen in table 5 the negative expectancy sub-scale Continued is reliably associated with times treated (b = .315; F = 5.414) and explains 8.1% of the variance. No other expectancy sub-scale approaches reliability.

Stepwise Regression of Expectancy Totals on Consumption

Variables Entered	beta	F
Negtot	.335	5.544
Variance explained	9.2%	

Variables not in equation

Postot	-.244	2.724

Table 2

Stepwise Regression of Expectancy Sub-scales on Consumption

Varibles Entered	beta	F
That night	.377	7.303
Variance explained	12.3%	

Variables not in equation

Global	-.204	1.862
Sex	-.149	.981
Pleasure	-.169	1.27
Assertiveness	-.167	1.228
Relaxation	-.123	.664
Power	-.08	.275
Next day	-.029	.037
Continued	.061	.162

Table 3

Stepwise Regression of Expectancy Sub-scales on Duration of Problem

Vriables Entered	beta	F
Continued	.285	4.341
Variance explained	6.3%	

Variables not in equation

Global	.58	.165
Sex	.028	.037
Pleasure	-.005	.001
Assertiveness	-.023	.026
Relaxation	.025	.031
Power	-.027	.034
That night	-.049	.115
Next day	.058	.162

Table 4

Stepwise Regression of Expectancy Sub-scales on Number of Times Treated

Variables Entered	beta	F
Continued	.315	5.414
Variance explained	8.1%	

Variables not in equation

Global	.116	.652
Sex	.093	.418
Pleasure	-.04	.077
Assertiveness	.084	.338
Relaxation	.082	.325
Power	.195	1.9
That night	-.103	.514
Next day	.031	.046

Table 5

DISCUSSION

The results of this study show that Total negative expectancy and the negative sub-scale That night are reliably associated with consumption. It has also been shown that although Total negative expectancy is not associated with either duration of problem or times treated, the negative sub-scale Continued is reliably associated with both of these variables. Neither Total positive expectancy or any positive sub-scale showed any reliable association with any of these variables.

The result of the stepwise regression with expectancy on consumption is consistent with the study in chapter 5 where it was found, that at the Total expectancy level of analysis it is negative and not positive expectancy which is the better predictor. Also, at the sub-scale level of analysis, for males, the negative sub-scale That night sub-scale was the strongest and most consistent predictor of consumption.

Although this result again supports the predictive validity of the concept of negative expectancy, it can be seen that the explanatory utility is substantially reduced as compared with the study of social drinkers in chapter 5. Indeed, only 9.2% of the variance is explained by Total negative expectancy here, as opposed to 26.7% for all subjects, when gender was included, and 17.5% for males alone in chapter 5, also the That night sub-scale explained only 12.3% of the variance here, as opposed to 32.1% for all subjects when gender and the positive sub-scale Assertiveness were included, and 28.1% for males alone with Assertiveness, in chapter 5. There are three possible reasons for this deterioration in the amount of variance explained.

First, it is possible that there is a 'ceiling effect' to the NAEQ and, thus, it is less discriminating at the high end of the drinking scale. Second, it is possible that problem drinkers at this level are more homogeneous as a group than social drinkers, hence there is less variance in their drinking. This seems unlikely since although their drinking is positively skewed, there is a 45 unit range in drinking (mean 31 units; range 15 to 60 units per day).

The third, and most likely, explanation lies in the attempt to assess the level of drinking with this particular group. In answer to the question how much do you normally drink in a day ? a common answer was "As much as I can get". When pressed to be more precise, it was quite obvious that many of the subjects were merely estimating. Thus the deterioration in prediction may be a function of employing drinking data of questionable reliability. Such an explanation would appear to be quite justifiable since the level of drinking exhibited by this group, even allowing for imprecision, is such that: 1/ intoxication and 'blackouts' (alcohol induced amnesia) are regular features of their drinking style and; 2/ cogni-

tive impairment is a common symptom on admission. If that were the case, it is unlikely that precise details of amount consumed is either encoded at the time of drinking or accurately retrieved at the time of interview. Thus, it is, perhaps, surprising that any relationship between negative expectancy and consumption was found in this study which is possibly a testimony to the robustness of this relationship.

The positive linear relationship found here between duration of problem and negative expectancy lends support to one of the main premises of this thesis, that is that negative expectancy is learned through experiencing the aversive effects of alcohol. That the relationship has been found on the Continued sub-scale should not surprise. For this scale is comprised of items which could be described as chronic symptoms of alcohol abuse, for example DTs, lose my wife/husband, die. Which may show that, either, aversive drinking outcomes are becoming increasingly aversive or, alternately, these problem drinkers are becoming increasingly aware of the potential consequences of their drinking.

It is interesting that no relationship was found between positive expectancy and duration of problematic drinking. One explanation of this finding may be that the AEQ lacks the sensitivity required to measure this relationship, since positive expectancy items are measured on a two point scale. Alternatively, this finding may indicate that positive expectancy is more stable and hence less susceptible to fluctuations in drinking. Certainly, the results from Christiansen et al (1983), who found that positive expectancy was in place in adolescents before drinking was initiated, would support this suggestion. Further, Makela and Mustonen (1988) found that the rate of occurrence of aversive events increased sharply with consumption while the rate of occurrence of positive events decreased.

If positive expectancies are more stable than negative expectancies, then that has implications for both theory and practice. First, it would help to explain the findings of this thesis that negative expectancy has greater predictive utility than positive expectancy. Second, it would suggest that attempting to change the positive expectancies which problem drinkers hold through treatment may be more difficult than addressing their negative expectancies.

When expectancy was regressed against number of times previously treated it was again found that there was an association with the negative sub-scale Continued. A tempting, and plausible, explanation of this finding is that previous treatment has had an impact on the negative expectancy which these subjects hold. That is, if, as has been claimed negative expectancy represents motivation to abstain, then motivation might have been incre-

mentally boosted by prior excursions into treatment. However, while that would seem a not unreasonable explanation, it would also be expected that the length of time an individual had had a problem would be a determining factor in the number of times s/he had been treated. Indeed, when duration of problem is controlled for (by partialling out the variance accounted for by duration) this relationship disappears (r = 0.258; t = 1.906; p = .062; df 52). Also, since no relationship was found with positive expectancies, it has to be concluded that there is no evidence in this study to suggest that previous treatment has had any effect on expectancies.

This chapter will now turn to an examination of the utility of expectancy to predict outcome in treatment of problem drinkers.

FOLLOW-UP STUDY

INTRODUCTION

This chapter has demonstrated that both positive and negative expectancy discriminate be-
tween abstainers, social drinkers and problem drinkers. It has also shown that there is a lin-
ear relationship between consumption and negative expectancy for problem drinkers, with
the same scales predicting consumption as in social drinkers. Finally, it was shown that
there is a relationship between negative expectancy and duration of problem which mani-
fests on the negative sub-scale Continued. This chapter will now turn to an examination of
the utility of expectancy measures to predict outcome in treatment of problem drinking.

Beginning in the latter half of the 1980s and into the 90s there has been increasing recogni-
tion that client motivation may be the most important factor for a successful outcome to
treatment (Miller 1983; Miller and Rollnick 1991; Prochaska and DiClemente 1985; Roll-
nick et al 1992; Stockwell 1992). Indeed, one study has shown that 66% of the outcome
variance can be attributed to the client's motivation, while only 33% can be attributed to
treatment itself (Prochaska and DiClemente 1985). Another study, which employed two
treatments, motivational interviewing (as recommended by Miller and Rollnick 1991) and
teaching relapse prevention skills (as recommended by Marlatt and Gordon 1985), demon-
strated that motivated clients had comparable success in either treatment condition while
poorly motivated clients were more successful in the motivational interviewing condition
(Heather 1993). Heather concluded, as Rollnick et al (1992) and Stockwell (1992) had pre-
viously suggested, that to attempt to teach a poorly motivated client relapse prevention
skills is a waste of time and resources, instead it is better to assist these clients towards
making a decision or a commitment to change. Thus clients could be matched to treat-
ments, that is, well motivated clients would be taught relapse prevention skills while poorly
motivated clients would be given motivational treatment. However, this would obviously
require that practitioners could distinguish between motivated and unmotivated clients on
treatment entry and it this 'assessment' role which may be the strength of expectancy meas-
ures.

To date, only one other study has investigated the role of positive expectancy in treatment
outcome (Brown 1985a) and no study has investigated the role of negative expectancy. In
her year long follow-up study, Brown (1985a) found that positive expectancy was predic-
tive of abstinence (defined as 365 days abstinence) or relapse (defined as any drinking dur-

ing that time) and that higher positive expectancy was related to relapse. Another study, by Connors, O'Farrell and Pelcovits (1988), which asked a group of relapsers why they had decided to drink, also found that relapse was associated with positive expectancy, providing some some support for Brown's (1985a) findings. Thus, a follow-up study should find that positive expectancy discriminates between abstainers and relapsers following treatment, that is relapsers should have higher positive expectancies than abstainers.

However, this thesis has argued that negative expectancy represents motivation for abstinence. Indeed, in chapter 3 evidence was reviewed which showed that 'negative expectancy' is an important factor:- in help-seeking behaviour (Oppenheimer, Sheehan and Taylor 1988: Thom 1987); in the recovery of spontaneous remitters (Ludwig 1985; Tuchfield 1981); and in the recovery of treated problem drinkers (Amodeo and Kurtz 1990; Edwards et al 1987). Also the results of the studies reported in this thesis have provided evidence consistent with this view.

In chapter 5, it was argued that one interpretation of the differential prediction of consumption variables by temporal contexts, may lie in drinking restraint. If that is the case, then it suggests that negative expectancy may have a dynamic, rather than epiphenomenal, role in drinking behaviour and, hence, may have an influential role in drinking decisions. Further evidence supporting such a role for negative expectancy was provided in chapter 6, where it was demonstrated that negative expectancy discriminated between satisfied social drinkers and dissatisfied social drinkers, and between satisfied social drinkers and non-problem abstainers. It was argued that, due to their apparently ambivalent beliefs towards alcohol (that is, brings good things but also brings bad things), dissatisfied social drinkers would have a 'higher probability' of changing their drinking behaviour than satisfied social drinkers. Also since non-problem abstainers were found to have higher negative expectancies than satisfied social drinkers, it was argued that negative expectancy was implicated in, at least, the maintenance of abstinence, if not its initiation. Thus, the evidence of previous studies carried out by other authors and the evidence presented in earlier chapters of this thesis, strongly suggests that negative expectancy should also discriminate between problem drinkers who abstain or relapse after treatment, at least as well as positive expectancy.

Hypothesis

Measures of positive and negative expectancy will discriminate between treated problem drinkers who abstain and those who relapse following treatment. Specifically, abstainers will have higher negative expectancies and lower positive expectancies than relapsers.

METHOD

Subjects

Subjects consisted of 53 male problem drinkers who had been admitted to the alcohol treatment unit of the local psychiatric hospital - Gartnavel Royal Hospital, Glasgow.   Although at the time of this study the unit functioned as an in-patient facility, with 6 beds dedicated to alcohol treatment, it is now purely a day patient unit. The main treatment focus is detoxification, which is carried out using a reducing regime of Chlordiazepoxide and vitamin supplements and normally lasts about two weeks. Each client is allocated a personal counsellor on admission, usually a nurse, who deals with all aspects of counselling and alcohol education in a one-to-one setting. Relapse prevention tends to be on an after care basis, where the clients may elect to attend a four week course consisting mainly of group work. The clients of this study were day patients attending the unit for detoxification.

The mean age of the subjects was 44.6 years (sd 10.9 range 25 - 69 years). Civil status was as follows:- married 34% (n = 18); Single 17% (n = 9); Separated 18.9% (n =10); Divorced 28.3% (n = 15); Widowed 1.9% (n = 1). Occupational status was - employed 24.5% (n= 13); Unemployed 69.8% (n = 37); Retired 5.7% (n = 3).

This group perceived that they had had a problem with alcohol for a mean of 10.4 years (sd 8.8 range 1 - 40 years). They had been previously treated a mean of 2.7 times (sd 2.4 range 0 - 12 times)

Since almost without exception, when this group drink they drink on a daily basis, consumption was measured in units per day. The mean consumption was 31 units per day (sd 10 .8 range 15 - 60 units)

Tenure (that is Time spent in treatment) was a mean of 14.5 days (sd 6.5 range 5 - 33 days).

All subjects in this study were male since by far the majority of clients attending for treatment were males. During the time of this study only four females attended as day patients. More females did attend for admission to in-patient status, however, they are admitted to a general psychiatric ward rather than the unit.

Measures - Admission

A brief sociodemographic/drinking questionnaire which tapped details of gender, age, civil status, employment status, consumption, duration of problem (how long the subject perceived that s/he had had a problem with drinking), details of previous treatment (that is

have you been treated for an alcohol problem before, if yes how many times).

The Alcohol Expectancy Questionnaire (AEQ) - a 90 item instrument designed to measure the positive expectancies of alcohol, which an individual holds (Brown et al 1987). Scoring is on a forced choice, agree/disagree format. This instrument has six sub-scales: Global positive change; Sexual enhancement; Physical and social pleasure; Assertiveness; Relaxation and Power. A total positive expectancy score is obtained from summing the sub-scale scores.

The Negative Alcohol Expectancy Questionnaire - (NAEQ) a 60 item instrument designed to measure the negative expectancies of alcohol which an individual holds. This instrument employs a 5 point likert scale measuring the subjects estimate of how likely these outcomes are to happen to him/her, that is: highly unlikely = 1; unlikely = 2; possible = 3; likely = 4; highly likely = 5. It is arranged in three temporal contexts and these represent three sub-scales: That night (21 items); Next day (18 items); and Continued (21 items). Two alternative sub-scales can also be generated: Proximal which are outcomes that may happen at the time of drinking (that is the That night sub-scale) and Distal negative expectancies which are outcomes that may happen subsequent to drinking or from prolonged drinking (that is, the sum of the Next day and Continued sub-scale). A total negative expectancy score is obtained from summing the three sub-scale scores (That night; Next day and Continued).

Procedure on Admission

Subjects were approached by one of the nursing staff as soon after admission as their mental and/or physical state would allow, usually within three days of admission. The study was explained to them and they were then asked if they would consent to take part. Only four potential subjects refused. If they agreed, and signed a consent form, then they were given the questionnaire package as a self-completion instrument. All even numbered subjects completed the AEQ first followed by the NAEQ and odd numbered subjects completed the NAEQ first followed by the AEQ, to control for any order effects. A nurse was on hand to answer any questions arising from the completion of the instruments. Completion of the questionnaire ranged from about 20 minutes to 40 minutes.

Measures - Follow-up

The most important measure taken at follow-up was whether the subject had consumed any alcohol since discharge (one month follow-up) or since last follow-up (three month follow-up). If the subject had consumed alcohol then he was deemed to have relapsed. Thus, re-lapse, for this study, represents any departure from total abstinence. However, it is recognised, that some individuals do, indeed, drink after discharge before either going on to abstinence or to become (or return to being) problem-free drinkers. Marlatt and Gordon (1985) and Brownwell et al (1986) identify these as 'lapsers' as distinct from 'col-lapsers or re-lapsers'.

Although this definition might, at first, appear rather severe, it has been adopted for a number of reasons. First, the policy and treatment goal of the GRH Unit is total abstinence. Second, for most of this client group (but not necessarily all), any drinking will in fact coincide with a return to pretreatment levels. Third, since this thesis is an attempt to measure the cognitive antecedents of the 'decision-to-drink' then it was considered that this type of 'relapse' would be the most important event. Fourth, since this was the measure used by Brown (1985a) adopting this measure allows some comparison.

Procedure - Follow-up

The day prior to discharge, or the day of discharge an appointment to return to the unit, or occasionally the psychology department at Glasgow University, in four weeks for a follow-up interview was arranged. The week prior to their appointment, a reminder was sent to their home address. If they returned on the date of the appointment (which over 60% did n = 32), then a structured follow-up interview, which lasted about 15 minutes, was carried out and a repeat appointment to return in eight weeks was arranged.

If a subject did not attend and had a telephone, a phone call was made to encourage attendance at a convenient date. If it was impossible for the subject to attend, or he was unwilling, then the follow-up interview was conducted via the telephone. If a subject did not attend and had no telephone then a home visit was made and if necessary repeated until contact was made.

The same procedures were carried out at the three month follow-up.

RESULTS

One Month Follow-up

At the one month period it was found that just over half of the subjects had relapsed (n = 27 relapsed; n= 26 abstinent). The statistical comparison of these two groups follows below.

Sociodemographics

No reliable differences were found between abstainers (a) and relapsers (r) for age (means a 43.9, r 45.2; t = -0.432; p = .67; df 51), units per day (means a 31.5, r 30.7; t = 0.267; p = 0.79; df 51), duration (in months) of problem (means a 134.9, r 114.7; t = 0.691; p = .49; df 51), number of times previously treated (means a 2.9, r 2.5; t = 0.554; p = .58; df 51) or tenure (in days) on this occasion (means a 13.8, r 16.9; t = -1.083; p = .29; df 51).

Expectancy Totals

No reliable differences were found for positive expectancy Total, nevertheless there is a curious anomaly for it was found that abstainers have a higher Total positive expectancy than relapsers (means a 50.6, r 48.8; t = .623; p = .54; df 51). Negative expectancy Total was found to be much more orderly, that is abstainers have a higher negative expectancy Total than relapsers. However, while this result does not reach reliability at the 2-tailed level, a reliable difference is found at the one-tailed level and, since the direction of difference was predicted in the hypothesis, this result can be accepted. Total negative expectancy (means a 207.3, r 184.0; t = 1.808; p = .038 one-tailed, df 51).

Thus negative expectancy, but not positive expectancy, discriminates between abstainers and relapsers at one month.

Expectancy Sub-scales

Reliable differences were found on two positive expectancy sub-scales Assertiveness (means a 9.3, r 8.2; t = 2.03; p = .048; df 51) and Power (means a 6.6, r 5.3; t = 3.071; p = .0035; df 51). However like the Total positive score, it was found that it was abstainers rather than relapsers who had the higher positive expectancy. No other positive expectancy sub-scale was found to be reliable: Global (means a 16.3, r 16.9; t = -0.441; p = .66; df 51); Sexual enhancement (means a 3.2, r 2.9; t = 0.372; p = .71; df 51); Social and physical pleasure (means a 7.7, r 7.8; t = -0.437; p = .66; df 51); Relaxation (means a 7.7, r 7.8;

t = -0.07; p = .94; df 51).

It was found that abstainers scored higher than relapsers on all sub-scales. However, while no result for negative sub-scales reached reliability at the 2-tailed level, reliable differences were found at the one-tailed level and since the direction of difference was predicted in the hypothesis, these results can be accepted. Differences were found on: Continued (means a 75.1, r 64.9; t = 1.92; p = .031 one-tailed; df 51); and Distal (means a 143.5, r 126.4; t = 1.829; p = .037 one-tailed; df 51). No differences were found on: That night (means a 63.7, r 58.1; t = 1.263; p = .21; df 51) or Next day (means a 68.4, r 61.5; t = 1.406; p = .17; df 51).

However, there is still the problem of multiple comparisons which has already been discussed in chapter 5. Thus, if the alpha levels are adjusted for the number of sub-scale comparisons (that is p < .005) then only the positive sub-scale Power (p = .0037 two-tailed) shows a reliable difference at the one month follow-up.

The findings for positive expectancy are difficult to explain and in light of the findings of Brown (1985a) and Connors, O'Farrell and Pelcovits (1988), they are even more difficult to explain. Brown (1985a), in the only other known follow-up study using expectancy measures, found that higher positive expectancy was associated with relapse. Connors, O'Farrell and Pelcovits (1988) asked relapsers why they had decided to drink and found that they expected alcohol to help them cope with difficult situations. Reasons why this study has found results which are discrepant with these previous findings will be a feature of the discussion which follows the results of the three month follow-up.

Three Month Follow-up

At the three month period it was found that almost 72% of the subjects had now relapsed (n = 38 relapsed; n= 15 abstinent). The statistical comparison of these two groups follows below.

Sociodemographics

As at one month, no reliable differences were found between abstainers (a) and relapsers (r) for age (means a 46.7, r 43.7; t = 0.913; p = .37; df 51), units per day (means a 30.8, r 31.1; t = -0.075; p = .94; df 51), duration (in months) of problem (means a 145.9, r 116.3; t = 0.916; p = .37; df 51), number of times previously treated (means a 2.9, r 2.6; t = 0.32; p = .75; df 51) or tenure (in days) on this occasion (means a 14.8, r 14.3; t = 0.203; p = .84;

df 51).

Expectancy Totals

The previous unreliable anomalous differences found for positive expectancy Total disappeared and it was now found that both abstainers and relapsers had almost identical positive expectancy Totals (means a 49.7, r 49.7; t = 0.003; p = .997; df 51). Negative expectancy on the other hand, showed an improvement in discriminative power, clearly showing that abstainers had higher negative expectancies than relapsers. Total negative expectancy showed a reliable differences at the two-tailed level (means a 217.9, r 186.6; t = 2.216; p = .031; df 51)

Expectancy Sub-scales

No reliable differences were found for any of the positive sub-scales: Global (means a 15.8, r 16.9; t = -0.754; p = .45; df 51); Sexual enhancement (means a 3.1, r 3.0; t = 0.193; p = .85; df 51); Social and physical pleasure (means a 7.5, r 7.8; t = -0.644; p = .52; df 51); Assertiveness (means a 9.3, r 8.5; t = 1.047; p = .17; df 51); Relaxation (means a 7.7, r 7.7; t = 0; p = 1; df 51) and Power (means a 6.3, r 5.8; t = 0.919; p = .36; df 51).

All negative sub-scales, with the exception of That night, showed reliable differences at the two-tailed level, Total negative expectancy (means a 217.9, r 186.6; t = 2.216; p = .031; df 51); Next day (means a 73.6, r 61.4; t = 2.305; p = .025; df 51); Continued (means a 81.3, r 63.4; t = 2.797; p = .0073; df 51); Distal (means a 154.9, r 126.8; t = 2.818; p = .0069; df 51) and That night (means a 62.9, r 60.1; t = 0.518; p = .56; df 51).

However, if the alpha levels are now adjusted for the number of sub-scale comparisons (that is p < .005) and a one tailed prediction is used, then reliable differences are only found on two negative sub-scales, that is, Continued (p = .0037 one-tailed) and Distal (p = .0034 one-tailed).

Comparison of Abstainers and Relapsers at One Month Follow-up After Treatment on Sociodemographics: Age (in years);   Consumption (units per day); Duration of Problem (in months);   Length of time in Treatment (in days);   Times Treated Previously.

	Abstinent (n = 26)	Relapse (n = 27)	t value	p (2-tailed)
Age	43.9	45.2	-.432	.67
Units/day	31.5	30.7	.267	.79
Time problem	134.9	114.7	.691	.49
Tenure	13.8	16.9	-1.083	.29
Times treated	2.9	2.5	.554	.58

Table 6

Comparison of Abstainers and Relapsers at One Month Follow-up After Treatment on Positive and Negative Expectancy, Totals and Sub-scales.

	Abstinent (n = 26)	Relapse (n = 27)	t value	p (2-tailed)
Positive total	50.6	48.8	.623	.54
Negative total	207.3	184.0	1.808	.076

Positive Sub-Scales

Global	16.3	16.9	-.441	.66
Sex	3.2	2.9	.372	.71
Pleasure	7.7	7.8	-.437	.66
Assert	9.3	8.2	2.03	.048
Relax	7.7	7.8	-.07	.94
Power	6.6	5.3	3.071	.0035*

Negative Sub-Scales

That night	63.7	58.1	1.263	.21
Next day	68.4	61.5	1.406	.17
Continued	75.1	64.9	1.92	.061
Distal	143.5	126.4	1.829	.073

NOTE: Due to multiple comparisons the alpha level needs to be adjusted to the p < .005 level (that is p = .05 divided by 10). Results marked with an asterisk (*) achieve this level.

Table 7

Comparison of Abstainers and Relapsers at Three Months Follow-up After Treatment on Sociodemographics: Age (in years); Consumption (units per day); Duration of Problem (in months); Length of time in Treatment (in days); Times Treated Previously.

	Abstinent (n = 15)	Relapse (n = 38)	t value	p (2-tailed)
Age	46.7	43.7	.9.3	.37
Units/day	30.8	31.1	-.075	.94
Time problem	145.9	116.3	.916	.37
Tenure	14.8	14.3	.203	.84
Times treated	2.9	2.6	.32	.75

Table 8

Comparison of Abstainers and Relapsers at Three Months Follow-up After Treatment on Sociodemographics: Age (in years); Consumption (units per day); Duration of Problem (in months); Length of time in Treatment (in days); Times Treated Previously.

Comparison of Abstainers and Relapsers at Three Months Follow-up After Treatment on Positive and Negative Expectancy, Totals and Sub-scales.

	Abstinent (n = 15)	Relapse (n = 38)	t value	p (2-tailed)
Positive total	49.7	49.7	.003	.997
Negative total	217.9	186.6	2.216	.031

Positive Sub-Scales

Global	15.8	16.9	-.754	.45
Sex	3.1	3.0	.193	.85
Pleasure	7.5	7.8	-.644	.52
Assert	9.3	8.5	1.407	.17
Relax	7.7	7.7	0.0	1.0
Power	6.3	5.8	.919	.36

Negative Sub-Scales

That night	62.9	60.1	.584	.56
Next day	73.6	61.4	2.305	.025
Continued	81.3	63.4	2.797	.0073*
Distal	154.9	126.8	2.818	.0069*

NOTE: Due to multiple comparisons the alpha level needs to be adjusted to the p < .005 level (that is p = .05 divided by 10). Results marked with an asterisk (*) achieve this level.

Table 9

DISCUSSION

The study described above is only the *second* known follow-up study which has investigated the role of alcohol-related expectancy as a predictor of outcome and the *only* known study to investigate the role of negative alcohol-related expectancy in this way. Since the hypothesis that abstainers will have higher negative expectancies than relapsers has been supported, the results of this study provide the most compelling evidence to date that negative expectancy represents motivation for abstinence. However, before discussing the role of negative expectancy in treatment outcome it is worth looking at the other studies which have investigated expectancy and outcome, that is by Brown (1985a) and by Connors, O'Farrell and Pelcovits (1988). For both of those studies found that positive expectancy was important for treatment outcome and this current study has not reproduced those findings. The next section will investigate reasons for this discrepancy.

Previous Studies

First, in the Connors, O'Farrell and Pelcovits (1988) study, relapsers were asked why they had decided to drink. It was found that the relapsers had expected alcohol to help them cope with difficult situations, especially social situations and, further, they claimed that their expectations had been confirmed. Thus, the authors concluded that relapsers were those treated individuals with a high positive expectancy of alcohol. Although Connors et al do acknowledge that the 'reasons' given for relapse could constitute post-hoc rationalisations, they suggest that these 'reasons', accurate or not, could strengthen existing positive expectancies. While these findings appear to be reasonable, agreeing as they do with current theories, in particular relapse prevention theories (for example, Marlatt and Gordon 1985), it is worth examining the reasoning of Connor et al's (1988) study here and the implications which it has for the study presented in this chapter. There are two quite distinct assumptions arising from this study. First, that relapse has been precipitated by an event, or experience, with which the drinker could not cope and, second, that the drinker held high expectancies that alcohol would aid coping in this situation.

Taking the first assumption, that is that relapse has been precipitated by an event, or experience, with which the drinker could not cope, it is entirely possible that this assumption is fallacious. As Connors et al (1988) acknowledge, the 'reasons' given for relapse could simply constitute post hoc rationalisations. Indeed, Saunders and Allsop (1985) go to great pains to point out that when asked, why did you relapse ? a problem drinker will hardly

state that "I did it because I wanted to", for that would entail having to accept personal responsibility for bringing pain and hardship to her/himself and others close to her/himself, for example spouse or family. Instead, problem drinkers will, generally, give an answer which is couched in terms of difficulty in coping hence avoiding any 'blame'. Similarly, Davies (1992) argues that the attributional focus of any answer will depend on two factors, first, how a question is framed and second, who asks the question. He argues that, in addiction, attributions for relapse will generally be given as events beyond the individual's control, when the questionner is a therapist. For in this situation 'relapse' carries connotations of failure. However, if the questionner is another drinker then it is more likely that the attribution will be a volitional one. Hence he suggests in his controversial book "*The Myth of Addiction*", unsuspecting researchers can be led into believing that the attributions made by the 'problem drinker/addict', in interviews, are the only possible account of these events. Thus, the findings from Connors et al's (1988) study could, indeed, be rationalisations and, hence, if accepted at all, then it must be with some caution.

Alternatively, the subjects in the Connors et al study (1988) could be offering an accurate account of the events preceding relapse. Nevertheless, as Sutton (1993) points out, researchers must pay attention to, what he calls, "*the base rate problem*". That is, they must gain some measure of the uniqueness of these events, which have been offered as precipitating factors of relapse. For example, it would appear that most relapses take place when the individual is experiencing a negative emotional state (Marlatt and Gordon 1985; Sutton 1993). However, Sutton suggests that it has to be discovered if these states are common ones, having being encountered before, or are they unique situations ? To put this argument more concretely, an individual may cite as a reason for relapse that he had had an argument with his wife. Which would seem plausible if this was the only argument that they had had. However, if this was, in fact, the tenth argument that they had had that week, it has to be concluded that although this argument may have preceded relapse, it did not precipitate relapse.

Similar observations have been made by Saunders and Allsop (1985), who state that, although relapse may occur because the individual does not have the coping skills to handle difficult situations, it can also occur when s/he does possess the coping skills, having used them before. Thus, although individuals may suggest that they relapsed because they experienced difficult situations, these may be situations which they have encountered before, without relapsing.

The second assumption is that they expected that alcohol would help them cope. Again, if

these situations, or similar ones, had occurred before then one would assume that this expectancy would also have been present, without leading to relapse. Evidence from the Amodeo and Kurtz (1990) study would support this suggestion, since they found that abstinent problem drinkers, irrespective of length of abstinence, still experienced urges to drink. Which supports the evidence from the current study which found that relapsers and abstainers hold the same motivation to drink (no difference in positive expectancy). Instead, the current study and the Amodeo and Kurtz study, suggest that it is not high positive expectancy which precipitates relapse, rather it is low negative expectancy. This point will be discussed further in the concluding discussion of this chapter.

The other study was by Brown (1985a) who, in a follow-up study of 34 treated problem drinkers, found that positive expectancy predicted outcome and that lower positive expectancy was predictive of abstinence. Not only has the current study failed to reproduce Brown's (1985a) result, it has actually found that abstinent subjects had reliably higher positive expectancies than relapsers at one month. There are three possible explanations for this discrepancy.

First, the subjects in Brown's study were assessed after three weeks of treatment, while the subjects of this study were assessed as soon as possible after admission as their mental and physical state would allow, usually about three days. Thus, if alcohol expectancies change during treatment, then a measure of positive expectancy taken at this stage may be predictive while an admission measure clearly is not. However, it was found in an earlier analysis that previous treatment appeared to have no effect on expectancies, positive or negative. Nevertheless, that analysis investigated the long term effect of previous treatment, there could be a short term effect which is measurable. Alternatively, the subjects of that analysis were relapsers from previous treatment and by definition could be regarded as treatment failures. Hence, it may be unsurprising that no treatment effect was found. However, if the discrepancy between these studies is explainable by the time the subjects were assessed, then it would suggest that the AEQ would be limited in its use as an instrument with which to match clients to treatment. For if it does not discriminate on admission then one could not utilise it for matching.

Second, Brown's study employed a one year follow-up, while this study followed-up subjects at one month and three months, hence it is possible that this discrepancy is a function of the length of follow-up. For example, in this study it can be seen that although at one month almost 50% of the sample are abstinent, this number drops to 28.3% at three months

thus, for the 22% of the sample who relapsed in the interim, this period of abstinence does not represent stable change. Other researchers have made a similar observation and suggest that, interpretation of one month follow-up data should be done with caution (Heather 1993; Chick 1992). In addition, DiClemente suggests that until six months have elapsed abstainers are more usefully regarded as actioners than as maintainers. Indeed, such suggestions are supported by the literature, for example one study demonstrated that 50% of treated alcoholics relapse in the first month after treatment, 66% in three months, 75% in six months and 95% within a year (Baekeland, Lundwall and Kissen, 1975). Thus, since it can be seen that the relapse rates in this study are consistent with Baekeland et al's (1975) figures, it can be confidently assumed that a further proportion of this sample would relapse before a year had elapsed. Further, it can be seen from examination of tables 6 and 7 that the positive expectancy Total of the abstainers decreases slightly over this period, as more subjects relapse. Hence, it could, perhaps, be argued from this observation, that it is the subjects with higher positive expectancies who are relapsing, and therefore, it is possible that if this process were to continue, then the subjects who remain abstinent at one year may have reliably lower positive expectancies than the relapsers. Nevertheless, it would be expected from this argument that, if such a process of 'natural selection' was occurring then, the subjects with the highest positive expectancy would relapse first. Clearly this is not the case, as the one month follow-up measure shows, with abstainers having higher positive expectancies than relapsers.

The third explanation is really a question posed about the generalisability of Brown's findings. If it can be assumed that there is some veracity to the previous explanation and that the group who remain abstinent at one year do have lower positive expectancies than the relapsers, then it has to asked, how many abstinent subjects is this much-quoted finding based upon ? Although Brown based her findings on 34 subjects in total, there is nowhere in her paper where she give figures of the subjects in the outcome categories. However, if it can be assumed that her subjects performed similarly to the subjects of Baekland et al's (1975) study, then a relapse rate of 95% would mean that only two subjects (actually 1.7) would be abstinent at one year. Even allowing for a more conservative relapse rate of 80% then her findings are based on, at most, seven subjects (6.8). Thus, since that study was based on an indeterminate, but obviously small, number of subjects, the generalisability of Brown's (1985a) findings has to be questionable. It is, perhaps, less surprising that, under such circumstances, this study has failed to replicate Brown's findings.

The above discussion of these two previous studies of expectancy and outcome suggest that the relationship between positive expectancy and relapse may be less secure than is widely claimed. While the Connors et al (1988) study may very well give an accurate picture of relapse, there is, at least, one competing explanation which cannot be ruled out, that is negative expectancy. The Brown (1985a) study appears to provide more compelling evidence for the role of positive expectancy in abstinence / relapse and it is quite possible that this study has failed to replicate this, much quoted, result because of design differences, that is when the subjects were assessed or the length of follow-up. If it is the case that time of assessment explains this discrepancy, then it would suggest that the AEQ could not be used for matching. Alternately, the data of this study do not support an explanation in terms of follow-up time. Indeed, as was pointed out, it is questionable if a sufficient number of subjects remained abstinent at one year to make the analysis meaningful.

Negative Expectancy

The hypothesis for this study stated that problem drinkers who remained abstinent following treatment would have higher negative expectancy scores than problem drinkers who relapsed following treatment. This hypothesis has been supported. At the one month follow-up the differences between abstainers and relapsers on Total negative expectancy were reliable, but only when a one-tailed prediction was used. However, as was discussed above, other authors have suggested that abstinence for this relatively short period of time does not represent stable change. Indeed, the data from this study show that 42% (n = 11) of the one month abstainers (22% of the sample) have relapsed by the three month follow-up. Thus, that negative expectancy shows orderly results at all at one month would appear to demonstrate the robustness of the hypothesised process. At the three month follow-up the results are quite clear, abstainers do have reliably higher Total negative expectancies than relapsers, even if a two-tailed prediction is used and even with an alpha level adjusted for multiple comparisons differences are seen on the Distal and Continued sub-scales. Suggesting that, as the follow-up time gets longer the predictive power of negative expectancy should increase.

It can be seen that, consistent with the results found with satisfied/ dissatisfied social drinkers and non-problem abstainers and social drinkers in chapter 6, the differences found in this study lie in the distal rather than proximal negative expectectancies. However, rather than the differences lying in the Next day sub-scale, as with the dissatisfied drinkers, the

most robust differences are found in the Continued sub-scale, as it was with the non-problem abstainers. In chapter 6, it was tentatively suggested that distal rather than proximal negative expectancy motivated change and further suggested, that it was not merely the pharmacological effects of alcohol which motivated abstinence but also the social meaning of drinking behaviour. This result lends support to these suggestions.

Proximal and Distal Negative Expectancy

Leaving aside gender differences, proximal negative expectancy (the That night sub-scale) has continually proved to be the best predictor of consumption. This has been found to be the case with both social drinkers and problem drinkers in treatment. However, when differences in motivational level have been measured, it is distal and not proximal negative expectancy which has proved to be the best predictor. Indeed, it has been found that the best predictor of abstinence, for both problem and non-problem abstainers, has been the Continued sub-scale.

One interpretation of this finding could be that, although proximal negative expectancy increases with consumption, it plays little or no part in motivating abstinence. An explanation for this apparent anomaly may lie in the social comparisons that drinkers make between their own drinking and the drinking of others, for example, if they considered their own drinking behaviour to be normal then there would be no motivation to change it. In the wider context Sarason et al (1991) found that not only do people tend to compare themselves favourably with their peers, indeed, they tend to view themselves as more favourably adjusted than the group with whom they associate. In the drinking context, studies by Rohsenow (1983) and Leigh (1987) both found that, for both positive and negative consequences of alcohol, subjects expected others to be more affected than they would be themselves. A study by Hansen, Raynor and Wolkenstein (1991) found a similar result and they also found that, even when 'the other' was a hypothetical person who drank at the same level as themselves, this finding held true. Also, Oei, Hokin and Young (1990) found that, although heavy drinkers perceived that they drank to cope with negative experiences they viewed others as using alcohol for this purpose to a greater extent than themselves. Hence, it can be seen that if drinkers were experiencing negative outcomes from drinking but viewed them as being 'normal', or that they were happening to others more often than to themselves, then such outcomes may not not enter into a decision to drink or not drink. The data from the social drinker study would seem to support this argument since the satisfied group of social drinkers although holding the same proximal negative expectancies as

the dissatisfied drinkers were nevertheless satisfied with their current drinking.

However, while this argument may have some validity with social drinkers, can the same argument be used for problem drinkers, for this group have proximal negative expectancies which are extremely high, as compared with social drinkers ? Nevertheless, there are two related reasons why this same argument might hold. First, Leigh (1987) demonstrated that heavy drinkers rated the negative effects of alcohol as more positive than light or moderate drinkers. Which would agree with Cahalan and Room (1974) who found that heavy drinkers were more tolerant of deviance and anti-social behaviour than lighter drinkers. Second, it has been found that heavy drinkers gravitate towards others who drink in a similar manner as themselves. Thus, if these problem drinkers are drinking with others who drink at a level similar to themselves, then they may compare themselves against this heavy drinking peer group rather than a light drinking group, who they may not consider to be their peers and if deviant or anti-social behaviour is tolerated within this group, then her/his behaviour will not be judged negatively. Also, if this group are all drinking in a similar manner then it would be expected that similar negative outcomes (frequency and intensity) will be occurring to all of the group and, hence, the heavy drinkers will still be able to compare her/himself favourably with the group. Thus, negative expectancies of the time of drinking (proximal), despite being high, may be less likely to motivate abstinence.

However, if the above argument of cognitive bias is valid, then why should distal negative expectancies motivate abstinence where proximal negative expectancies don't ? An answer to that question can, perhaps, be found in the spontaneous remission study carried out by Ludwig (1985). In this study he found that motivation for abstinence came from negative events which brought *personal* distress, that it was the image of themselves, not others, in distress which motivated. In the That night sub-scale few of the items could be said to fall into the category of personal distress, since they are mainly behavioural. However, in the distal scales, both Next day and Continued, there are many items which could be viewed as measuring personal distress. For example, in chapter 6, it was shown how many of the Next day items could be viewed as cognitive / emotional and many similar items are also present in the Continued sub-scale. Again as Ludwig suggested, negative events in themselves have no inherent motivational value rather it is the meaning which the individual attaches to them. Hence, it is possible that the distal sub-scales are measuring, what may loosely be termed as personal distress, and it is the expectation of experiencing distress from drinking that motivates abstinence.

An alternative explanation is that the sub-scales measure increasingly severe negative expectancies. For example, the items which comprise the Continued sub-scale could be termed 'chronic' since they consist of negative expectancies such as losing spouse, losing job, losing home, having the DTs and dying. Thus, the expected severity of outcome, as measured by the distal sub-scales, may instead be the factor which motivates. However, it can be reasonably assumed that the amount of distress experience would be related to the severity of the aversive outcome.

MATCHING CLIENTS TO TREATMENT

INTRODUCTION

Although the results of this study have demonstrated that negative expectancy is a predictor of outcome and, thus, supports the suggestion that negative expectancy motivates recovery, nevertheless these results are post hoc tests. It was suggested in the introduction to the follow-up study in this chapter that assessing a client's motivation on entry to treatment is important. Since, if a problem drinker was sufficiently motivated then it is more likely that s/he will take advantage of the treatment on offer and hence have a greater chance of a successful outcome but if s/he is poorly motivated then some procedure will be required to raise his/her motivation. However, while these results suggest that there may be some utility in using negative expectancy for this assessment, no a priori decisions on motivational level were made. In order to test the feasibility of allocating clients to motivational or relapse prevention treatments according to their level of motivation (as measured by the NAEQ), the subjects will now be divided into groups according to their negative expectancy scores and a by-group analysis of outcome (using Chi squared) will be carried out. Although still essentially a post hoc procedure, this analysis will give some indication of the utility of employing the NAEQ in this way.

Initially it might be considered that this analysis is merely a repetition of the prior analysis, but employing a different statistical test. However, this is not the case. Since, if the subjects were ranked according to negative expectancy and then divided into three groups (high, moderate and low), as proposed for this analysis, then it is possible that the high scorers *in each group* remain abstinent while the low scorers relapse. Such a finding would result in a reliable difference on negative expectancy between abstainers and relapsers, but would prove to have no utility for matching since abstainers and relapsers could be equally represented in all groups. The results of this analysis are given below.

METHOD

Matching by Negative Expectancy Total

In order to test the matching hypothesis subjects were ranked according to their negative expectancy Totals and divided into three almost equal groups, high negative expectancy (n = 18) moderate (n = 17) and low (n = 18). The mean Total for the groups were high 245.1 (sd 16.8); moderate 196.4 (sd 14.5); low 139.6 (sd 18.1). The high group represented subjects whose scores were higher than .66 of a standard deviation above the mean for the

sample (that is 195.5 sd 47.9) and the low group represented subjects whose scores were lower than half a standard deviation below the mean. These groups were then compared for outcome at one month and three month. The results of this comparison can be seen in tables 10a, 10b, 11a and 11b.

RESULTS

It can be seen in tables 10a and 10b that at the one month follow-up no reliable differences were found (X^2 = 2.734; p = .25; df 2). There is, however, a suggestion that the low negative expectancy group fare worse than the high and moderate group since 66.7% of the low group have relapsed compared with 44.4% of the high group and 41.2% of the moderate group.

At the three month follow-up (tables 11a and 11b), however, reliable differences are found (X^2 = 6.972; p = .0306; df 2). Although there are no differences between the high and moderate groups, with 61.1% and 58.8% respectively of the subjects relapsing, they both differ markedly from the low group where 94.4% of the subjects relapse.

This result would suggest that there may be some basis for using the NAEQ to assess client motivation, and that the Total score, gained from administering the NAEQ, may have some utility in that direction. However, it has been suggested earlier in this chapter, that it is distal rather than proximal negative expectancy which motivates abstinence, thus employing the Total negative expectancy score, which also includes proximal negative expectancy, may prove to be be less sensitive than employing the distal score by itself. Hence, this analysis was repeated using the distal scores rather than the Total scores. The results of this second analysis, employing the distal score follow below.

Matching by Distal Negative Expectancy

As before the subjects were ranked, this time according to their distal negative expectancy scores. Again they were divided into three almost equal groups, high distal negative expectancy (n = 18) moderate (n = 17) and low (n = 18). The mean distal scores for the groups were high 171.8 (sd 10.3); moderate 139.2 (sd 13.2); low 93.6 (sd 13.1). The high group represented subjects whose scores were higher than .64 of a standard deviation above the mean for the sample (that is 134.8 sd 34.8) and the low group represented subjects whose scores were lower than half a standard deviation below the mean. These groups were then compared for outcome at one month and three month. The results of this

comparison can be seen in tables 12a, 12b, 13a and 13b.

It can be seen from tables 12a and 12b that although differences were found at one month follow-up, they do not reach reliability (X^2 = 4.957; p = .084; df 2). However, there does appear to be an improvement in prediction over the analysis which employed the Total score, with 38.9% of the high group, 41.2% of the moderate group and 72.2% of the low group relapsing.

It can be seen from tables 13a and 13b that reliable differences were found at the three month follow-up (X^2 = 7.311; p = .0259; df 2). Although the differences lie mainly between the low group and the other two, there is, nevertheless, a monotonic progression present in these results with 56.6% of the high group, 64.7% of the moderate group and 94.4% of the low group relapsing.

Contingency Tables of Follow-up Status by Total Negative Expectancy on Admission

1 Month Follow-up

	Abstinent	Relapse
High	10	8
Moderate	10	7
Low	6	12

	Abstinent	Relapse
	55.6%	44.4%
	58.8%	41.2%
	33.3%	66.7%

$$X^2 = 2.734; \quad p = .25:$$

Table 10a   **Table 10b**

3 Month Follow-up

	Abstinent	Relapse
High	7	11
Moderate	7	10
Low	1	17

	Abstinent	Relapse
	38.9%	61.1%
	41.2%	58.8%
	5.6%	94.4%

$$X^2 = 6.972; \quad p = .0306:$$

Table 11a   **Table 11b**

Contingency Tables of Follow-up Status by Distal Negative Expectancy on Admission

1 Month Follow-up

	Abstinent	Relapse
High	11	7
Moderate	10	7
Low	5	13

	Abstinent	Relapse
	61.1%	38.9%
	58.8%	41.2%
	27.8%	72.2%

$$X^2 = 4.957; \quad p = .084:$$

Table 12a   **Table 12b**

3 Month Follow-up

	Abstinent	Relapse
High	8	10
Moderate	6	11
Low	1	17

	Abstinent	Relapse
	44.4%	55.6%
	35.3%	64.7%
	5.6%	94.4%

$$X^2 = 7.311; \quad p = .0259:$$

Table 13a   **Table 13b**

DISCUSSION

The results of this study suggest that negative expectancy (as measured by the NAEQ) may provide a motivational measure for use by clinicians. It can be seen that although the Total NAEQ score discriminates fairly well, there is a slight improvement in prediction when the Distal negative expectancy score is used to classify clients, since 53% of the subjects who remain abstinent are situated in the high distal negative expectancy group, compared with 46.7% when Total negative expectancy is used. Although, little difference in outcome has been found between the high and the moderate group there is a marked difference between these groups and the low group, since only one subject from this group remained abstinent at three months. If the NAEQ was being used to match clients to treatment then it would be this group who would appear to require the greatest motivational input. However, before the NAEQ could be used in this way, representative norms would have to be established so that individual clients could be assessed against the scores of a large number of similar problem drinkers.

These results show promise, at least for research purposes, since they represent a considerable improvement over client allocation by chance. Whether employing the NAEQ for matching purposes also represents an improvement over the professional judgement of clinicians, would seem to be an important topic for further research. However, if it was found to be the case that it did improve assessment then the NAEQ may prove to be a significant addition to the assessment of problem drinkers. Even if that was not the case, employing the NAEQ may also allow the infrastructure of motivation to be assessed, through an examination of the clients scores on individual items and temporal contexts. Thus, providing an individualised input for motivational interviewing. These points will be taken up again in the last chapter.

COMBINING POSITIVE AND NEGATIVE EXPECTANCIES IN 5 GROUPS OF DRINKERS

INTRODUCTION

There is now an opportunity to extend the analysis which began this chapter, by comparing the expectancies of five groups, that is: satisfied social drinkers; dissatisfied social drinkers; relapsers at three months after treatment; abstainers after treatment and non-problem abstainers. Also there is an opportunity to extend the analysis further, by combining the positive and negative expectancies of these five groups.

Chapter 6 ended with the observation that the effect of negative expectancy which an individual holds may be dependant on the level of positive expectancy also held and vice versa. It was demonstrated in that chapter, that satisfied social drinkers held comparatively high positive expectancies and low negative expectancies. Thus, suggesting that this group view their drinking as bringing benefits without problems. Conversely, abstainers were found to hold comparatively low positive expectancies and high negative expectancies, that is, viewing alcohol as bringing few benefits and many problems. The final group compared in that chapter, dissatisfied social drinkers, were found to hold similar levels of positive expectancies to satisfied social drinkers while also holding similar levels of negative expectancies to abstainers. Hence, it was suggested that the dissatisfaction experienced by this group arose from their apparent ambivalence towards alcohol.

In this chapter it was demonstrated that abstainers after treatment, while holding high positive expectancies also had higher negative expectancies than relapsers after treatment. Thus, it was suggested that holding higher negative expectancy motivated abstinence in this group. However, it can be seen that relapsers show a qualitatively similar expectancy profile to dissatisfied social drinkers. For while they hold high negative expectancies, compared with social drinkers, they also hold high positive expectancies. Thus it could quite comfortably be argued that relapsers also show ambivalence to alcohol.

The concept of 'ambivalence' (Miller and Rollnick 1991) or 'conflict' (Orford 1985), as an important factor in change in drinking behaviour, has been hypothesised for some time, although, an extensive literature search has failed to unearth any empirical evidence demonstrating its role, what evidence there is appears to be only only anecdotal. Nevertheless, it is a concept which is at the heart of the recent wave of 'cognitive theories' of change in problem drinking. Indeed, Miller and Rollnick (1991) suggest that overcoming ambiva-

lence is the primary objective for a therapist working with problem drinkers.

Miller and Rollnick (1991) illustrate their view of ambivalence by refering to 'approach - avoidance' conflict, which is characterised by the individual being both attracted and repelled by alcohol. Attracted by the perceived beneficial effects of drinking but repelled by the aversive effects which are occurring, or are likely to occur. Orford (1985) makes essentially the same observations and points to the work of Janis and Mann (1979) on decision making as a potentially useful model for visualising change in addictive behaviours. Central to Janis and Mann's model are the concepts of conflict and loss which they suggest are the activators of change.

"Until a person is challenged by some disturbing information or event that calls his attention to a real loss soon to be expected, he will retain an attitude of complacency about whatever course of action (or inaction) he has been pursuing."

(Janis and Mann 1977; p172)

Thus for Janis and Mann, a decision for change is triggered by the conflict which an individual experiences between the benefits of the current behaviour and possible future consequences if that behaviour were to continue. Conflict, then, arises from the dissonant status of the mental 'balance sheet' (Janis and Mann 1977) or 'pay off matrix' (Orford 1985) concerning the behaviour. Orford (1985) also suggests that, within a decision making framework, decisions about problem drinking taken early in the drinking career when relatively little harm has occurred, are no different to the kind taken later, when there has been considerable harm. This model proposes that any differences that do occur, lie in the *degree* of conflict not in the *type* of decision.

If, as these authors argue individuals do make a behavioural decision based on what is expected to occur then by combining positive and negative expectancies an orderly relationship to consumption status should be found. For example, satisfied social drinkers should have the highest combined expectancy while abstainers should have the lowest. Further, if this type of decision is the same for all drinkers, irrespective of the quantity involved, then dissatisfied social drinkers and relapsers after treatment should have a similar level of combined expectancy. For, if they are both showing ambivalence to alcohol then, although their expectancies are quantitatively quite different, when positive and negative expectancies are combined they should be similar. To illustrate this arithmetically, if a dissatisfied social drinker had a positive expectancy score of 25 and a negative expectancy score of 25 then when the negative score is subtracted from the positive score (to simulate the '*mental balance sheet*' of Janis and Mann 1979) then the combined score is 0. If then a relapser

has a positive expectancy score of 100 and a negative expectancy score of 100 then although quantitatively very different, the result is still 0.

The hypotheses which will be tested in this analysis are that when positive and negative expectancy is combined: 1/ satisfied social drinkers will have a higher combined expectancy than dissatisfied social drinkers, relapser and abstainers (either non-problem or following treatment. 2/ dissatisfied social drinkers will not differ in their combined expectancy from relapsers.

METHOD
Subjects
Subjects consist of: satisfied social drinkers (n = 81); dissatisfied social drinkers (n = 20); non-problem abstainers (n = 25); relapsers after treatment (n = 38); and abstainers after treatment (n = 15). The sociodemographics of these subject groups and the data collection methods have been described previously in this chapter and in chapter 6 and, hence, do not require repetition here.

Measures
For this analysis, only the positive and negative Totals, from the AEQ and the NAEQ, for all subjects were used, since the main purpose of this analysis was to examine the combined expectancy scores.

Procedure
Since the AEQ and the NAEQ have quite different scales, positive and negative expectancy Totals for all subjects were transformed to standard scores (Z-scores), in order that they could be combined to make a composite expectancy score. This method has an added advantage in that it avoids the issue of differences in validity between the instruments. Converting the individual scores to Z-scores in this fashion is, fundamentally, a sophisticated ranking procedure since it returns the relationship of each individual's score as a function of the mean and standard deviation of the group. Thus, it circumscribes the question of comprehensiveness of the instruments. For example, if the AEQ was an exhaustive list of every possible positive expectancy while the NAEQ was less than exhaustive, then combining these scores would result in a positive bias which may result in the negative expectancies being over whelmed by the positive. Of course such a difference in comprehensiveness is unlikely but this method avoids the possibility of the effect occurring. The

negative standard score was then subtracted from the positive standard score to give this combined score. These new combined scores were then tested using a one way Anova with planned comparisons.

RESULTS

Table 12 shows the results of this analysis and figures 1 to 3 show the same results in graph form.

First, positive expectancy Total, it can be seen that there are reliable differences between these groups (means Satisfied 29.8; Dissatisfied 29.5; Relapser 49.7; Tabstainer 49.7; Abstainer 11.8: $F = 47.315$; $p = .0001$; df 4, 174).

Planned comparisons were carried out between groups (see below):- no reliable differences were found between satisfied social drinkers and dissatisfied social drinkers but reliable differences were found between satisfied social drinkers and relapsers; abstainers after treatment; and non-problem abstainers. Reliable differences were found between dissatisfied social drinkers and relapsers, abstainers after treatment; and non-problem abstainers. Reliable differences were found between relapsers and non-problem abstainers but not between relapsers and abstainers after treatment. There was a reliable difference between abstainers after treatment and non-problem abstainers.

Group	mean	vs group	mean	F	p	df
satisfied	29.8	dissatisfied	29.5	0.012	.91	1
		relapser	49.7	72.429	.0001	1
		Tabstainer	49.7	36.255	.0001	1
		abstainer	11.8	44.999	.0001	1
dissatisfied	29.5	relapser	49.7	37.397	.0001	1
		Tabstainer	49.7	24.959	.0001	1
		abstainer	11.8	24.647	.0001	1
relapser	49.7	Tabstainer	49.7	9.3E-6	.99	1
		abstainer	11.8	150.596	.0001	1
Tabstainer	11.8	abstainer	11.8	95.747	.0001	1

Second, negative expectancy Total, again it can be seen that there are reliable differences between the groups (means Satisfied 90.8; Dissatisfied 113.8; Relapser 186.6; Tabstainer 217.9; Abstainer 115.8: $F = 74.265$; $p = .0001$; df 4, 174).

Planned comparisons were carried out between groups (see below):- Reliable differences were found between satisfied social drinkers and dissatisfied social drinkers; relapsers; abstainers after treatment; and non-problem abstainers. Reliable differences were found between dissatisfied social drinkers and relapsers, abstainers after treatment; but no reliable difference was found between dissatisfied social drinkers and non-problem abstainers. Reliable differences were found between relapsers and abstainers after treatment and non-problem abstainers. There was a reliable difference between abstainers after treatment and non-problem abstainers.

Group	mean	vs group	mean	F	p	df
satisfied	90.8	dissatisfied	113.8	6.767	.01	1
		relapser	186.6	191.801	.0001	1
		Tabstainer	217.9	162.029	.0001	1
		abstainer	115.8	9.493	.0024	1
dissatisfied	113.8	relapser	186.6	54.131	.0001	1
		Tabstainer	217.9	72.323	.0001	1
		abstainer	115.8	0.032	.86	1
relapser	186.6	Tabstainer	217.9	8.183	.0047	1
		abstainer	115.8	59.067	.0001	1
Tabstainer	217.9	abstainer	115.8	76.225	.0001	1

Finally combined expectancy, it can be seen that again there are reliable differences between these groups (means Satisfied 0.44; Dissatisfied 0.012; Relapser -0.029; Tabstainer -0.593; Abstainer -1.074: $F = 18.871$; $p = .0001$; df 4, 174).

Planned comparisons were carried out between groups (see below):- Reliable differences were found between satisfied social drinkers and dissatisfied social drinkers; relapsers; abstainers after treatment; and non-problem abstainers. Reliable differences were found between dissatisfied social drinkers and abstainers and non-problem abstainers; but no reliable difference was found between dissatisfied social drinkers and relapsers. Reliable differences were found between relapsers and abstainers after treatment and non-problem abstainers. There was no reliable difference between abstainers after treatment and non-problem abstainers.

Group	mean	vs group	mean	F	p	df
satisfied	0.44	dissatisfied	0.012	4.396	.0374	1
		relapser	-0.029	8.291	.0045	1
		Tabstainer	-0.593	20.095	.0001	1
		abstainer	-1.074	65.715	.0001	1
dissatisfied	0.012	relapser	-0.029	0.032	.86	1
		Tabstainer	-0.593	4.591	.0335	1
		abstainer	-1.074	19.196	.0001	1
relapser	-0.029	Tabstainer	-0.593	4.930	.0276	1
		abstainer	-1.074	23.606	.0001	1
Tabstainer	-0.593	abstainer	-1.074	3.181	.0762	1

Anova of Expectancies of Five Drinker Types

	Satsoc	Dissat	Relap	Tabst	Abst	F	p
PosTotal	29.8	29.5	49.7	49.7	11.8	47.315	.0001
NegTotal	90.8	113.8	186.6	217.9	115.8	74.928	.0001
Combined	.44	.012	-.029	-.593	-1.074	18.871	.0001

Table 14

Z scores of Positive Expectancy Total

Figure 1

Z scores of Negative Expectancy
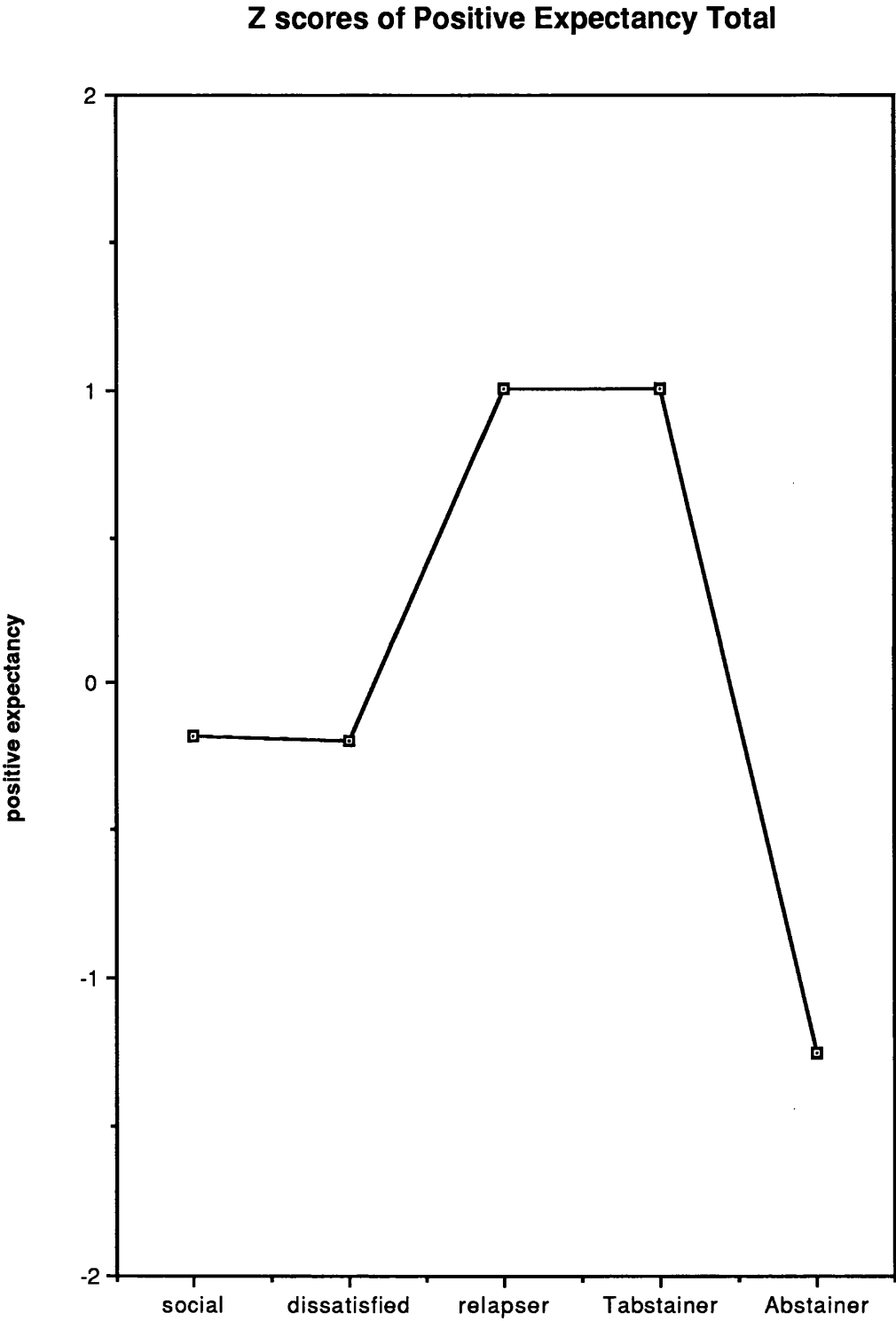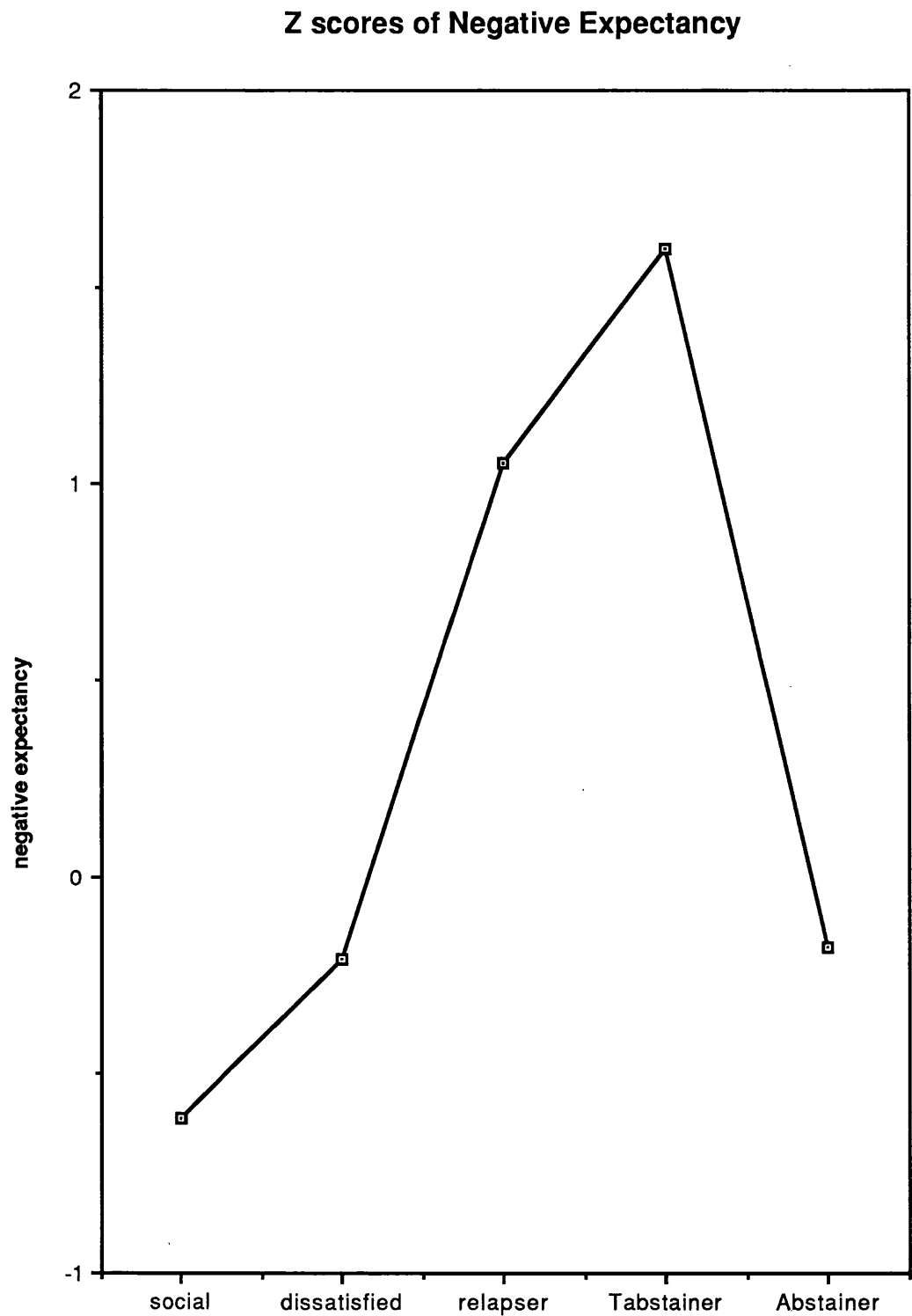

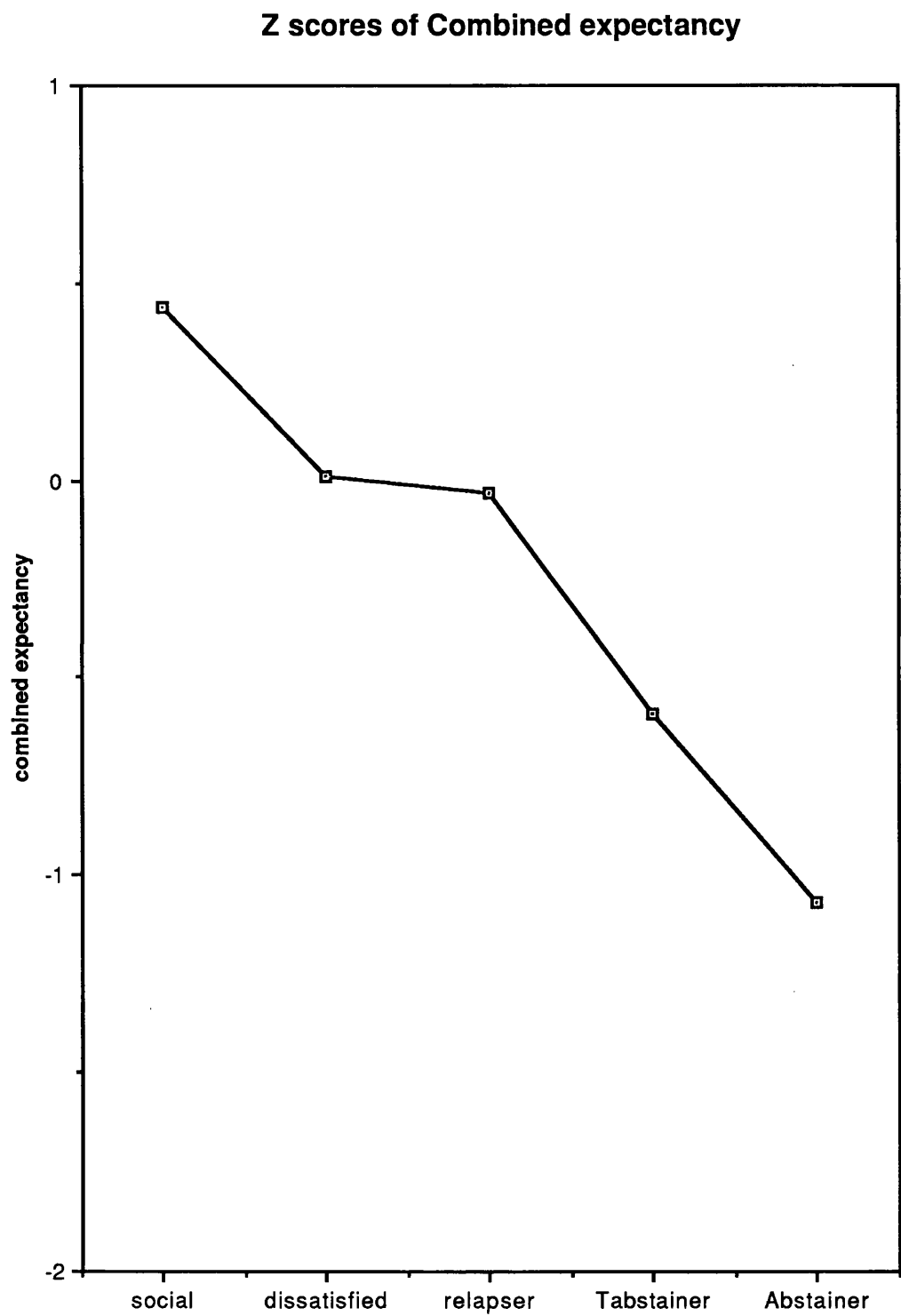**Figure 2**

Z scores of Combined expectancy

Figure 3

DISCUSSION

It can be seen from these results that a quite different picture emerges depending on what expectancy measure is used. When positive expectancy is used the results show quite clearly that there are three distinct groups by drinking status, social drinkers, problem drinkers and abstainers (see figure 1), with the problem drinkers > social drinkers > abstainers on positive expectancy, but no differences between the two groups of social drinkers or problem drinkers. It can be seen that just as both groups of social drinkers, satisfied and dissatisfied, have similar levels of motivation to drink (positive expectancy), both groups of problem drinkers (abstainers and relapsers) also have similar levels of motivation to drink but higher than the social drinkers.

A quite different picture emerges from the negative expectancy data (figure 2). Satisfied social drinkers have the lowest motivation to abstain (negative expectancy) while non-problem abstainers and dissatisfied social drinkers have similar levels of motivation to abstain. Although both the problem drinker groups have high motivation to abstain, the treatment abstainers have the higher motivation.

Figure 3 shows the combined expectancies of these five groups. It can be seen that this graph gives a remarkably coherent picture of drinking decisions. The hypothesis that satisfied social drinkers would have the highest combined expectancy has been supported, with this group showing reliable differences to all other groups. The second hypothesis that dissatisfied drinkers and relapsers would not differ in combined expectancy has also been supported, with these two groups showing no reliable differences with each other but showing reliable differences with all other groups. Unsurprisingly, non-problem abstainers were found to have the lowest combined expectancy, however it is interesting that no reliable difference was found between this group and abstainers after treatment as it may suggest that three months does, in fact, represent stable change. This result suggests that measures of positive or negative expectancy by themselves may be quite misleading. For whilst a high positive expectancy may indicate high motivation to drink, if it has to combat a comparatively higher negative expectancy then drinking may not occur. Which has been found with the treatment abstainers in this study.

Implicitly, and more recently explicitly, researchers have come to view a client's change from problem drinking to recovery as the product of a decision and that this decision is made on the basis of the expected pros and cons of their drinking (Cox and Klinger 1988; DiClemente 1993; Miller and Rollnick 1991; Orford 1985; Prochaska and DiClemente

1985; Saunders and Allsop 1985). Certainly these results would lend support to this suggestion. Indeed if the results of the combined expectancy analysis are viewed within the stages of change model (Prochaska and DiClemente 1985), they are even more illuminating.

It has already been argued that:- satisfied social drinkers can be categorised as precontemplators; both dissatisfied social drinkers and relapsers can be categorised as contemplators; abstainers after treatment can be categorised as actioners; and non-problem abstainers can be categorised as maintainers. Figure 4 shows the same graph as figure 3, but with these categories superimposed. It can be clearly seen from this figure that for combined expectancy, precontemplators > contemplators > actioners > maintainers (although for this data the difference between actioners and maintainers is not reliable).

That positive and negative expectancy can be combined in such a simplistic fashion and give an orderly and plausible result is very encouraging. It strongly suggests that the success of attempts to explain drinking behaviour employing only positive expectancy must of necessity be limited. That unless a comparatively valid instrument for measuring negative expectancy is included a misleading picture emerges.

CONCLUSION

This chapter has extended the investigation of positive and negative expectancy to problem drinkers. It was found that the results were consistent with the findings of the previous chapters. First, consumption was best predicted by the That night sub-scale as it was with social drinkers. Second, abstinence after treatment was best predicted by distal rather than proximal negative expectancy and was sited in the Continued drinking sub-scale.

A follow-up study found that abstinence was predicted by higher negative expectancy lending further support to the suggestion that negative expectancy represents motivation for abstinence. In order to test the NAEQ's utility as an instrument to match clients to treatment, subjects were allocated to groups according to their admission negative expectancy scores, both Total score and distal score. It was found that there was little difference in outcome between subjects with high and moderate negative expectancies, however, there was a marked difference between these groups and the low group, where only one subject was abstinent at three months, hence, the NAEQ may have some utility for 'matching'. It was also suggested that the NAEQ may have utility in the planning of motivational treatments since an examination of the items and temporal contexts should allow an assessment of the

client's motivational infrastructure.

Finally, it was again shown that when positive and negative expectancy were processed against each other, a coherent and intuitively plausible picture of drinking decisions emerged. What was, perhaps, most striking was the similarity between dissatisfied social drinkers and treatment relapsers. For although these two groups have quite different expectancies when positive and negative are assessed separately, when a combined expectancy measure is used they are almost identical. Suggesting that, in stages of change terms, they are at the same point regarding a decision to change.
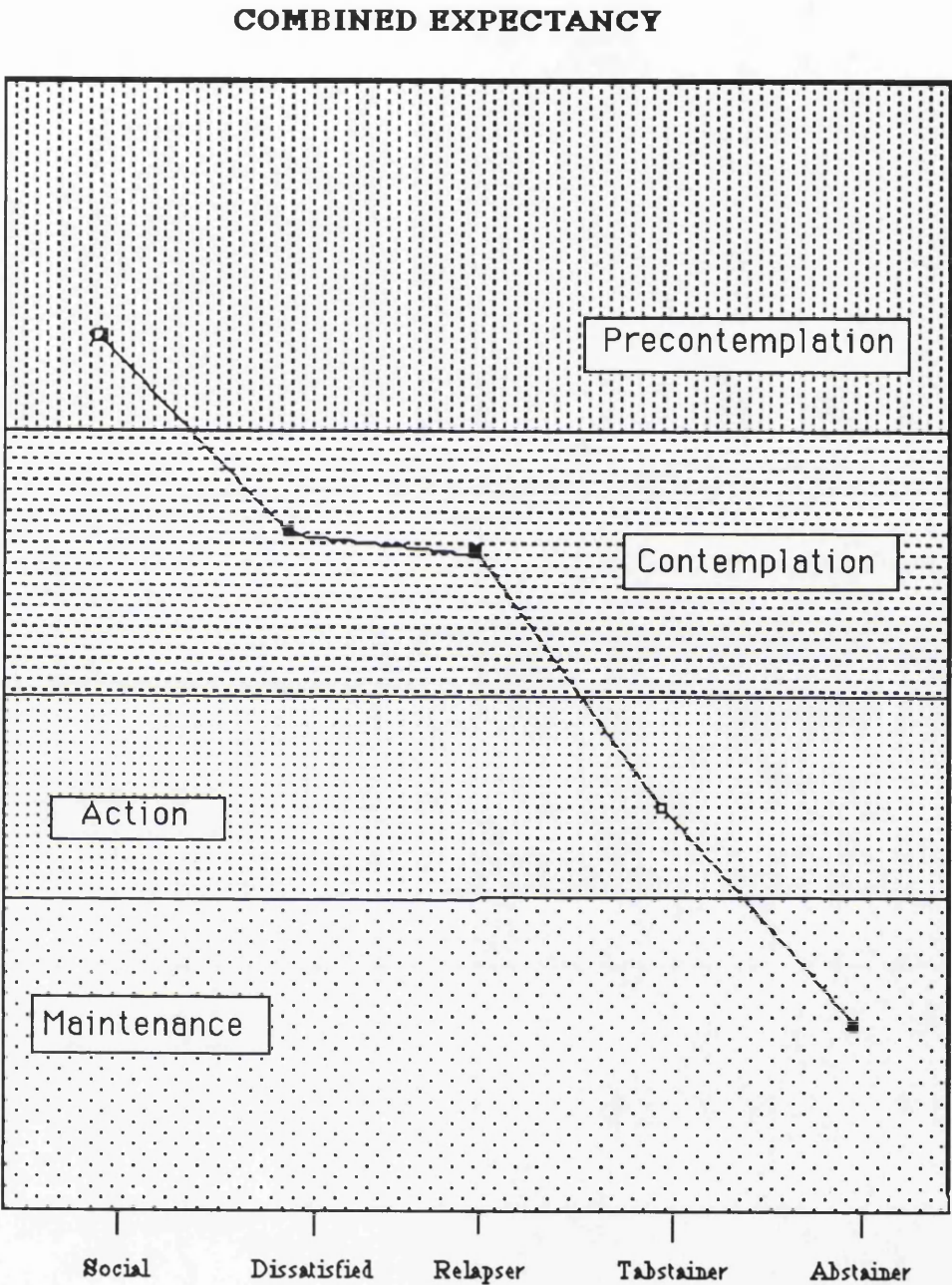
COMBINED EXPECTANCY

Figure 4

PART THREE

DISCUSSION

CHAPTER EIGHT

Discussion and Future directions

Contents of Chapter 8

CHAPTER SUMMARY

This chapter is designed to discuss some of the wider implications of the studies reported in the thesis, that is differences between the NAEQ and other negative expectancy instruments, implications of the findings of this thesis for treatment and directions for future research. Before discussing these issues a brief resume of the thesis is given by way of an introduction to these issues.

It is concluded that the results of this thesis show that when an empirically derived instrument for measuring negative expectancy is employed (the NAEQ) negative expectancy predicts consumption for both social drinkers and problem drinkers. Also that the thesis has demonstrated that negative expectancy can predict outcome of treatment for problem drinkers, lending support to the suggestion that negative expectancy represents motivation to abstain.

When compared to other instruments for measuring negative expectancies, three main differences are found. First, that the sample used in its construction is far larger and more diverse than any of the others. Second, the NAEQ not only employs many more items but the range of the expectancies are much greater. Finally, the NAEQ is arranged to represent three temporal contexts whereas the others tend to be limited to the time of drinking. It is suggested that since the NAEQ has shown such an unparalleled success that researchers view expectancies in the wider context of the effects of drinking behaviour rather than alcohol effects.

It is suggested that the NAEQ may prove to be a useful assessment instrument for therapists in two ways. First as a quantitative measure of the individual's level of motivation, which would allow better treatment match. Second, and as qualitative measure, allowing the infrastructure of motivation to be assessed, which may aid motivational style treatments.

Two areas for future research have been suggested. First, measures of desirability should be included to ascertain whether they improve prediction. Second ways of combining positive and negative expectancy, to model decision making processes, should be explored to provide a deeper understanding of drinking decisions.

Chapter 8

Discussion and Future Directions

INTRODUCTION

This chapter is designed to discuss some of the wider implications of the studies reported in the thesis, that is differences between the NAEQ and other negative expectancy instruments, implications of the findings of this thesis for treatment and directions for future research. Before discussing these issues a brief resume of the thesis will be given both as a reminder of the findings and as an introduction to these issues.

RESUME OF MAIN POINTS OF THE THESIS

This thesis has demonstrated that negative alcohol-related expectancy deserves to be given, at least, a similar status as that given to positive expectancy. While some authors may have overlooked the existence of negative expectancy, or perhaps simply ignored it because of the lack of measuring instruments, others have argued that negative expectancy plays no part in drinking decisions (Brown et al 1980; Brown 1993; Goldman et al 1991). This thesis has shown that while the former stance of neglect is regrettable, the latter stance of denial is untenable.

In chapter 2, evidence from laboratory studies on alcohol expectancies was reviewed which demonstrate that expectancy effects are more important than pharmacological effects in mediating drinking behaviour. These studies have also shown that many of the effects once thought to be due to alcohol are in fact due to expectancy. Field studies have shown that positive expectancy is already in place in children and adolescents before any they have any direct experience, suggesting that expectancy is initially learned by acculturation and, in particular, through observing the drinking behaviour of parents and friends. However, expectancies before drinking tend to be amorphous, crystallising with personal experience of alcohol.

The most consistent finding from the field research is that there is a positive relationship between drinking and positive expectancy, that is, higher positive expectancy of alcohol - higher consumption, leading to the view that positive expectancy motivates drinking. A

view which is strengthened by the finding that higher positive expectancy is implicated in relapse after treatment.

In chapter 3 it was shown that, despite recognition that it should have potential explanatory value in drinking behaviour, negative expectancy has largely been ignored by researchers. It was suggested that this neglect has stemmed from first, the dominance of the AEQ (which only measures positive expectancy) in expectancy research and second, the equivocal results found in other studies of negative expectancy. However, it was argued that the failure to find a clear relationship between negative expectancy and consumption arises because of the questionable validity of the instruments used.

Evidence was reviewed which suggested two roles for negative expectancy. First, as a predictor of consumption since surveys have shown that aversive outcomes are positively related to consumption. Second, as a motivator of abstinence, since other studies, although not strictly within the expectancy domain, demonstrate that negative expectancy is implicated in recovery, being important in: help seeking for addictive behaviours; spontaneous remission from alcohol problems; recovery in treated problem drinkers; and maintaining abstinence when tempted to drinking. Indeed, it has been found that while currently abstinent problem drinkers retain a high level of positive expectancy which continues to motivate drinking, abstinence is maintained by recalling aversive outcomes.

The learning process by which people acquire negative expectancies was discussed, suggesting that not all aversive outcomes surrounding drinking are attributed to alcohol due to a range of cognitive biases. Therefore, although it was suggested that individuals only consider change in alcohol problems when they recognise that they have problems, it is argued that if these problems are considered to idiosyncratic then there will be no reason to change. Thus, this chapter suggests that problem recognition as motivation be redefined as having three stages: 1/ Recognition of current problems; 2/ Recognition of the source of these problems, that is, alcohol; 3/ Prediction of future problems if drinking was to continue.

The chapter ends with the conclusion that a valid instrument is required to investigate negative expectancy.

Chapter 4 reported the construction of such an instrument, the Negative Alcohol Expectancy Questionnaire (NAEQ) designed to measure negative expectancy. This instrument was constructed by canvassing the negative expectancies held by 188 adults: problem drinkers

in treatment (n = 104); social drinkers (n = 61); and ex-problem drinkers attending AA (n = 23). It was found that the negative expectancies which the subjects held fell into three temporal contexts: the time of drinking; the day after; and long term consequences. Thus, the NAEQ was designed to reflect this by arranging the items into three sub-scales: That night; Next day; Continued drinking.

In constructing this instrument attention was payed to the criticism of previous instruments and the AEQ in particular, that is that self-referent and general expectancies have been confounded and that a forced choice agree / disagree format lacks sensitivity. Thus, the items are presented in the first person to measure self-referent expectancies and are scored on a 5-point likert scale.

It is believed that the NAEQ is unique in two respects. First, it is the only empirically derived instrument designed to measure negative expectancy. Second, it is the only instrument which measures expectancies by temporal context.

Chapter 5 began the empirical investigation of negative expectancy by reporting a study designed to test the hypothesis that an empirically derived measure of negative expectancy, the NAEQ, would be associated with consumption. Since positive expectancy, as measured by the AEQ, has consistently been found to be associated with consumption, it was also included in the study. Thus positive expectancy was included in the study as a 'benchmark' with which to compare the performance of the NAEQ.

Subjects were 101 social drinkers who reported no current or previous drinking problems. Three measures of consumption were used in the analyses - amount per week (weekly), amount per session (amount) and frequency of drinking sessions (frequency).

A univariate correlational analysis found that, while both the AEQ and the NAEQ were predictive of all consumption variables, the NAEQ was actually a more reliable predictor than the AEQ.

A stepwise multiple regression analysis found that the NAEQ total was the most consistent predictor, predicting all consumption variables. In the sub-scale analysis it was found that the negative sub-scale That night is predictive of both weekly and amount while the Next day sub-scale is predictive of frequency. Three explanations of this finding were explored. First, that the negative expectancies held may be a consequence of the different negative outcomes of drinking styles. Second, that different drinking styles may be a response to the negative expectancy held. Third, and most likely, that it is an interactive process, that is, a combination of these two explanations.

Since it was also found that gender was a reliable predictor a separate stepwise analysis was carried out for males and females. It was found that the That night sub-scale predicted all consumption variables for males and the next day sub-scale predicted all consumption for females.

The conclusions of that study were: first, that negative expectancy is, at least, as good a predictor of consumption as positive expectancy: second, that negative expectancy is involved in drinking restraint and: finally, partial support for the hypothesis that negative expectancy is a motivator of recovery derives from this latter conclusion.

Chapter 6 described the results of two studies designed to test the hypothesis that negative alcohol-related expectancy motivates abstinence. The first study compared the expectancies of satisfied and dissatisfied social drinkers, arguing that since dissatisfied drinkers will be more motivated to abstain they should hold higher negative expectancies of alcohol. The results of that study show that this is, indeed, the case with the most reliable differences found in the Next day sub-scale. No reliable differences were found between these two groups in any positive expectancies variables. However, since differences were also found in drinking variables which could account for this result 20 satisfied drinkers matched for gender, age and consumption were compared with the 20 dissatisfied drinkers. Although the levels of probability were reduced, reliable differences in the Total negative expectancy, Distal and Next day sub-scales remained.

The second study compared the the expectancies of satisfied social drinkers and non-problem abstainers. In that study, reliable differences were found for both positive and negative expectancies, with abstainers holding lower positive expectancies and higher negative expectancies than the social drinkers.

An analysis of the expectancies of all three groups was then carried out, which demonstrates that while dissatisfied social drinkers most resemble satisfied drinkers in the positive expectancies which they hold, in negative expectancies they most resemble abstainers. It was concluded that the results of these two studies support the main hypothesis of this thesis, that is that negative expectancy represents motivation to abstain from alcohol.

Chapter 7 extended the investigation of the previous chapters by examining the positive and negative expectancy of male problem drinkers. It was found that the results were consistent with the findings of the previous chapters. First, consumption was best predicted by the That night sub-scale as it was with social drinkers. Second, change was best predicted

by distal rather than proximal negative expectancy and was sited in the Continued drinking sub-scale.

A one month and three month follow-up study of 53 male problem drinkers in treatment found that abstinence was predicted by higher distal negative expectancies, lending support to the suggestion that negative expectancy represents motivation for abstinence. Positive expectancy did not predict outcome. That result was discussed in relation to other studies which found that positive expectancy was predictive of outcome. Why distal, rather than proximal, negative expectancy should predict change is also discussed.

In order to test the NAEQ's utility as an instrument to match clients to treatment by motivational level, subjects were allocated to groups according to their admission negative expectancy scores, both Total score and Distal score. Both measures gave similar results, although the distal score was slightly superior. It was found that there was little difference in outcome between subjects with high and moderate negative expectancies, however, there was a marked difference between these groups and the low group, where only one subject was abstinent at three months. Hence, the NAEQ may have some utility for 'matching'. It was also suggested that the NAEQ may have utility in the planning of motivational treatments since an examination of the items and temporal contexts should allow an assessment of the client's motivational infrastructure. The NAEQ's potential for use as an assessment instrument in treatment will be discussed in a later section of this chapter.

Finally, it was shown that when positive and negative expectancy were processed against each other a coherent and plausible picture of drinking decisions emerged. What was, perhaps, most striking was the similarity between dissatisfied social drinkers and treatment relapsers. For although these two groups have quite different expectancies when positive and negative are assessed separately, when a combined expectancy measure is used they are almost identical. Suggesting that, in stages of change terms, they are at the same point regarding a decision to change.

Thus, both of the main hypotheses for this thesis, that an empirically derived instrument for measuring negative expectancy should predict consumption and that negative expectancy represents motivation for change, have been supported.

Before turning to a discussion of what implications these results have for treatment, this chapter will examine the differences between the NAEQ used in this thesis and the instruments used in other studies. For it this instrument, more than any other factor, which has proved to be the difference between the results in this thesis and the equivocal results shown by other studies.

THE NAEQ COMPARED TO OTHER EXPECTANCY INSTRUMENTS

It was argued in chapter 3 that the equivocal findings in studies which have measured negative expectancy have, in part, been responsible for its neglect. Further it was argued that the failure to find a clear relationship with drinking behaviour was an artifact of the instruments employed. These arguments have gained considerable support from the results reported in this thesis which demonstrate that there is a relationship between negative expectancy (as measured by the NAEQ) and drinking behaviour. This section will examine what the differences are between the NAEQ and other instruments which may have resulted in the results of this thesis contrasting to such a large extent with other studies. In particular the NAEQ will be compared to: the AEQ-r (Brown et al 1980, revised Rohsenow 1983); the AES (Southwick et al 1981) and the EDA (Crichlow 1987; now Leigh).

The first, and most obvious, difference between the NAEQ and other expectancy instruments is the NAEQ only measures negative expectancies, however, in all studies reported in this thesis the AEQ was administered at the same time. Second, the NAEQ is an empirically derived instrument, compiled from the statements of drinkers themselves. In this it is not unique since the AEQ was compiled using a similar method, however, that instrument only measures positive expectancies. A derivative of the AEQ, the AEQ-r (Rohsenow 1983) does measure negative expectancies, however, unlike the positive items which were derived from drinkers the negative items were compiled by Rohsenow herself. The AES (Southwick et al 1981) which measures both positive and negative expectancies, was also compiled from the statements of drinkers, in this case the drinkers were 20 undergraduate students with a relatively low consumption (range 1 - 15 drinks per week). Thus, it must be asked first, just how much experience do undergraduates have of drinking and second, how representative are undergraduates of the general population ? Finally, the EDA (Critchlow 1987) states that she compiled her instrument by consulting previous research. Since there has been a dearth of research into negative expectancy and the few studies which have investigated the concept have used instruments of questionable validity, it begs the question what previous research was consulted ? Thus, of the other instruments which measure negative only one (the AES) canvassed drinkers and even for the compilation that instrument only 20 undergraduates were involved. The NAEQ on the other hand employed 188 subjects: social drinkers; problem drinkers and ex-problem drinkers.

Third, the NAEQ differs from the other negative expectancy instruments in the number of items which it measures. The AEQ-r has 5 items, the AES has 10 items and the EDA also has 10 items. The NAEQ has considerably more, that is, 60 items. However, it is not only

the number of items where the NAEQ differs from these other instruments, rather it is the range of areas of potential problems which are measured where the most marked differences lie. For whereas, all of the above instruments confine themselves to either behavioral (for example, fights) or cognitive and physical impairment items (for example, sick), the NAEQ measures a much extended range. For example, as well as behavioural and cognitive and physical impairment items which other instruments measure the NAEQ also taps expectancies of: loss of control (for example, difficulty stopping drinking); withdrawal (for example, the shakes); personal distress (for example, guilty); social problems (for example, lose friends); health (for example, damage liver).

Finally, the NAEQ is unique among expectancy instruments because it is arranged into temporal contexts represented by three sub-scales; the time of drinking (That night); the following day (Next day); long term (Continued) whereas all other instruments which measure negative expectancy confine themselves to the actual time of drinking. This innovation contributes greatly to the range of items which can be measured since many of the aversive effects of alcohol do not occur at the time of drinking but are, in fact, delayed, for example, the proverbial 'morning after feeling'.

Thus, leaving aside the fact that the NAEQ only measures negative expectancies, there are three main differences between this instrument and others which measure negative expectancy. The NAEQ employed a much larger and more diverse sample than the others in its construction and this is reflected in its structure since it measures more areas of potential problems and measures them in three temporal contexts. Hence, it is reasonable to assume these differences which have resulted in the NAEQ successfully demonstrating a relationship between negative expectancy and drinking behaviour, while other instruments have failed. This strongly suggests that alcohol expectancies must be viewed in a wider context, not confined to a narrow definition of 'pharmacological effects', whether produced by alcohol or expectancy. Indeed, in chapters 6 and 7 it was suggested that the proximal expectancies could be viewed as representing pharmacological effects while distal expectancies represent social meaning. The term 'alcohol expectancies' with its connotations of pharmacology may be a misnomer which restrict researchers, perhaps instead researchers should be thinking in terms of 'drinking expectancies' which has wider implications of the behaviour. For it was argued that some negative outcomes may not arise as a result of the quantity which the individual drinks but rather in the time spent away from his/her family. Besides, in treatment of problem drinkers, it is the drinking behaviour which is the target of change, not the effects of alcohol.

A Linear Model ?

When social drinkers are examined the relationship between negative expectancy and consumption is best described as a linear one. A similar relationship is found with problem drinkers, however there may be a discontinuity between these regression lines. When abstainers are included in the analysis an apparent anomaly appears since astainers have high negative expectancies but are not consuming alcohol. This observation is in no way inconsistent with the arguments put forward by this thesis since it suggests that although negative expectancies are learned from drinking they 1/ require to reach a criterion level to affect consumption and 2/ are not unlearned when abstinence is initiated.

IMPLICATIONS FOR TREATMENT

Two main implications will be discussed here, first the possible use of the NAEQ as an assessment tool and secondly negative alcohol expectancy as a focus for treatment intervention.

The NAEQ as an Assessment Tool for Therapists

Recent years have witnessed the increasing recognition of client motivation as an important factor in recovery from alcohol problems. Indeed, some researchers have suggested that it is probably the most important factor (Miller and Rollnick 1991, Rollnick et al 1992, Stocwell 1992). In support of these suggestions, it has been shown empirically that: motivation can account for 66% of the variance in treatment outcome while treatment itself can only account for 33% (Prochaska and DiClemente 1985); for poorly motivated clients, motivational treatments have more success than relapse prevention style treatments (Heather 1993); brief interventions are often as effective as more intensive treatments (Bien, Miller and Tonigan 1993); and that some severely dependent drinkers recover without treatment (Ludwig 1985; Tuchfield 1981). Thus, since motivation is important to outcome, it would be important for therapists to know who is motivated for recovery and who is not. For then motivated clients could be taught relapse prevention skills and poorly motivated clients could be given motivational treatment prior to relapse prevention treatment. However, for a double tier system of treatment such as this to be successful an assessment tool which can discriminate between well motivated and poorly motivated clients is required.

One approach to this problem comes from Rollnick et al (1992) who have compiled the Readiness for Change Questionnaire (RCQ). This 12 item instrument, based on the stages of change suggested by Prochaska and DiClemente (1982), categorises subjects as precon-

templators, contemplators or actioners. There are four items representing the state of mind at each stage. Typical items are: precontemplator - 'I don't think I drink too much'; contemplator - 'I am at the stage where I should think about my drinking'; actioner - 'I've just recently changed my drinking habits'.

This is basically a 'top-down' approach, as it measures the current decisional status, that is, readiness to change. However, although such an approach may inform therapists which stage of change a client is in and, hence, his/her level of motivation, it says nothing about how that decision was arrived at, that this information is important can be seen in the fact that the RCQ cannot differentiate between precontemplators and maintainers. This arises because the same items (for example 'I don't think I drink too much') can apply to both someone who is not considering change and someone who has already made changes.

A different method of assessment is the 'bottom-up' approach which is offered by negative expectancy. It was demonstrated that NAEQ measures taken from clients on admission could discriminate between relapsers after treatment and abstainers after treatment. It was further shown that if clients were allocated to groups according to their NAEQ scores (either Total or Distal) then 94.4% of the low scoring group had relapsed by three months compared with 61.1% (Total) or 55.6% (Distal) of the high scoring group. Thus, this result would suggest that the NAEQ may be a useful assessment instrument for therapists. However, before the NAEQ could be used in this way population norms would have to be established, that is, the range of scores which represent motivated clients. The issue of norms is presently being addressed in an ongoing study.

However, a 'bottom-up' method has one clear advantage over a 'top-down' method, that is the rich information that it gives. Whereas a 'top-down' method gives information on the result of a decision, a 'bottom-up' method gives information that was used in making the decision. This has two implications. First, a 'bottom-up' method can quite easily discriminate between a precontemplator and a maintainer, since the maintainer will have higher negative expectancies. Second, the information can be used in treatments designed to raise the individual's motivation to recover. This second implication will be discussed in the section which follows.

Negative Expectancy as a Focus for Treatment Intervention.

One of the main hypotheses of this thesis is that negative expectancy represents motivation for abstinence. This was supported in studies reported in chapter 6 where it was found that dissatisfied social drinkers have higher negative expectancies than satisfied social drinkers

and that non-problem abstainers also have higher negative expectancies than satisfied social drinkers. However the most compelling evidence was found in chapter 7 where it was found that abstainers after treatment had higher negative expectancies than relapsers after treatment. These findings suggest that interventions aimed at increasing the individual's negative expectancies may be a strategy for increasing the success of treatment. a conclusion which is supported by the literature.

It was shown in chapter 3 that studies of spontaneous remitters (Ludwig 1985; Tuchfield 1981) and treated problem drinkers (Amodeo and Kurtz 1990; Edwards et al 1988) have found that negative expectancy is important to a successful outcome. Indeed, Amodeo and Kurtz (1990) have actually suggested that methods of teaching clients to 'recall' negative outcomes should be incorporated into treatment as a relapse prevention skill. Findings such as these have led Miller and Rollnick (1991) to suggest that the role of the therapist is to increase motivation by raising the individual's awareness of the consequences of not changing. Echoing this, Janis and Mann (1979) suggest that a decision for change is triggered by the conflict which an individual experiences between the benefits of the current behaviour and possible future consequences if that behaviour were to continue. Thus, the primary goal of treatment must be to raise motivation by increasing negative expectancy.

However it was argued in chapter 3, and again in chapter 7, that negative outcomes may fail to translate into negative expectancies by means of cognitive biases, that is, an aversive outcome may be either attributed to something other than alcohol or may be accepted as a 'normal' occurrence. Traditionally this has been called 'denial' and was viewed as being a deeply ingrained characteristic of the 'alcoholic personality' (Clancy 1961). Faced with this problem, 'confrontation' became the recommended approach to break through the defensive barriers, that is, presenting the client with the therapist's view of his/her (client's) circumstances and the need for change (DiCicco, Unterberger and Mack 1978).

A different approach, motivational interviewing, is advocated by Miller and Rollnick (1991), who suggest that although confrontation should be the goal, it should not be the style. By this they mean that the therapist should not attempt to persuade the client, just encourage him/her to express his/her concerns regarding drinking. The therapist should then reinforce these concerns and attempt to create awareness of other problems through discussion. The NAEQ could play an important role in providing an individualised assessment for use in such techniques.

An individual's responses to the individual items from the NAEQ represent his/her assessment of the probability of that outcome occurring should s/he go for a drink. Since the

scope of the NAEQ covers behavioural, emotional, health and social problems, it provides the therapist with a useful assessment of the client's own concerns and, hence, his/her motivational infrastructure. The items on which the individual scores high are obvious candidates for reinforcement, for these will be well recognised problem areas for the client, whereas the items which have lower scores may be areas for further discussion, as less recognised problem areas. Thus, the NAEQ could be utilised as an individualised assessment tool which provides information to guide this kind of treatment.

FUTURE DIRECTIONS

Two future directions will be discussed here. First valence, that is, are positive expectancies actually desirable and negative expectancies actually undesirable? Second, drinking decisions, that is, can positive and negative expectancies be combined to represent a drinking decision ?

Valence

An assumption which is generally made by expectancy researchers, and one which has also been made in this thesis, is that positive expectancies are in fact positive (and hence desirable) and negative expectancies are in fact negative (and hence undesirable). The corollary of this assumption being that all positive items are desirable to the same extent by all drinkers and all negative items are undesirable to the same extent by all drinkers. This assumption, and possibly to a greater extent, its corollary may be fallacious.

Taking positive expectancies first, Leigh has suggested that some outcomes which may appear desirable to some subjects are seen as undesirable to others (Leigh 1989a; Leigh and Stacy 1991). Indeed, she points to her own research (Leigh 1987) where she found that, whereas 5% of her sample of female college students mentioned increased sexual activity as a positive outcome, 13% referred to it as a negative outcome; in males these percentages were reversed (14% and 6%). Habberfield (1988; Unpublished master's thesis cited in Leigh and Stacy 1991) reports that only three of the six AEQ sub-scales were rated as positive by the majority of the alcoholic sample which he studied. To illustrate this argument, the Power and aggression sub-scale (of the AEQ) contains items like "*After a few drinks I feel brave and capable of fighting*"; "*I feel powerful when I drink, as if I can really influence others to do as I want.*" and "*After a few drinks it is easier to pick a fight.*" For some these may be positive expectancies but it is reasonable to assume that for the majority these

would, in fact, be negative.

Although a superficial examination of the NAEQ suggests that the items which it contains are less contentious, nevertheless, it cannot be ruled out that, for some, these outcomes may be positive. For example, one homeless problem drinker once told the author that he was glad when he was put in jail, as he would get a bed and food. Even if the assumption is made that he is an exception and that the items of the NAEQ are, in fact, undesirable outcomes, there is still the question 'are these outcomes undesirable to the same extent for all drinkers'. The answer to that question would appear to be no, since it has been shown that heavy drinkers rate the negative effects of alcohol as more positive than light or moderate drinkers (Leigh 1987) and that heavy drinkers were more tolerant of deviance and anti-social behaviour than lighter drinkers (Cahalan and Room 1974). Thus, an outcome could be judged by a heavy drinker and a light drinker to have the same likelihood of occurrence and still have quite different motivational impact, according to the value the drinker places on it.

Hence, there are two elements to drinking mediation by expectancy, that is probability and desirability and the above argument would suggest that both elements should be measured. However, while these elements are theoretically distinct, studies which have employed both measures have not found any improvement in predicting consumption over studies which have employed expectancy alone (Goldman et al 1991; Leigh 1989a; Leigh and Stacy 1991). One reason for this finding may be that probability and desirability are inherently linked (Leigh 1989a; Leigh and Stacy 1991). Indeed, Habberfield (1988; Unpublished master's thesis cited in Leigh and Stacy 1991) has found that, for the AEQ, probability and desirability are correlated. This would seem reasonable since it can be assumed that it is easier for the subject to recall outcomes which are important to him/her (being highly desirable or highly undesirable) than outcomes which are unimportant. Thus, endorsement of items on expectancy questionnaires may already carry a subjective valuation.

There is, however, a second explanation, that is, the methodology employed. For example, Critchlow (1987) presented her subjects with a questionnaire which consisted of 20 items. For each item the subject had to endorse on a 5-point scale the probability (very unlikely - very likely) of an outcome occurring followed by another 5-point scale where they had to endorse the desirability (very good - very bad). Measured in this way, an artifactual correlation between probability and desirability could be produced. Since, if the subject bases the answer to the second part (desirability) on the answer to the first part (probability) then there has to be a correlation between these answers. It is interesting to note that in another

study she presented probability and desirability items separately, however, she does not report if there is still a correlation between them (Leigh 1987).

At present the question of improved prediction by including desirability is being investigated as one element of an ongoing study with problem drinkers at Gartnavel Royal Hospital, funded by the Alcohol and Education Research Council.

Drinking Decisions

Perhaps the most interesting result of this thesis was the finding that when positive and negative expectancies were combined, the resultant scores were consistent with the stages of change model. It was shown that satisfied social drinkers had the highest combined expectancy and abstainers had the lowest. However, the most remarkable finding was that relapsers after treatment and dissatisfied social drinkers had similar levels of combined expectancy.

That positive and negative expectancies can be combined in this way is encouraging and, perhaps, points the way forward for expectancy research towards providing a better understanding of drinking behaviour. Suggesting, as Orford (1985) has already argued, that the best way of viewing recovery from drinking problems is as a decision based on the pros and cons of drinking. Departures such as this one also go some way to answering the call by Leigh that expectancy research become more theoretical and less descriptive (Leigh 1989a; Leigh and Stacy 1991).

However, despite the success shown in this thesis, it would be surprising if combining expectancies by summing Z-scores is the only, or even the best, way of representing the cognitive processes which surround drinking decisions. Indeed, as far back as 1950s it was suggested that the mental processes implied by Subjective Expected Utility models (which is what combining positive and negative expectancies in this way represents) would exceed the processing limits of the individual (Simon 1955).

The results of this thesis suggest that, since instruments for measuring the information employed in such decisions are now available, it is now time to move to researching how this information is processed. However, although the topic of research may be different these problems have been encountered before, by researchers in other fields. Thus, to avoid reinventing the wheel, expectancy research must take advantage of the huge literature on both decision making and cognitive processing which may provide better methods of explaining such decisions.

CONCLUSION

The results of this thesis show that when an empirically derived instrument for measuring negative expectancy is employed (the NAEQ) negative expectancy predicts consumption for both social drinkers and problem drinkers. It has also demonstrated that negative expectancy can predict outcome of treatment for problem drinkers, lending support to the suggestion that negative expectancy represents motivation to abstain. Consequently, it has been suggested that the NAEQ may prove to be a useful assessment instrument for therapists both as a quantitative (level) and as qualitative (infrastructure) measure of motivation. Two areas for future research have been suggested. First, measures of desirability should be included to ascertain whether they improve prediction. Second ways of combining positive and negative expectancy, to model decision making processes, should be explored to provide a deeper understanding of drinking decisions.

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THE NEGATIVE ALCOHOL EXPECTANCY QUESTIONNAIRE

The following are a list of possible consequences which could occur during or after drinking. We would like you to estimate the likelyhood of these consequences happening to you if you went for a few drinks. Please circle the number which is nearest your estimate.

1 = highly unlikely; 2 = unlikely; 3 = possible; 4 = likely; 5 = highly likely.

IF I WENT FOR A FEW DRINKS :-

1/ I would become argumentative	1 2 3 4 5
2/ I would become aggressive	1 2 3 4 5
3/ I would become violent	1 2 3 4 5
4/ I would become anxious	1 2 3 4 5
5/ I would have an accident	1 2 3 4 5
6/ I would become depressed	1 2 3 4 5
7/ I would get drunk	1 2 3 4 5
8/ I would get in a fight	1 2 3 4 5
9/ I would have memory lapses	1 2 3 4 5
10/ I would lie about how much I had to drink	1 2 3 4 5
11/ I would end up in jail	1 2 3 4 5
12/ I would argue with my spouse	1 2 3 4 5
13/ I would have difficulty sleeping	1 2 3 4 5
14/ I would wet the bed	1 2 3 4 5
15/ I would become boastful	1 2 3 4 5
16/ I would borrow money	1 2 3 4 5
17/ I would consider taking other drugs	1 2 3 4 5
18/ I would take other drugs	1 2 3 4 5
19/ I would lose my driving licence	1 2 3 4 5
20/ I would drink more than the others in my company	1 2 3 4 5
21/ I would have difficulty in stopping drinking	1 2 3 4 5

The following are a list of possible consequences which could occur during or after drinking. We would like you to estimate the likelyhood of these consequences happening to you if you went for a few drinks. Please circle the number which is nearest your estimate.

1 = highly unlikely; 2 = unlikely; 3 = possible; 4 = likely; 5 = highly likely.

IF I WENT FOR A FEW DRINKS THEN THE NEXT DAY :-

22/ I would miss work	1 2 3 4 5
23/ I would have 'the shakes'	1 2 3 4 5
24/ I would have 'the sweats'	1 2 3 4 5
25/ I would have a hangover	1 2 3 4 5
26/ I would feel depressed	1 2 3 4 5
27/ I would have low self-esteem	1 2 3 4 5
28/ I would crave a drink	1 2 3 4 5
29/ I would have difficulty sleeping	1 2 3 4 5
30/ I would feel generally ill	1 2 3 4 5
31/ I would feel frightened	1 2 3 4 5
32/ I would feel guilty	1 2 3 4 5
33/ I would feel remorseful	1 2 3 4 5
34/ I would feel anxious	1 2 3 4 5
35/ I would be shy of meeting people	1 2 3 4 5
36/ I would feel restless	1 2 3 4 5
37/ I wouldbe sick	1 2 3 4 5
38/ I would be unable to eat	1 2 3 4 5
39/ I would go on a binge	1 2 3 4 5

The following are a list of possible consequences which could occur during or after drinking. We would like you to estimate the likelyhood of these consequences happening to you if you went for a few drinks. Please circle the number which is nearest your estimate.

1 = highly unlikely; 2 = unlikely; 3 = possible; 4 = likely; 5 = highly likely.

IF I CONTINUED TO DRINK AT MY PRESENT LEVEL :-

40/ I would lose my wife/ husband	1 2 3 4 5
41/ I would lose my house	1 2 3 4 5
42/ I would lose my job	1 2 3 4 5
43/ I would havethe DTs	1 2 3 4 5
44/ I would have convulsions	1 2 3 4 5
45/ I would lose my friends	1 2 3 4 5
46/ I would get into debt	1 2 3 4 5
47/ I would end up in hospital	1 2 3 4 5
48/ I would end up sleeping rough	1 2 3 4 5
49/ I would consider suicide	1 2 3 4 5
50/ I would attempt suicide	1 2 3 4 5
51/ I would feel frightened	1 2 3 4 5
52/ I would feel depressed	1 2 3 4 5
53/ I would feel self-loathing	1 2 3 4 5
54/ I would feel self pity	1 2 3 4 5
55/ I would lose all respect for myself	1 2 3 4 5
56/ I would end up in jail	1 2 3 4 5
57/ I would damage my liver	1 2 3 4 5
58/ I would feel I was going mad	1 2 3 4 5
59/ I would choke on my own vomit	1 2 3 4 5
60/ I would die	1 2 3 4 5