

**COGNITIVE-BEHAVIOURAL
APPROACHES TO THE TREATMENT
OF DRUG AND ALCOHOL PROBLEMS**

Monograph No. 7

Edited by Brin Grenyer & Nadia Solowij



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**Cognitive-Behavioural Approaches to the
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Alcohol Problems**

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The National Drug and Alcohol Research Centre was established as a Centre of Excellence at the University of New South Wales in May, 1986, and officially opened in November, 1987. It is funded by the Commonwealth Government as part of the National Campaign Against Drug Abuse which arose from the Drug Summit of April, 1985. The Centre is multidisciplinary and collaborates with medicine, psychology and social science schools of the University and with other institutions and individuals in Australia and overseas.

Each year NDARC organises a national symposium on a relevant topic in the drug and alcohol area. National and international keynote speakers are invited to share their clinical and research experience. The aims are to explore developing models and theories in the treatment of addictive disorders. The theme in 1988 was "Cognitive-Behavioural Approaches to the Treatment of Drug and Alcohol Problems". In addition to the symposium, training workshops were held on the following day. These were as follows : Relapse Prevention (Steven Allsop), Motivational Interviewing (Bill Saunders), and Social Skills/Cognitive Restructuring (Tian Oei).

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Introduction

Alcohol and drug abuse are among the most prevalent and costly social and health problems in society. In any cultural context, there is great diversity in the reasons for drug taking behaviour, the types of drugs used, levels of consumption, and the ages and social positions of drug users. Concomitantly, a wide variety of models exist in the research and treatment domain which attempt to explain the problems of drug use and dependence. Different models stress to different degrees the causative influence of such factors as psychopathology, social deviance, maladaptive functioning, moral deficits, inherited predispositions and social learning. A clinician's approach to treatment is determined by the particular model adopted.

The cognitive-behavioural approach to the treatment of drug and alcohol problems is based on social learning theory. The basic premiss is that problem drug use is largely a learned behaviour that therefore is modifiable in principle. Behavioural change involves changes in cognitions - beliefs, expectations, self-concept, the appraisal of others' actions and of one's own behaviour. The general emphasis of the cognitive-behavioural approach is to modify the problem behaviour through reinforced practice. For example, the problem drinker is taught how to monitor his or her drinking rate and quantity in the effort to cut down. Similarly, the heroin user is taught social skills and alternative strategies to drug use so that they will have more confidence and ability to avoid the social pressure to use heroin.

The cognitive-behavioural approach to the treatment of drug and alcohol problems was the theme of a symposium organised by the National Drug and Alcohol Research Centre, held at the University of New South Wales on Friday, 16th December, 1988. The following collection of research papers presented at the symposium focus on certain key features of this approach to treating the addictive disorders.

This volume commences with an overview of the cognitive-behavioural approach, presented by Lee and Holt from the University of Newcastle. They critically trace the origins of the theory by examining the attempted combination of behaviour therapy with cognitive therapy, but note that the amalgamation is not wholly successful. For example, many clinicians use selected features from the two theories without maintaining a coherent underlying strategy. Nevertheless, in the next paper, Oei, Lim and Young report sound evidence for the applicability of the cognitive-behavioural approach to clinical practice. They also find, however, that there is somewhat of a mismatch between the underlying theories of cognitive change and cognitive-behavioural treatment as currently practiced in the alcohol field.

One cornerstone of the social learning approach is the concept of "self-efficacy", developed by Bandura. Self-efficacy refers to a person's beliefs about their ability to perform tasks and achieve goals. Sitharthan reviews the concept and finds it to be applicable to the treatment of drug dependence. In particular, he examines how a

person's beliefs about their ability to cease problem drug use can influence the outcome of the attempt to quit. In relation to another variable of self-efficacy, outcome expectancy, Young and Oei find that, at present, there are very few studies in the drug and alcohol research literature demonstrating to what extent expectancies affect the treatment process. They therefore call for research in this important area of social learning theory.

"Self-help" has always been an important part of the cognitive-behavioural approach. In fact, self-help may be the essential ingredient in all successful interventions. So called "minimal" or "brief" interventions, involving materials such as self-help manuals which give structured advice, have been shown to be effective in the areas of smoking cessation and problem drinking. Barber from La Trobe University has pioneered the use of the computer in the self-help process. He presents a new minimal intervention treatment for abstinent heroin addicts in prison, which aims to provide them with skills to assist in avoiding relapsing to heroin use upon release.

Mark Twain is alleged to have said: "Quitting smoking is easy - I've done it hundreds of times". Certainly, helping people to change their problem behaviours is only part of the task of treatment (arguably the easy part), with the other part, getting them to maintain that change, being particularly difficult. Indeed, finding quality techniques for the prevention of relapse is the crucial area for improving treatment outcome. The most influential theory and technique of relapse prevention in the 1980s is that of Marlatt and his colleagues. This model focuses on the development in the drug user of new adaptive behaviours and skills to assist them to cope successfully with high-risk relapse situations without falling back into old patterns of drug usage. Saunders and Allsop from Western Australia have developed an important and influential critique of Marlatt's model. They

widen Marlatt's theory to encompass any instance of resolution making (such as the resolution to exercise or save money), and look at the implications of the theory from this perspective. They stress that what is important is the initial strength of the resolution to change and the time that is spent making sure that the change is maintained. Provocatively, they ponder whether intervention needs to be not only at the level of the individual, but also at the society which promotes and makes widely available substances like beer and tobacco.

Hart and Over find that the Marlatt model of relapse does not fully predict differences in relapse-related processes between current and former heavy drinkers. For example, they report that frequency of relapse was not associated with alcohol-related expectancies. However, Allsop and Saunders, using relapse prevention techniques on heavy drinkers, did find that the treatment group reported higher self-efficacy and significantly longer periods of abstinence than either a discussion group or a control group. The reason for the differing results between the two studies may lie in the fact that Hart and Over did not use a relapse prevention treatment per se, but obtained retrospective self-report data from drinkers. As a consequence, it would be a mistake to see their study as a test of relapse prevention treatment; rather, it is a test of some of the predictions that can be made from Marlatt's theoretical model.

An account of one of the newest areas of relapse prevention, the approach known as "cue exposure", concludes this volume. The theory is based on the hypothesis that the crucial factor in relapse is the compulsive element in drug dependence, the notoriously strong craving responses that abstinent users experience in the presence of their abused substance or the circumstances surrounding previous use. Heather and Greeley give an overview of the cue exposure model, and present some results suggesting that

substance cues are a neglected part of the Marlatt model and may be an important contributor to most relapse episodes. The treatment implicated from cue exposure studies involves exposing the client to cues that elicit craving while preventing the client from consuming the drug. Over repeated occasions, it is hypothesized that the craving response will diminish, thus lowering the risk of relapse due to craving. It remains to be seen whether this hypothesis is substantiated by clinically relevant research.

The following contributions extend and enhance our understanding of drug and alcohol problems and their treatment. There is good reason to believe that the cognitive-behavioural approach offers the most realisable prospects for improving the treatment of addictive behaviours. The approach is firmly grounded upon a strong base of theoretical principles regarding the nature of human behaviour and addiction, and is supported by a growing body of empirical research.

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Conceptual Foundations of the Cognitive-Behavioural Approach

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That cognitions play an important role in the mediation of both behaviour and emotion has generally been assumed by traditional psychotherapists. However, it has not been until relatively recently that a systematic approach to the cognitive processes involved in thoughts, feelings and behaviour has been proposed in theoretical and treatment terms. A major consequence of this development in the theory and treatment of psychopathology has been the formation of the cognitive behavioural approach to emotional disorders and maladaptive behaviours.

The object of cognitive behavioural therapy (CBT) is to assist persons in overcoming emotional and behavioural problems by changing their mental images and thought patterns. Proponents of this approach make the enthusiastic claim that CBT is a distinct and superior therapeutic approach to the management and treatment of emotional dysfunction (Schwartz, 1982). Critics of CBT, on the other hand, point to inconsistencies in theory and practice (Beidel & Turner, 1986;

Eschenroeder, 1982; Latimer & Sweet, 1984; Skinner, 1987).

Development of CBT

Cognitive behaviour therapy is a relatively recent approach to the modification of emotional disorders. As such, CBT consists of diverse therapeutic procedures which may be traced to two independent clinical orientations: behaviour therapy and cognitive therapy. The independence of these orientations can be seen in their different approach to theory and practice.

Behaviour therapy, as a clinical approach to the modification of pathological behaviours, concentrates on the overt "here and now" behaviours. Three fundamental assumptions that are central to this approach are: that pathological behaviour is learned from past experiences; that the cause of pathological behaviour lies in some aspect of the environment; and that, on manipulation of the relevant environmental variables, the individual will unlearn pathological behaviour (Nelson & Hayes, 1983). The theoretical rationale underlying this orientation is that of general learning theory, encompassing classical conditioning, operant conditioning, and observational learning

(Craighead, Kazdin, & Mahoney, 1976). Cognitive therapy, by contrast, focuses on the primacy of cognitions over emotion and behaviours. Proponents of cognitive therapy believe that cognitions instigate behaviours and trigger emotions and that the principal concern of therapy should be the alteration of dysfunctional thoughts, assumptions and beliefs (Ellis, 1962).

Because of the independent theoretical bases and practical development of the behavioural and cognitive orientations, they use characteristically different treatment strategies (Kazdin, 1978; Kendall & Hollon, 1979). In effect, CBT combines selected treatment strategies from both therapeutic traditions in an eclectic manner, to produce what proponents claim to be a superior clinical approach to the modification of behaviour problems (Schwartz, 1982).

A brief examination of the three foremost proponents of CBT illustrates this combination of treatment strategies. Ellis's Rational Emotive Therapy (Ellis, 1962) uses such cognitive methods as cognitive coping strategies, cognitive distraction, imagery, cognitive modeling, and suggestion. The behavioural strategies include operant conditioning, in vivo desensitization, and skills training. Similarly, Meichenbaum's (1977) self-instructional training and Beck's (1976) cognitive therapy of depression employ cognitive strategies, including various cognitive modeling and verbal techniques, but they also involve behavioural procedures such as role playing, activity schedules and graded tasks. Beck (1970) has described his therapeutic model as being derived from cognitive theory, not behavioural theory. However, he notes that there are overlaps in practice despite the incompatible theoretical bases. While there is an amalgamation of selected treatment procedures, it is important to note that this process does not represent amalgamation of the underlying theoretical

frameworks of the two separate clinical orientations. Rather, therapists use one or the other orientation as they feel it to be appropriate.

Theoretical Framework of CBT

Is there, then, any coherent theoretical basis to CBT? While there are differences among the treatment procedures used by CBT proponents, which can be traced to independent therapeutic traditions, the theoretical basis of CBT cannot be described in such a simple way. The present state of CBT theory can not be viewed as an amalgamation of two theoretical traditions, and it is questionable whether it represents an independent theoretical development. Two dominant features are clear. The first is that there are several theoretical assumptions shared by all proponents. The second is that there are noticeable differences in theoretical emphasis, and in fact there has been considerable disagreement.

The first theoretical assumption common to all CBT theorists is the notion that emotional or behavioural disturbances are largely caused by thinking illogically or irrationally. According to this assumption, irrational ideas, rather than frustrating circumstances or unfortunate happenings, are the major causes of emotional disturbance. Therefore it is distorted, irrational or maladaptive cognitions which are central to all types of CBT approaches to emotional and behavioural dysfunction.

Another assumption common to all types of CBT approaches, which arises logically from the first, is that emotional and behavioural disorders are effectively treated by intervention strategies which aim to restructure, reshape, or adapt faulty cognitions (Rush, Beck, Kovacs, & Hollon, 1977). Any subsequent improvement in an emotional disorder is attributed directly to the effect of cognitive realignment.

As far as emotions are concerned, CBT theorists commonly hold that they serve an appraisal function in human behaviour. This notion maintains that negative emotions are counterproductive and constitute interference with goal-directed behaviour. They are argued as arising from inappropriate cognition; alter the way a person thinks about a situation, and the negative emotion is removed (Beck, 1976; Ellis, 1962).

The final theoretical assumption shared by all CBT models is centered around their definition of cognitions and emotions. Within the CBT framework, the two are viewed as separate mental processes, and the view is taken that emotions occur subsequently to cognitions and as a consequence of them (Meichenbaum, 1977).

Challenges to the Theoretical Bases of CBT

A review of empirical evidence demonstrates that research findings call into question aspects of the theoretical framework and the therapeutic efficacy of CBT. This paper examines only those empirical findings and arguments which bear directly on the theoretical aspects of CBT.

A number of studies provide evidence which challenges the assumption that illogical or irrational thought processes are indeed the causal basis of emotional and psychological disturbances (Alloy & Abramson, 1979; Coyne, 1982; Kuiper & MacDonald, 1982). For example, the findings of Alloy and Abramson (1979) indicated that (a) it was not only depressed people who distorted information but normal people as well, and (b) depressed people were relatively realistic while normal people saw things with a positive distortion.

Numerous other investigations (e.g., Kuiper & MacDonald, 1982; Layne, 1983; Lewinsohn,

Mischel, Chaplin, & Barton, 1980; Martin, Abramson, & Alloy, 1984; Vestre & Caulfield, 1986) have confirmed the notion that normal people as well as abnormal people habitually exhibit illogical or biased cognitions, and in some instances the non-depressed will show greater degrees of distortion. On the other hand, Benassi and Mahler (1985) have shown that mildly depressed students will react in the same irrational ways as normal students in some circumstances but not in others. Tversky and Kahneman (e.g., Tversky & Kahneman, 1981) argue that some kinds of irrational decision making are inevitable results of the decision making heuristics adopted by normal individuals.

What these studies have demonstrated, then, is that irrational or illogical thought processes are not an exclusive, or even a necessary, characteristic of psychopathology. Rather, under certain conditions, both normal and abnormal individuals may exhibit such cognitions. Irrational cognitions may possibly be functional under certain conditions. They cannot, logically, be seen as the cause of abnormal or disturbed behaviour. Abramson and Alloy (1981) have pointed out that there is a logical and functional need to distinguish between erroneous, irrational, and maladaptive cognitions, and that if one is to take the view that cognitions play some causal role in behaviour, then a somewhat more sophisticated analysis of thought content is needed.

The second theoretical assumption to be challenged by recent empirical evidence is the position that any successful treatment of emotional disorders must be the direct result of cognitive realignment. However, evidence on the actual effectiveness of cognitive-behavioural treatments does not support this concept. DiGiuseppe, Miller, and Trexler (1977) reviewed studies using rational emotive therapy and concluded that RET was no better than convincing placebos; Miller and Berman (1983) reached a similar conclusion on the basis of a review of

general CBT interventions. Similarly, Emmelkamp, Kuiper, and Eggeraact (1978) showed that cognitive restructuring techniques were no more successful than in vivo behavioural methods, and Michelson, Mavissakalian, and Marchione (1985) found them to be less successful. Although other reviews (e.g., Rush et al., 1977) have concluded that cognitive therapies are effective, the evidence is sufficiently mixed that one cannot conclude that some specific and readily identifiable aspect of cognitive-behavioural therapy is the effective mechanism for change. There must be many factors associated with the effectiveness of cognitive interventions, the mechanisms of which are not understood. Consequently, the validity of the assumption that cognitive restructuring is the mechanism responsible for any improvement in emotional dysfunction is open to question (Latimer & Sweet, 1984).

A third central underlying CBT is concerned with the nature and definition of cognition. CBT theorists maintain that the relevant cognitions central to therapeutic intervention are those thoughts which are accessible to conscious awareness and able to be reported verbally to a therapist. The problem with this position is the implied assumption that inaccessible cognitions, should they exist, have no behavioural outcome. This point of view has been strenuously rejected by Mandler (1975), who argues that inaccessible cognitions do exist and can be shown to influence behaviour. Evidence from social psychology (e.g., Nisbett & Wilson, 1977) suggests that in at least some situations, individuals are unaware of the cognitive processes involved in making behavioural choices, and are unable to recognize or describe stimuli which have caused them to alter their behaviour. Such arguments directly undermine the supposition that conscious thoughts are what cause dysfunctional behaviours.

It has also been argued that theories which rely

on unobservables such as cognitions, particularly those which rely on the actions of inaccessible cognitions, are less than scientific (Lee, 1987; Skinner, 1977, 1987). In such models, there is no independent means of measuring the central variables, such as cognitions and schemata, other than by reference to the behaviours and statements which they are argued to cause; in other words, such theories suffer from circular logic and are thus unfalsifiable. Although non scientific theories can be applied and may provide positive outcomes, there is no way of assessing how these outcomes occur, and thus such theories cannot be refined and developed.

The fourth and final assumption to be considered is that of the relationship between cognition and emotion. It is assumed by all cognitive-behavioural theorists that emotions are caused by cognitive events, interacting in some complex but unspecified way with physiological states and environmental conditions. Therefore, it is argued, changing the cognition is the most effective method of changing the emotion.

This assumption has been the subject of considerable criticism in recent years. Zajonc (1980) presented evidence from a range of specialties within psychology to suggest that emotional reactions may well occur prior to cognitions concerning the same stimulus. More recently, several authors have suggested that cognitions and emotions are not separate mental events, but different dimensions of the same phenomenon (Greenberg & Safran, 1984; Lee, 1987; Zajonc & Markus, 1984). While such a point of view is beginning to gain adherents, and there is considerable empirical evidence to support it, cognitive behavioural theories have not attempted to address the questions it raises about the fundamental assumptions which form their basis.

Problems in the application of CBT theory.

While the empirical evidence seems to challenge the theoretical rationale of CBT, there is also the problem of the mismatch between CBT's theoretical basis and its therapeutic regimes. The consequence of this mismatch is that CBT methods do not strictly follow CBT theory. For example, in the case of Ellis' (1962) RET approach, the theoretical position argues that emotional disorders are caused and maintained by irrational and illogical cognitions. However, the treatment methods of this approach use cognitive restructuring techniques in conjunction with operant conditioning methods, in which a "rational" response is rewarded, and an "irrational" response subjected to aversive penalties. Similarly for the Meichenbaum (1977) and Beck (1967) approaches, the change of cognitions is achieved by behavioural methods such as role playing and in vivo hierarchies. The employment of behavioural strategies such as these cannot be seen as developing from their respective theoretical frameworks. Although one could argue that behavioural methods may be effective techniques for altering faulty cognitions, such an argument is not part of the theoretical basis of CBT. Such a dilemma has an important bearing on the future development of CBT.

The issue of theory development is one which has important practical implications. In behavioural science, the nature of a theory is twofold: firstly, to provide an explanatory framework by which to account for human behaviour, and secondly, to use this framework for the design of treatment strategies. However, it cannot be said that the development of CBT theory and practice has followed this pattern of development. It appears that in the early stages of CBT development, treatment strategies were taken and used by clinicians for their effectiveness

without concern for their theoretical heritage (Latimer & Sweet, 1984). It seems that it was only after the CBT movement had gathered momentum that any critical evaluation of its theoretical basis commenced.

Because of this, the theoretical basis is confused, self-contradictory and non-scientific. What this means is that therapeutic advances based on refinements of the theory and a clearer understanding of the relevant variables will not occur. In the long run, the theory cannot develop and it is likely that therapeutic techniques will be superseded by others with a stronger conceptual foundation.

Conclusion

This paper has examined the theoretical and empirical basis underlying the cognitive-behavioural approach to behavioural problems. A relatively new approach, CBT is considered by its proponents to be a superior method of treating emotional disorders. However, recent research challenges the major assumptions underlying CBT. Arising out of this problem are two chief concerns with the status of CBT theory and practice.

The first concern focuses on the issue of theoretical structure. Not only does CBT represent a broad, loose theoretical framework, but its applications are best seen as an amalgamation of selected treatment strategies drawn from the two independent traditions of behavioural and cognitive therapy. Furthermore, the way in which CBT has evolved historically has produced a mismatch between theory and practice, where theory building occurred after the selection of treatment strategies. The other chief concern focuses on the therapeutic efficacy of CBT, by comparison with other forms of therapy. The definitions of behavioural, cognitive, and cognitive-behavioural components of treatment

are open to debate, and the effectiveness of treatment outcomes from these different components cannot be assessed. How these important issues are resolved will have an important bearing on the development of CBT theory and the therapeutic techniques which are derived from it.

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The Efficacy of Cognitive-Behaviour Therapy in the Treatment of Problem Drinking

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Cognitive-behaviour therapy (CBT) is a generic term which refers to a number of therapeutic approaches that employ both cognitive and behavioural techniques as the primary focus for modifying human dysfunction (Beck, 1970; Meichenbaum, 1977). The development of CBT represents a marriage between behavioural methodology and the growing recognition for the role of cognition in human functioning (Kendall & Hollon, 1979). The basic tenet of CBT proposes that cognitions are the most important, if not the causative agents of psychological dysfunction. Consequently, therapy should involve the utilization of cognitive techniques to produce psychological change (Mahoney, 1977; Hoffman, 1984; Beidel & Turner, 1986).

The widespread popularity of CBT has seen its application for the treatment of a number of disorders including depression (Taylor & Marshall, 1977; Zeiss, Lewinsohn & Munoz, 1979), phobias (Biran & Wilson, 1981; Emmelkamp & Mersch, 1982), unassertive

behaviour (Craighead, 1979; Jacobs & Cochran, 1982) and alcohol addiction (Sanchez-Craig, 1980; Wood, O'Brien, McLellan & Mintz, 1981). While a number of reviews have examined the efficacy of CBT on depression (Free & Oei, in press) and anxiety disorders (Dush, Hurt & Schroeder, 1983; Miller & Berman, 1983; Latimer & Sweet, 1984) there are no extensive reviews of the relevance of CBT for addictive behaviours. To this end, the present review will examine if CBT represents an efficacious intervention for alcohol dependence. Furthermore, it has often been assumed that the efficacy of cognitive-behaviour therapy supports cognitive models of psychopathology. This assumption has been argued to be invalid (Oei, Duckham and Free, in press). There is as yet no evidence to support such an assumption in the alcohol literature. The second aim of this paper, therefore, is to examine if CBT supports cognitive models of addiction. If it does then the following can be predicted :

(1) the successful use of CBT for treating alcoholism, as measured by a decline in the relevant symptomatology and alcohol intake; and

(2) an accompanying decline in those cognitions specified by the particular cognitive model as the causative factors for that addiction.

Following Dush and co-workers (1983) and Miller and Berman criteria (1983), studies employing CBT were identified according to:

(1) whether there was a focus on the patient's maladaptive beliefs in at least one component of the therapeutic intervention;

(2) the use of CBT must have been compared with at least one other non-CBT treatment group; and

(3) the CBT had to be applied to subjects with alcohol addiction.

A computer search of the literature on CBT and alcohol dependency was conducted to identify the relevant papers that have researched this area for the past decade. As only 13 papers were identified which fulfilled the above criteria there was an insufficient sample to conduct a meta-analysis.

Cognitive Models of Alcohol Addiction

In the past 30 years, studies on alcoholism typically followed a biomedical model until the cognitive revolution of the 1970s. Since then, cognitions have been considered in a number of models of alcohol dependence (Wilson, 1987a, 1987b). Two broad models of particular interest are cognitive models based on Tension Reduction Theory (TRT), and the more recent expectancies perspective on alcoholism.

Tension Reduction Theory. TRT represents one of the more persistent models of addiction and has featured particularly in alcohol studies (Conger, 1956; Cappell, 1975; Cappell & Greeley, 1987; Young, Oei & Knight, 1988a and 1988b). While the basic tenet of TRT proposes

that alcohol dependence is initially motivated by the need to reduce tension, cognitively based models of TRT have included cognitions as a mediating factor in tension reduction (Marlatt, 1984; Bandura, 1986; Berglas, 1987; Wilson, 1987a, 1987b; Young, Oei & Knight, 1988a and 1988b). For example, Bandura's (1986) cognitive-social learning theory argues that self-efficacy represents an important co-effect of tension reduction. That is, the stress reducing effects of drinking are sought after because they protect perceived efficacy from being undermined (Marlatt, 1984; Yankofsky, Wilson, Adler, Hay & Vrana, 1986). Hence the addict is believed to have learned a contingency relationship in expecting alcohol to have an effect on diminishing personal distress and physiological arousal (Sher & Levenson, 1982). Similarly, Hull's (1981) self-awareness model suggests that tension reduction is achieved through a decrease in the individual's level of self-awareness. On the other hand, Steele and Josephs (1988) propose that tension-reduction is induced through the impairment of information processing capacity.

However, recent studies suggest that alcohol consumption does not always result in tension-reduction (Wilson, 1988; Young et al, 1988a and 1988b). Lagenbucher's (1985) study showed that the pleasant effects of alcohol may be induced only when the drinker is not stressed. Even more convincing is Nisbett and Ross's (1980) argument that the occasional tension reducing effects of alcohol may produce a particularly striking impression in the reinforcement of drinking behaviour due to TR being on an intermittent schedule of reinforcement. Hence it is argued that alcohol dependence results from the learned expectation that stress reduction may ensue, rather than from its actual physiological effects. It is based on this argument that expectation theories of alcohol use have developed.

Expectation Theory. Recently, expectation theories of alcoholism have proposed that it is the

anticipated consequences of alcohol use which differentiate between levels of consumption across individuals (Brown et al, 1980; Maisto, Connors, & Sachs, 1981; McCarthy, Morrison & Mills, 1983; Oei & Jones, 1986). For example, Rohsenow (1983) found that light drinkers expect other people to derive more pleasure from drinking than themselves, and thus they consume little alcohol. Experiments using balanced placebo designs have also shown that alcohol consumption can, for some alcohol effects, be primarily determined by subjects' expectations (Marlatt, Demming & Reid, 1973; Marlatt & Rohsenow, 1980).

Furthermore, a number of studies have found that alcohol related expectations are better predictors of drinking behaviour than demographic variables (Christiansen & Goldman, 1983; Brown, 1985; Goldman, Brown and Christiansen, 1987). In particular, Oei and his colleagues (Oei & Mewett, 1987; Oei & Young, 1987; Oei & Pacey, 1988) showed that alcohol consumption is positively correlated with the extent to which subjects' self-statements are alcohol dependent. The relevance of expectancies to addiction in general has also been supported in research on smoking behaviour and drug addiction (Condiotte & Lichtenstein, 1981; Di Clemente, 1981; Gossop, Eiser & Ward, 1982).

Hence, there is growing evidence for the role of cognitive mediational factors in alcohol consumption (Blane & Leonard, 1987; Young & Oei, 1989). Specifically, cognitions have been implicated in relation to people's expectations of alcohol use. In turn, there is evidence emerging to support cognitive models of TRT using expectancies as the underlying construct. If true, then CBT-based treatments of alcoholism do not only have to show that such interventions are successful. Evidence has also to be presented to show a change in subject's cognitions related to their expectancies about alcohol consumption, as a result of CBT.

CBT and Problem Drinking

Using the inclusion criteria stipulated earlier, only 13 empirical studies of CBT and problem drinkers were located in the literature. Of these, 6 studies employed social skills training (SST), three used cognitive restructuring (CR), one utilized stress management therapy (SMT), and three examined both SST and CR. Table 1 summarises these studies. Two studies of interest that have not been included in the present review involved the use of CBT in comparing controlled versus abstinent drinking programmes (Sanchez-Craig, 1980; Sanchez-Craig, Annis, Bornet & MacDonald, 1984). These studies were excluded because the experimental conditions did not consider any non-CBT interventions, thereby failing the inclusion criteria for the present review. However, these studies indicate that CBT is an effective treatment. For studies included in the present survey, the control group either involved a no treatment condition (placebo), traditional supportive therapy (TST) or a discussion group.

Social Skills Training

Treatment using SST as a cognitive-behavioural approach appears to have mixed results on alcohol consumption (see Table 1). In particular, three of the seven papers examined (Greenwald et al., 1980; Jones, Kanfer & Lanyon, 1982; Foy, Nunn & Rychtarik, 1984) did not show SST to be superior to a discussion group or to no treatment. The Greenwald et al (1980) study attempted to compare outcome between alcohol refusal training and training for interpersonal situations. Although there was a general improvement in social skills by the SST groups, the absence of a measure of alcohol intake makes it impossible to relate this finding to the efficacy of CBT for problem drinking.

Of the 4 successful demonstrations of SST

Table 1
Summary of CBT Studies on Problem Drinking

Study	Sample	Treatment Groups	Dependent Measures	Follow-Up	Outcome & Comment
Chaney, O'Leary & Marlatt (1978)	40 male alcoholics	1. SST 2. Discussion 3. Placebo	1. SCT 2. Standardised follow-up	1, 3, 6 & 12 months	SST differed from other groups after 1 year; SST less prone to relapse to problematic drinking; SST had better scores than other groups at post-test.
Intagliata (1978)	62 male alcoholics	1. CR 2. Placebo	1. MEPS 2. Zeigler Phillips 3. Structured interview	1 month	CR better on MEPS measure; no differences at follow-up; no measure of alcohol intake.
Jackson & Oei (1978)	6 female & 18 male inpatient alcoholics	1. SST 2. CR 3. TST	1. Structured interview 2. Nurses ratings 3. Self-reports 4. Alcohol intake	3 months	SST & CR superior to TST on all measures at post-test and after 3 months; SST superior to CR at post-test; CR superior to SST at 3 months.
Abrahms (1979)	14 methadone maintenance	1. CR + SST 2. Discussion	1. Self-reports 2. Urinalysis	4 months	CR + SST produced lower anxiety levels, depression and non-assertion; less opiates consumed for CR + SST.
Greenwald et al (1980)	40 inpatient male alcoholics	1. SST (alcohol refusal) 2. SST (interpers) 3. Placebo	1. Role-play test		No differences between groups at post-test; no measure of alcohol intake.

Table 1
Summary of CBT Studies on Problem Drinking

Study	Sample	Treatment Groups	Dependent Measures	Follow-Up	Outcome & Comment
Oei & Jackson (1980)	8 female & 24 male alcoholics	1. Group SST 2. Indvl. SST 3. Group TST 4. Indvl. TST	1. Behavioral interview 2. Nurses ratings 3. Self-reports 4. Alcohol intake	3, 6 & 12 months	SST produced larger improvement in skill and drinking; group SST more effective than individual SST.
Woody et al (1981)	110 male opiate addicts (methadone maintenance)	1. DC 2. DC + CR 3. DC + ST	1. BDI 2. SCL-90 3. Psychotropic medication	6 & 12 months	Psychotherapy produced lower BDI scores; psychotherapy groups received less medication.
Lim et al (1982)	133 male & female hospitalized alcoholics & drug addicts	1. SST 2. Control	1. Adult self-expression scale	None	SST better than control.
Jones, Kanfer & Lanyon (1982F)	68 alcoholics	1. SST 2. Discussion 3. Placebo	1. Alcohol use 2. Adaptive skills battery 3. Follow-up questionnaire	12 months	SST & discussion better than placebo on alcohol intake at follow-up.
Oei & Jackson (1982)	24 male & 8 female alcoholics	1. SST 2. CR 3. CR + SST 4. TST	1. Behavioral interview 2. Nurses ratings 3. Alcohol intake behavioural assertion	3, 6, & 12 months	CR & CR + SST produced better skills and reduced alcohol intake; TST had no change.

Table 1
 Summary of CBT Studies on Problem Drinking

Study	Sample	Treatment Groups	Dependent Measures	Follow-Up	Outcome & Comment
Foy, Munn & Rychtarik (1984)	62 male inpatient alcoholics	1. Controlled drinking skills 2. Placebo	1. Daily drink status 2. Skills acquisition	6, 7-12 months & 5-6 years	Treatment showed fewer abstinent and more abusive drinking days at 6 months; no differences at 7-12 months and 5-6 years.
Oei & Jackson (1984)	14 male & 4 female inpatient alcoholics	1. CR 2. Discussion	1. Videotaped performance 2. Behavioral interview 3. Alcohol intake 4. Self-reports	3 & 6 months	CR produced greater improvements on all measures; gains for CR due to increase in positive self-statements and reduced negative self-statements.
Rohsenow, Smith & Johnson (1985)	40 male problem drinkers	1. SMT 2. Placebo	1. Alcohol intake 2. STAI 3. Mood ratings	4 weeks, 2½ & 5½ months	SMT produced lowered anxiety up to 4 weeks follow-up and reduced alcohol intake up to 2½ months; placebo had no change in drinking rate.

(Chaney, O'Leary & Marlatt, 1978; Lim et al, 1982; Oei & Jackson, 1980, 1982), none attempted to measure if any cognitive change resulted from treatment. Instead, reliance appears to be placed on the evidence that improvement in social skills took place concurrently with a decrease in alcohol consumption (see Table 1). However, the improvement in social skills may be due purely to practice rather than any cognitive mediation on alcohol intake behaviour. Furthermore, the failure of Jones et al (1982) to replicate the findings of Chaney et al (1978) challenges the validity of the SST approach as an effective CBT intervention for problem drinking. Hence, the use of SST as a form of CBT is not considered to support the cognitive models of problem drinking.

Cognitive Restructuring

The earliest experiment found on using CR to treat alcoholism was traced to Jackson and Oei (1978) and Intagliata (1978) who compared problem solving as an intervention to no treatment (see Table 1). A means-end problem-solving (MEPs) procedure was used to assess problem-solving skills at post-treatment. As in the case of Greenwald et al (1980), the absence of an alcohol intake measure in this study makes it difficult to relate the finding of improved problem-solving skills to problem drinking.

Finally the efficacy of CR was examined in 110 male opiate addicts. This study compared treatments that (1) used drug counselling (DC) alone, (2) used drug counselling and CR (DC+CR), and (3) used drug counselling and supportive-expressive therapy (CD+ST), opiate addicts who were simultaneously on a methadone maintenance programme (Woody et al, 1981). The results showed that subjects in psychotherapy conditions were inclined to use fewer drugs and reported fewer psychiatric symptoms. Hence, unlike Intagliata's (1978) problem drinking study, Woody et al (1981) attempted to relate outcome

on a specific cognitive-behavioural approach to drug intake. However, while these results support the use of psychotherapy in the treatment of opiate addiction, they do not provide differential evidence on the relative efficacy of each therapeutic approach. There was also no attempt to measure cognitions in the Woody et al (1981) study.

Oei and Jackson (1984) examined CR using 18 inpatient problem drinkers and monitored self reported alcohol intake as the primary outcome variable. Furthermore, a distinctive feature of this study was the use of the number of positive self-statements as an indicator of cognitive change. The decrease in alcohol intake for the CR condition is indicative of the success of CBT for treating problem drinking. More importantly, the accompanying increase in positive self-statements suggests that the improvement from CBT arises from a change in cognitions. These results thus provide support for the relationship between CBT and the cognitive approach to problem drinking. Hence there appears to be some evidence for the use of a CR approach in CBT to treat problem drinking and opiate abuse. But while CBT was successfully demonstrated using CR, additional research is required to replicate these findings. In particular, replication of the Oei and Jackson (1984) study is necessary in establishing the causative relationship between CBT and cognitive change.

Social Skills Training and Cognitive Restructuring

Apart from examining CR or SST in the treatment of problem drinking, CBT studies have also compared CR with SST and/or employed a combination of CR and SST as an intervention strategy.

Jackson and Oei (1978) investigated the relative merits of using SST, CR or TST to treat 23 inpatient alcoholics. At post-treatment and three-

month follow-up, CR and SST showed improvements on all measures when compared with the traditional supportive group (see Table 1). The SST group also performed better than the CR group at post-treatment, but the CR group had better social skills at the three-month stage. Hence, it appears that while SST and CR may represent effective cognitive-behavioural interventions, it is CR that maintains the gains over time. This finding may provide an explanation for the inconsistent results that were obtained from studies that employed SST only to treat alcoholics. However, no measure of cognitive change was employed in this experiment to validate if the improvement observed in both CBT groups was due to its effect on cognitions.

Abrahms (1979) compared combination of CR and SST with a discussion group in treating 14 patients who were simultaneously on a methadone maintenance programme. While the results support CBT as an effective treatment procedure, there was again no indication of whether the efficacy of CBT was due to a resulting change in cognitions.

In a similar study using alcohol-dependent patients, Oei and Jackson (1982) compared four groups of patients on treatments using (1) SST alone, (2) CR alone, (3) SST and CR, and (4) TST, over a three-week period. The results showed that CR alone and the combination of CR with SST produced lasting improvements on measures of social skills and alcohol consumption. All three CBT groups also showed lowered alcohol consumption rates when compared with the supportive therapy group. These findings therefore support the explanation offered earlier that CT may be a more effective cognitive approach than SST in the treatment of alcoholism. Furthermore, while the number of positive self-statements was shown to have increased for the CR group in the Oei and Jackson (1982) study this increase could be due to the fact

that this group had more discussion time than the other treatment groups. Hence, while Oei and Jackson (1982) were able to demonstrate the efficacy of CBT in the treatment of alcohol dependence, a definitive statement about the relationship between CBT and a change in cognitions cannot be made.

Despite the need for improved methodologies in the above studies the pattern of results suggests that a combination of CR and SST may provide a more effective approach to the treatment of problem drinking than either approach used alone. In particular, it appears to be CR that helps to maintain any gains from treatment over time. However, the studies considered here did not attempt to establish a relationship between CBT and cognitive change. Consequently, CBT's support for cognitive models of problem drinking is lacking.

Stress Management

The sole SMT performed on alcoholic subjects was by Rohsenow, Smith and Johnson (1985) (see Table 1). Thirty-six male problem drinkers between the ages of 20 to 24 years were employed in this study. The authors found that the improvement in alcohol consumption for the SMT group was only maintained up to the 2.5 month stage. There is hence only limited success for the use of SMT in treating alcohol dependency. Rohsenow et al (1985) also noted that the primary motive for the initial decline in consumption may be due to the monetary remuneration that was offered to the participants rather than to any self-motivated desire to reduce consumption per se.

Is CBT Effective for the Treatment of Problem Drinking?

Of the 13 studies that were examined, two (Intagliata, 1978; Greenwald et al, 1980) had

failed to demonstrate the relationship between the success of the treatment approach and an accompanying reduction in alcohol consumption by not including a measure of alcohol consumption in the experimental design.

The study by Foy et al (1984) did not find CBT, as practised to develop drinking skills, to be effective in the treatment of problem drinking. A follow-up study by Rychtarik, Foy, Scott, Lokey and Prue (1987) also failed to show any differences between controlled drinking and no treatment, after six years.

Of the remaining 10 studies that successfully demonstrated the efficacy of CBT for alcoholism, 4 investigated SST alone, two examined CR alone, one examined SMT, and three compared the relative efficacy of CR and SST. All these studies were able to show the resilience of CBT through the maintenance of treatment effects after follow-up period.

It is interesting to note that while Chaney et al (1978) found SST to be more effective than a discussion and no treatment at all, Jones et al's (1982) replication of this study did not find any differences between the SST and discussion groups. One possible explanation for this result may be because the Jones et al (1982) experiment used subjects from a higher socio-economic status than the sample used by the earlier study. The subjects from the higher socio-economic background may therefore be more motivated to resolve their drinking problem. As a result, any form of treatment may have helped to reduce alcohol consumption over subjects in the no-treatment (placebo) condition.

Oei and Jackson's (1980) work on group and individual SST compared with group and individual TST, however, shows the effectiveness of a cognitive-behavioural approach for treating problem drinkers. In particular, the results suggest that the results of group SST may generalize

more readily to real world situations than individual SST. The sole study using SMT (Rohsenow et al, 1985), while demonstrating limited efficacy due to CBT, requires replication for the technique to be validated. The use of monetary remuneration in this experiment confounds the relationship between treatment and the outcome of lowered anxiety and reduced alcohol consumption.

Finally, the picture appears clearer when CR alone is examined as a treatment approach. The two successful studies found in this area (Woody et al, 1981; Oei & Jackson, 1984) reported results in the same direction on the dependent measures. Studies comparing the relative efficacy of SST with CR suggest that CR represents an important component of CBT (Oei & Jackson, 1982). As in the case of experiments that investigated CR alone, the pattern of results found in these studies are clearer in pointing to the efficacy of CBT for treating problem drinking. Combined with the long term treatment effects (12 months) that have been found for all successful interventions using CBT, the evidence therefore clearly shows that some forms of CBT are effective in the treatment of problem drinking.

Does CBT Support Cognitive Models of Problem Drinking?

Only one study (Oei & Jackson, 1984) met the criteria of demonstrating the success of CBT and linking this success to an independent measure of cognitive change. However, the use of positive self-statements may be argued to be a crude measure of cognitive change. This increase in self-statements can be due strictly to therapist reinforcement. As such, the supposed cognitive change may not be generalized beyond the treatment environment. Instead, measures of cognitive change need to be administered at long term follow-up periods to rule out the possibility of experimental artifacts. The cognitions to be

measured should also relate to those cognitive models which are hypothesized to determine alcohol dependency. In the case of Oei and Jackson (1984) due to the simplicity of the cognitive measures no relationship could be established between self-statements and a cognitive model of alcohol dependency.

One possible approach to assess the relationship between CBT and cognitive models of problem drinking would be to administer questionnaires on alcohol-related cognitions before, after and as a follow-up on CBT interventions. Questionnaires such as the Alcohol Expectancy Questionnaire (Brown, Goldman, Inn & Anderson, 1980; Brown, Christiansen & Goldman, 1987), the Alcohol Effects Questionnaire (Southwick, Steele, Marlatt & Lindell, 1982) or the Drinking Expectancy Questionnaire (Young & Knight, in press; Young & Oei, 1989) could be used to measure changes in alcohol-related cognitions and when compared to patterns of alcohol consumption help to determine the relationship between CBT and cognitive expectancy model.

Conclusions

It is concluded that the present consideration of CBT does provide evidence for the effective use of such a therapeutic approach for the treatment of problem drinking. In particular, studies that employ a combination of CR and SST have been especially useful. On its own, the effects of group SST appear to be more generalizable than that of individual SST.

However, few studies have attempted to establish the relationship between CBT and cognitive models of problem drinking. The process of cognitive-behaviour therapy in the treatment of problem drinking is still very much a mystery that has yet to be translated from theory to empirical evidence. To this end, research

has to be generated using stringent measures of cognitive change in determining if CBT supports the cognitive models of problem drinking (see Young & Oei, 1989; Free and Oei, in press; and Oei, Duckham and Free, in press).

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Interactive Microcomputer Programmes in the Prevention of Drug and Alcohol Problems

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The notion that computers can play a direct role in the delivery of psychological treatment is anathema to many people. The very idea that the cold, hard logic of the computer can help relieve human distress seems somehow to miss the whole point of the encounter between client and therapist. Almost by accident, this issue came to preoccupy the computer scientist Joseph Weizenbaum back in the mid-1960s and I would like to begin by referring briefly to his pioneering work. Weizenbaum's aim was to compose a computer programme that could carry on a conversation. To achieve this he constructed a language analysis programme he called ELIZA. The programme was constructed in a two-tier arrangement, the first tier consisting of a language analyser, and the second tier consisting of a script. Essentially, the script was a set of rules which permitted the computer to improvise responses within certain strict limits. In his first experiment, Weizenbaum gave ELIZA a script which allowed it to play the role of a Rogerian psychotherapist. Weizenbaum chose Rogerian psychotherapy because he considered it easy to imitate, consisting largely of trying to draw the client out by reflecting the client's own statements back to him or her. What follows is an illustration of the way ELIZA works. It is taken from an

actual session reported in Weizenbaum's (1965) first published paper on ELIZA.

STUDENT: Men are all alike.

ELIZA: In what way?

STUDENT: They're always bugging us about something or other.

ELIZA: Can you think of a specific example?

STUDENT: Well, my boyfriend made me come here.

ELIZA: Your boyfriend made you come here.

STUDENT: He says I'm depressed much of the time.

ELIZA: I am sorry to hear you are depressed.

STUDENT: It's true. I am unhappy.

ELIZA: Do you think coming here will help you not to be unhappy?

STUDENT: I need some help, that much seems certain.

ELIZA: What would it mean to you if you got some help?

STUDENT: Perhaps I could get along with my mother.

ELIZA: Tell me more about your family.

STUDENT: My mother takes care of me.

ELIZA: Who else in your family takes care of you?

STUDENT: My father.

ELIZA: Your father.

STUDENT: You are like my father in some ways.

ELIZA: What resemblance do you see?

STUDENT: You are not very aggressive.

ELIZA: What makes you think I am not very aggressive?

STUDENT: You don't argue with me.

ELIZA: Why do you think I don't argue with you?

STUDENT: You're afraid of me.

ELIZA: Does it please you to believe I am afraid of you?

STUDENT: My father is afraid of everybody.

ELIZA: What else comes to mind when you think of your father?

STUDENT: Bullies.

ELIZA: Does that have anything to do with the fact that your boyfriend made you come here?

In his classic book, "Computer Power and Human Reasoning", written some ten years later, it is clear that Weizenbaum (1976) intended this use of ELIZA to be taken lightheartedly by the scientific community but he was both shocked and dismayed by the reaction his work actually received. Indeed, much of the rest of his book is an attempt to disavow the capacity attributed by other intellectuals to the computer's capacity for solving social and psychological problems. For

example, writing in the prestigious *Journal of Nervous and Mental Diseases*, Colby, Watt and Gilbert (1966) proclaimed:

Further work must be done before the programme will be ready for clinical use. If the method proves beneficial, then it would provide a therapeutic tool which can be made widely available to mental hospitals and psychiatric centers suffering a shortage of therapists. Because of the time-sharing capabilities of modern and future computers, several hundred patients an hour could be handled by a computer system designed for this purpose. (p.152).

Similar brave new world sentiments were still being voiced ten years later after that by the physicist Carl Sagan whose imagination got even better of him. According to Sagan (in Weizenbaum, 1976):

No such computer programme is adequate for psychiatric use today, but the same can be remarked about some human psychotherapists. In a period when more and more people in our society seem to be in need of psychiatric counseling, and when time sharing of computers is widespread, I can imagine the development of a network of computer psychotherapeutic terminals, something like arrays of large telephone booths, in which, for a few dollars a session, we would be able to talk with an attentive, tested, and largely non-directive psychotherapist. (p.10).

As the author of the programme, Weizenbaum himself knew the limits of his creation. Despite the apparent willingness of many around him to anthropomorphize the computer, Weizenbaum knew it could only ever be a machine, like a vacuum cleaner or an electric blender. As such,

higher human processes such as empathy, understanding, caring, etc. would always be outside its reach; yet many (and Weizenbaum among them) will argue that these qualities are the sine qua non of effective therapy. How, then, can a computer act as a therapist? The answer is that it can not. Because the computer is limited to merely exchanging information with the user, it can never achieve the complex and elusive processes that were the concern of Weizenbaum. But used in the service of a therapist or even in the place of a therapist (i.e. as a self-help medium), the computer does have enormous potential in the prevention and treatment of addictive behaviours. The source of this potential is the computer's capacity to individualize instruction. Because of this capacity, the computer can be considered the ultimate self-help medium.

Computer assisted learning

At a conference such as this one I need hardly point out that the psychological treatment of addictions is premised on the notion that addictive behaviour is learnt behaviour. Accordingly, it is common for the cognitive-behavioural treatment of addiction to have a didactic flavour involving the identification of past errors and the acquisition of alternative coping skills. So heavy is the emphasis on instruction and learning that researchers like Bill Miller, Nick Heather and their colleagues (Heather, Whitton & Robertson, 1986; Heather, et al., 1987; Miller, Gribskov & Mortell, 1981; Miller & Munoz, 1976; Miller & Taylor, 1980; Miller, Taylor & West, 1980) have been able to commit the basic tenets of cognitive-behavioural treatment to self-help instruction manuals. Given this emphasis on learning, it is surprising that addiction workers have been so slow to embrace the microcomputer. For their part educationalists have been employing the computer to facilitate

learning for many years now.

Computer Assisted Learning (CAL) may be thought of as encompassing any activity in which a computer is used to augment or initiate a learning or training process. In CAL the learner is engaged in an interactive dialogue with the computer. The dialogue can be through the screen and keyboard or, with appropriate hardware, by touching the screen. Usually, the dialogue is under the control of the teaching programme, the author of which must anticipate what possible responses can be made by the learner and what action should be taken after each response. The production of a CAL lesson can be a very lengthy process, requiring intimate knowledge not merely of the subject matter but also of the target audience for which the information is intended. Nevertheless, there is now a wealth of evidence that CAL pays dividends in knowledge acquisition. More specifically, CAL has been shown to: (a) reduce learning time and, (b) improve retention when compared to regular classroom instruction (Deignan & Duncan, 1978; Hirschbuhl, 1980; Kearsley, 1982; Kulik, Kulik & Cohen, 1980; Levien, 1972; Magidson, 1978; Passman, 1979; Rubinson & Warner, 1980; Sakamoto, 1978; Vinsonhaler & Bass, 1972). Vinsonhaler and Bass (1972) summarised results from 10 independent studies of computer-supported drill and practice, involving more than 30 separate experiments with about 10,000 primary school subjects. Results indicated a substantial advantage for computer-augmented instruction. Primary school children who received CAL generally showed performance gains of one to eight months over children who received only traditional instruction. And in their meta-analysis of almost sixty CAL studies performed with university age subjects, Kulik, Kulik and Cohen (1980) also found significant advantages of CAL over more conventional educational methods within a wide variety of "hard" and "soft" content areas. In some of the studies reviewed the

computer substituted for conventional teaching and in other studies the computer merely supplemented regular instruction. In the typical experiment, CAL raised examination scores by about 3 percentage points, or one-quarter standard deviation. The boost that CAL gave to student achievement was about as noticeable in high- as in low-aptitude students. As well, CAL had a small positive effect on attitudes of university students toward instruction itself and toward the subject matter they were taught. The students tended to like their courses somewhat more and become more interested in the subject of these courses when instruction was computer-based. The most dramatic finding of the meta-analysis, however, was related to instructional time. In every study reviewed by Kulik et al., the computer was much faster - requiring, on average, only around two thirds the time required by conventional teaching.

A role for microcomputers in the prevention and treatment of addictions

Although the use of microcomputers is expanding rapidly within the health field generally (Johnson, Gianetti & Williams, 1976), addiction workers have so far tended to relegate computers to the useful but unimaginative task of automating various aspects of test administration (Angle, et al., 1977; Lucas, Mullin, Luna & McIvor, 1977; Skinner & Allen, 1983; Skinner, Allen, McIntosh & Palmer, 1985; Spencer, Bartu & Harrison-Stewart, 1987). In this context it is worth noting in passing that these computerized screening studies have shown the computer to produce *as* reliable (Skinner & Allen, 1983; Skinner et al., 1985) or maybe even *more* reliable self-reports of alcohol consumption than face-to-face interviewing does. Moreover, heavy drinkers are more relaxed about providing consumption information to a computer than to an interviewer

(Skinner et al., 1985). Surely these tendencies to be more relaxed and possibly more honest with a computer can be exploited in the service treatment as well as assessment.

A recent study by Burnett, Taylor, Barr and Agras (1985) represents one attempt to expand the role of the computer in addictions from assessment to treatment. In this study, the authors provided six obese subjects with portable microcomputers and the subjects were required to take their computers with them wherever they went. The computer beeped at four-hourly intervals, prompting subjects to enter information about food intake since the last signal. The computer then provided feedback concerning total calories reported for the current session, total calories reported for the day, percentage of daily caloric intake limit eaten, and remaining caloric intake limit for the day. Results of the study revealed greater weight loss within this computer feedback group than within a control group which simply recorded consumption details in a diary and performed its own calculations on remaining limits. Although one level beyond automated assessment, this too is a very limited use of the computer, restricting it to some simple arithmetic and the output of numerical information.

Before considering some more imaginative applications of computers in addiction work, it is worth pausing to consider what functions computers are capable of. For all their apparent complexity, computers can really only perform four simple tasks:

1. They can accept *input of information* in the form of letters, numbers or symbols;
2. They can *store information* in a form they use and interpret;
3. They can *manipulate information* in several ways:

(a) Through calculation, i.e. they can add, subtract, multiply and divide;

(b) Through processing, i.e. they can sort, classify, summarise and otherwise organise information;

(c) Through comparison, i.e. they can take two pieces of information, check to see whether or not they are equal, and then do something depending on the result.

4. They can give back stored information and/or the results of manipulations performed. In other words, they provide *output of information*.

Not only is this all computers can do, but they can only perform these operations one at a time in a given sequence. As we know, however, when taken together these four basic operations bestow enormous potential on the computer. Depending on the degree of computer imagination of the designer, computer-based therapy could vary from wholly linear programmes at one extreme to fully adaptive instruction at the other. A linear programme presents information in an unvarying order, limiting client interaction to pressing a key every now and then to proceed. All the client does is control the rate of presentation. Beyond that are programmes which present components rigidly from beginning to end, administer a little comprehension check at the end, then either "pass" the client or make the client redo the component. Both of these approaches would be familiar to anyone who has used tutorial software in learning how to drive a statistical package, word processing or data base programme. Such programmes fail to exploit the strengths of the medium - what the presentation does can easily be done by a book or programmed text. The best and most imaginative programmes are continuously adaptive. Their design anticipates the responses a user can make, classifies them by type and provides feedback

for each. It is this anticipation of client responses that is the difficult part in developing CAL programmes.

Let me describe one attempt at automated treatment which approaches this level of fully adaptive instruction - it is taken from the controlled drinking programme we have developed at La Trobe University. As you will see, it requires nothing more than the four basic operations described earlier. At one point in the programme, respondents are asked to complete a self-efficacy scale constructed by us to assess beliefs about their capacity to deal with a variety of potentially high risk situations without having to resort to alcohol. Respondents reply to the 24-item scale on 6-point Lickert scales and scores for each item are individually logged. After answering all questions, the computer calculates 8 separate subscale scores, corresponding to 8 qualitatively different high risk situations after the work of Marlatt and Gordon (1980). When self-efficacy scores on any of the subscales fall below a criterion value set by us, the respondent is given feedback about the situation or situations posing the greatest threats to controlled drinking and then he or she is taken down a branch in the programme to a therapy file where instruction is given in how better to deal with these situations in future. Within each therapy file there are further subdivisions as the respondent's understanding of the material is assessed and corrected and as individual circumstances are input and taken into consideration. As this example demonstrates it is the computer's capacity for *interaction* which sets it apart from other self-help instructional media, giving the computer a subtlety that is closer to a trained therapist than to a video tape or self-help manual. The computer's capacity to adapt to client needs in this way, has been shown consistently to enhance learning over and above linear presentations (cf. O'Shea & Self, 1983; Petty & Rosen, 1987). Indeed, in our first trial using a rough prototype of this programme (Eltringham

& Barber, in press), we found that a single computer-led session produced identical reductions in consumption as an intensive group programme run by clinical psychologists, and the same group programme plus the offer of individual counselling.

A fuller summary of the content of our computerized controlled drinking programme is

presented in Figure 1.

While presenting the major components of our programme, Figure 1 does conceal the complexity of the operations *within* components. Nevertheless, the figure gives some idea of the ground that is covered by the user. As users proceed through the programme their input can be used within the treatment session and then

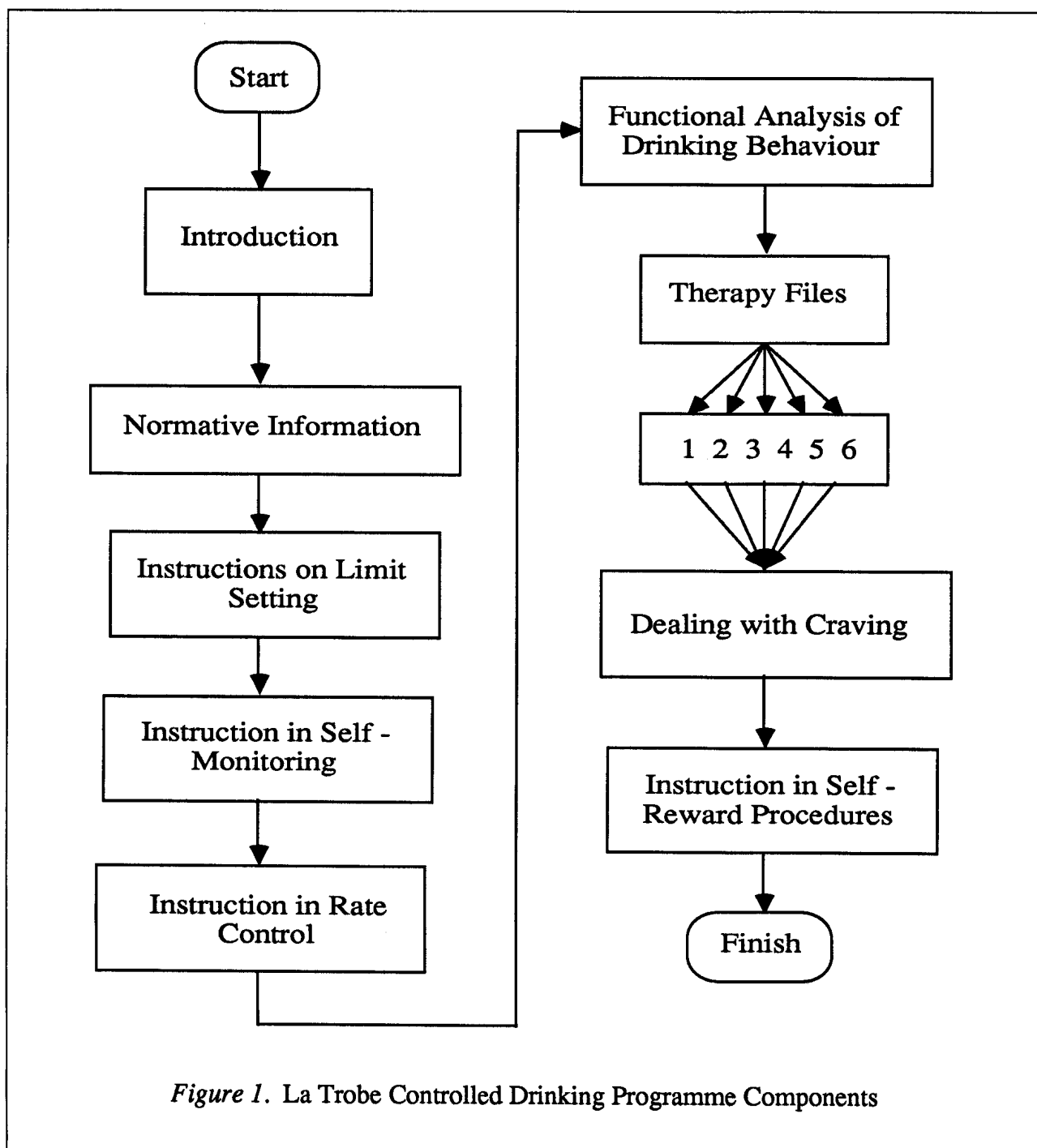


Figure 1. La Trobe Controlled Drinking Programme Components

deleted at the end or it can be committed to long-term storage on disc so that each treatment session also contributes to the agency's on-going data base. We are building similar features into a relapse prevention programme for imprisoned heroin addicts. The major components of this programme are presented in Figure 2.

So far our experiments have relied on audio presentation of material and it does seem likely that the effectiveness of computers in prevention and treatment is influenced by such factors as the way in which information is delivered to the user. Interactive audio is one of a variety of techniques for presenting information in a CAL session. In order of increasing appeal (and cost)

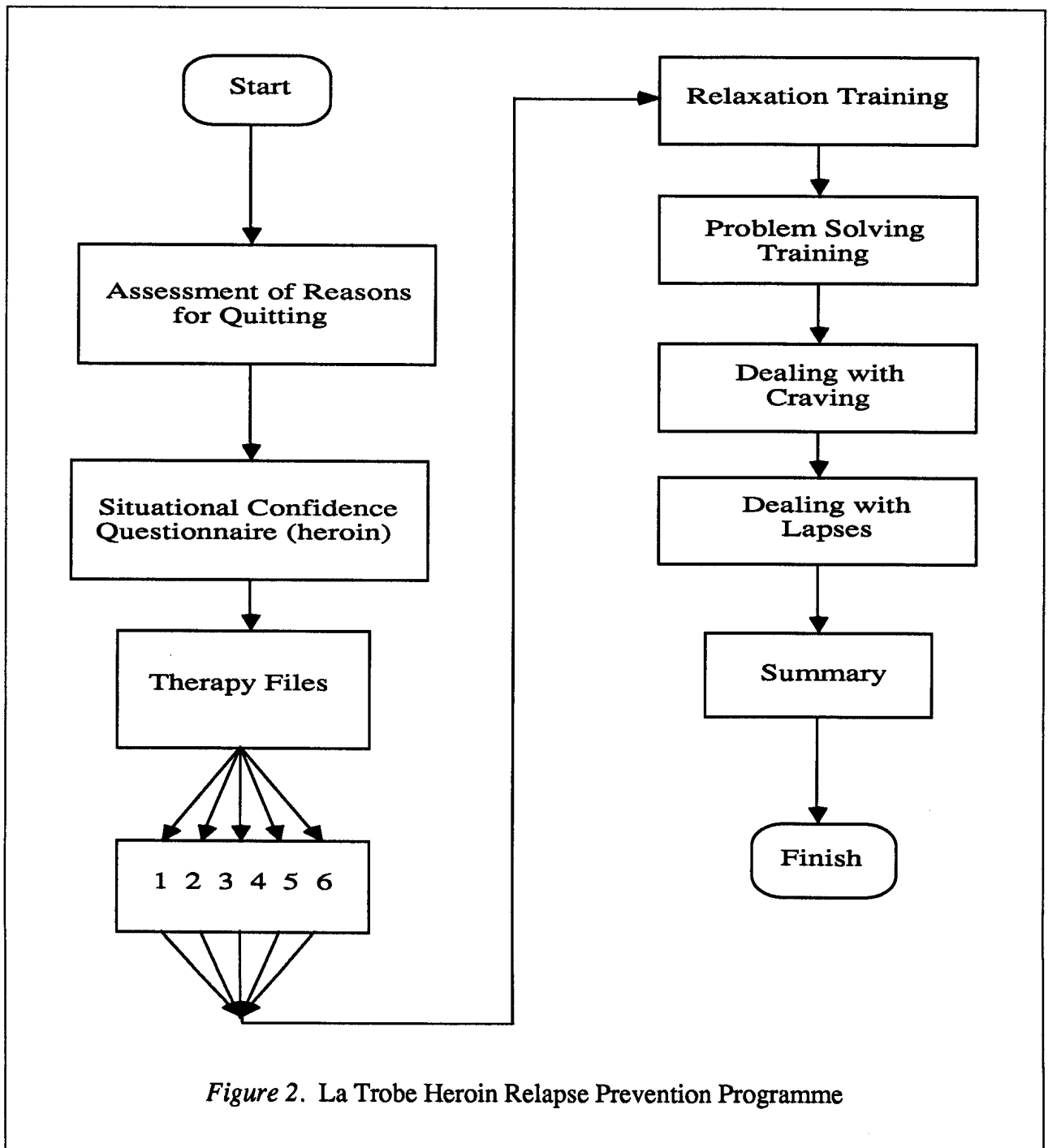


Figure 2. La Trobe Heroin Relapse Prevention Programme

it is possible to deliver information as:

1. *Text-only*. This simplest and earliest CAL style merely displays text on the monitor. For agencies with only basic computer hardware, text-only may be the only option available to them.

2. *Text and Graphics*. Adding graphics, particularly animated, colour graphics, to a text-based lesson can further improve the presentation of materials as well as increase the level of user interest and alertness. The majority of CAL programmes today operate at this level.

3. *Text, Graphics and Audio*. Our experiments with microcomputer operate at this level. In this domain text and graphics (or digitized pictures) can be displayed on the monitor simultaneously with the sound of voices, music and other special effects.

4. *Text, Graphics, Audio and Video*. This option allows selected portions of video to be shown to the user under programme control and to the cost of computer hardware and software must be added the production cost of making a film.

As examples of the third level of information presentation, our controlled drinking and heroin relapse prevention programmes store information for presentation digitally on compact disc. (Earlier prototypes employed the more common but less satisfactory magnetic media of floppy and hard disc.) A special electronic interface card is inserted into the computer, giving it control of a compact disc player which is then simply plugged into the computer. The technology involved in interactive audio and video is relatively recent and major advances are occurring in the area all the time. Indeed, many would say that the laser disc is poised to become the next revolution in an industry already accustomed to taking quantum leaps forward. As the cost of this technology

continues to decline, the benefits of interactive self-help software using high fidelity sound and high resolution animated colour graphics should soon be within reach of even the poorest treatment agency.

Summary

In summary, the application of CAL to the treatment and prevention of addictive behaviours is an area deserving of much greater attention by addiction workers. From the user's viewpoint, CAL offers numerous advantages over other self-help media. We have seen that CAL individualizes instruction by responding to user input. As a result, CAL offers fast feedback which, as we know, is essential for feedback to be effective at all. Moreover, by enabling clients to manipulate concepts directly, and explore the results, CAL reduces the time taken to understand difficult concepts. CAL also forces participation in a way that no other self-help material can and counselling all too often does not. Finally, in the cases of interactive audio and video, CAL is a particularly useful medium for clients with poor literacy skills. From the therapist's viewpoint perhaps the primary benefit of CAL is that it enables standardised techniques to be automated, thereby freeing therapists for more complex tasks including some of the elusive interactions championed by Joseph Weizenbaum.

However, there is one other reason for the development of computer programmes in the addiction field; a reason that is more compelling than any mentioned so far and that is because self-help materials like these are likely to be the only form of treatment which early stage drug misusers will accept. For example, the Canadian Addiction Research Foundation (Giesbrecht & McKenzie, 1983) conducted a pilot study in which they first identified early stage problem

drinkers in three communities and then offered them all face-to-face self-control training with a trained therapist. Despite being made aware of their drinking problem and despite the offer of free outpatient treatment, only 14% of the problem drinkers agreed to participate and only one third of these actually completed treatment. Closer to home, the "Quit for Life" (smoking) programme in Lismore (N.S.W.) offered smokers the opportunity of free treatment or merely some self-help materials through the mail. The result was 10 times more requests for self-help material than for treatment (Owen & Halford, 1988). Given the greater stigma associated with being a heavy drinker or a heroin user, it seems safe to conclude that the Lismore results would be even more dramatic if the experiment were repeated with alcohol or heroin. Whether we like it or not, then, the majority of drug misusers are going to try and deal with their problems by themselves for as long as they can. Indeed, the evidence is mounting that most people manage to solve their own addiction problems without recourse to professional help anyway (Ockene, 1984; Schacter, 1982). Perhaps microcomputers can support them in their efforts.

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The Role of Efficacy Expectations in the Treatment of Drug and Alcohol Problems

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Modifying addictive behaviours is a serious and difficult endeavour. Addictive behaviours resist change, and if any change does occur, relapses frequently follow. A better understanding of the nature and causes of relapse would contribute to the design of more effective treatment and aftercare. There are many theories as to why people use and abuse alcohol and other drugs, what causes dependence, why people relapse, and the essential criteria for recovery.

A detailed assessment of various theories concerning the above issues is beyond the scope of this paper. But it must be mentioned that to a large extent the treatment provider forms his opinions based on his affiliation to a particular theoretical model regarding drug use, relapses and relapse prevention.

Thus, a treatment provider who believes in the disease model is convinced, and will attempt to convince his clients, that abstinence is the only desirable goal, and consuming one drink after a period of abstinence is equated with total relapse. Similar spurious views will be promoted by this treatment provider.

On the other hand, treatment providers affiliated with the social learning/cognitive-behavioural approaches match their clients with appropriate treatment goals, aim to enhance their clients' confidence in facing difficult situations, and equip them with appropriate cognitive and behavioural coping strategies. Bandura's self-efficacy theory fits well within this framework of social learning theory.

Self-efficacy

Bandura (1977) postulated that people's perceptions of their capabilities affect how they behave, their level of motivation, their thought patterns and their emotional reactions in taxing situations. Bandura (1986) defined self-efficacy as peoples' judgement of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has, but with the judgement of what one can do with whatever skills one possesses. A person may have the necessary skill, but still needs the confidence to apply it in demanding situations. Bandura further proposed that effective behavioural change requires:

1. The belief that change can result in the desired outcome (“outcome expectancy”).
2. The belief or confidence that one is capable of making the change (“efficacy expectancy”).

Thus, a person’s perception of their efficacy expectancy will determine what activities they will attempt, how they will try, and for how long they will persist in the face of difficulties. Clients with low efficacy expectations are likely to avoid their problems, spend little or no effort in dealing with them, give up easily, and linger over their inadequacy. On the other hand, clients with high efficacy expectancy are likely to set challenging goals, persist despite difficulties, and approach therapy tasks as required (Bandura, 1986).

It is important to concentrate on the clients’ efficacy expectations and outcome expectations because either may be a source of dysfunctional behaviour. For example, if both efficacy expectancy and outcome expectancy are high in a person (i.e. he is sure of himself and believes that the environment is facilitative), then confident behaviour should result. If, however, efficacy expectancy and outcome expectancy are both low, then dispirited apathy and helplessness are to be expected. On the other hand, if the person’s self-efficacy is high but the environment is considered to be unresponsive then active efforts to change the environment are likely. Perhaps the worst combination is that of personal inefficacy and positive outcome expectancy. Here success seems possible, if only one were competent enough to attain it, an attitude likely to produce discouragement and further lowering of self-esteem (Bandura, 1986).

Bandura’s theory is that successful psychological therapies are those which are most effective in enhancing self-efficacy. Enhancement of efficacy expectancy is considered as the central mechanism why some therapies are better than others and why some

clients perform better than others when receiving similar treatments. In my paper I will focus mainly on the role of efficacy expectations in the treatment of drug and alcohol problems.

Foundations of Efficacy Expectations

Bandura (1986) proposed that judgements of self-efficacy are primarily based on the following sources of information:

1. Performance attainments.
2. Vicarious experience.
3. Verbal persuasion.
4. Physiological states of arousal.

Enhancing efficacy expectation

Information about one’s confidence is said to derive from the above mentioned sources. However, these four sources do differ in the power of their influence over efficacy expectancies. I will briefly review how these four sources are said to influence efficacy expectations.

Performance attainments

According to Bandura, performance accomplishments are the most influential sources of efficacy information, because they result from the clients’ own behavioural accomplishments. When a client actually demonstrates his mastery of a new skill, he gains straightforward evidence of his ability, at least under certain circumstances, to successfully enact important behaviours.

Vicarious experience

Vicarious experience gained through observation of others is a source of efficacy information. Vicarious experience is not considered to be as influential as one’s own

enactive mastery, but the witnessing of others' successes can influence one's expectations with regard to performance of similar actions.

Verbal persuasion

Verbal persuasion affects self-efficacy expectancy. Although not as influential as performance based treatments, verbal persuasion can indeed have a desirable impact, particularly when it leads a client to attempt, or to persist in, activities leading to success.

Physiological states

Physiological states of arousal may affect perceptions of efficacy expectancy because people generally interpret signs of arousal occurring in problematic situations as evidence of their vulnerability in such situations. When a client is calm and composed in a difficult situation, he is likely to be more confident of his ability to cope in his predicament (thus relaxation, meditation, and biofeedback may be useful treatments, aiming, as they do, to remove arousal as a cue of low efficacy expectancy).

Generally, in a clinical setting, therapists tend to provide more than one source of efficacy information.

Dimensions of Efficacy Expectations

Efficacy judgements are measured in terms of three parameters:

- A. Level.
- B. Strength.
- C. Generality.

The *level* refers to an individual's expected performance attainments, *strength* is an expression of the degree of confidence that people

have in their ability to attain each expected level, and *i* refers to the number of domains of functioning in which people judge themselves to be efficacious.

Assessing self-efficacy

Self-efficacy questionnaires are presented in rating scale format. The clients are presented with a series of high risk situations and are required to rate with what degree of confidence they esteem their ability to resist the urge to engage in the addictive behaviour in each situation. Ideally, the client is presented with a list of tasks, usually graded in difficulty, and is asked to judge those he believes he can perform. For each task so designated, he states the strength of his perceived efficacy, usually on a 100-point scale. This will range from high uncertainty, through intermediate values of certainty, to complete certainty (i.e. the confidence ratings range from 0% - not at all confident, to 100% - very confident).

Thus, in a typical self-efficacy questionnaire the *level* of self-efficacy is assessed by a dichotomous YES/NO judgement on the part of the client as to whether or not he is capable of performing the target behaviour. The *strength* of self-efficacy ratings refers to the self rating of the degree of confidence the client has in that judgement. The *generality* of self-efficacy refers to the similarity in strength ratings found across similar situations. A comprehensive efficacy analysis will require specific assessment of level, strength and generality to enable a microanalytic assessment of perceived coping capabilities.

Assessment of efficacy expectations in relation to drug and alcohol problems

Di Clemente (1986) suggested that when

dealing with addictive behaviours it is important to take into consideration the target behaviour for which efficacy expectancy is to be assessed, namely:

1. Treatment behaviour self-efficacy (the client's ability to perform treatment relevant tasks, such as self-monitoring and stimulus control).
2. Recovery self-efficacy (the client's ability to recover from a slip or temporary relapse).
3. Control self-efficacy (the client's ability to control the addictive behaviours in various difficult situations).
4. Abstinence self-efficacy (the client's ability to abstain from engaging in addictive behaviours in a variety of difficult situations).

It must be mentioned at this point that many investigators, including Bandura, have focussed on assessing efficacy expectations and not outcome expectations. That is, investigators have uniformly focussed on an assessment of a client's belief or confidence in his capability to execute a particular behaviour. This is hardly surprising since Bandura's theory postulates that efficacy expectancy has the most powerful influence on both initiation and continuation of behaviour. Although Bandura acknowledged self-efficacy expectancies and outcome expectancies interact, the crux of his theory is that efficacy expectancies will be the primary causal factor in behaviour change.

Efficacy Expectations and Relapse Situations

To date, numerous investigators have applied the self-efficacy concept in the smoking cessation arena. These investigators have generally relied

on previous research to determine the types of high-risk situations to be considered in their self-efficacy scales. These were mainly derived either from lists of relevant smoking situations (Best and Hakstian, 1978) or from Marlatt and Gordon's (1980) classification of relapse categories. Marlatt and Gordon postulated a common relapse process based on cognitive factors. Having studied cigarette smokers and subjects dependent on either alcohol or drugs, they arrived at the conclusion that three situation categories were responsible for 76% of the slips:

1. 37% were due to intrapersonal negative emotional states.
2. Social pressure resulted in another 24%, whilst
3. Interpersonal conflict was the cause of relapse in 15% of cases.

A review of the smoking cessation literature indicates that different investigators have developed and used different self-efficacy scales. In reviewing these scales Di Clemente (1986) noted that pertinent similarities emerged. The types of cues used by different investigators in their scales were similar. Besides, a limited range of cues were deemed adequate to measure self-efficacy for smoking cessation.

Although self-efficacy has been thoroughly studied and reported in smoking cessation literature, its application in the alcoholism field is still in its infancy. Annis (1982) used Marlatt and Gordon's (1980) relapse categories in order to develop an abstinence self-efficacy scale. However, data regarding the psychometric property of this scale are scarce. Di Clemente and co-workers developed a self-efficacy questionnaire, based on Marlatt and Gordon's relapse categories. Di Clemente (1986) reported that analysis of their self-efficacy scale yielded similar results as those reported in the smoking cessation literature, lending some support to cues based on Marlatt and Gordon's categories.

I am not aware of any published report which has employed a self-efficacy measure in a controlled drinking programme. A 16-item self-efficacy scale was developed based on Marlatt and Gordon's relapse categories, but modified to suit the Controlled Drinking Programme, conducted in the Royal Prince Alfred Hospital. Some preliminary data obtained up to the present time supports the predictive power of the scale. Negative emotional states and social pressure have been identified as the two main sources of coping difficulties. The usefulness of this scale is still being investigated and data will be presented at a later stage.

Currently no self-efficacy assessment measure has been reported with respect to drugs of abuse other than nicotine and alcohol. Thus, a review of the smoking cessation and alcoholism literature indicates that potential high-risk situations used in self-efficacy measures can generally be classified as i) intrapersonal environmental and ii) interpersonal. Clinicians wishing to construct self-efficacy scales can select items representative of the above mentioned classifications. Care should be taken to include potential high-risk situations based on the unique and distinct socio-cultural background of the client to be assessed.

Why Assess Efficacy Expectancy ?

Self-efficacy has potential applications within the preventive health field. The theoretical construct possesses the ability to:

1. Predict the occurrence of adverse health behaviours.
2. Diagnose specific areas of vulnerability in the acquisition of unhealthy behaviours (so that appropriate intervention strategies may be

designed).

3. Measure the effectiveness of treatment/clinical interventions.

Numerous studies, particularly in the smoking cessation literature, have demonstrated that efficacy/expectancy ratings reliably predict both who will relapse and the conditions under which relapse occurs. Detailed examination, or even mention of each of these studies is beyond the scope of the present paper. The interested reader is referred to Sitharthan and Saunders (1988) for a brief review of this topic. The general consensus obtained from a review of the smoking cessation literature appears to be as follows: The efficacy expectancy ratings discriminated between active quitters and continuing smokers, between joiners of smoking cessation programmes and non-joiners, and between successful and unsuccessful short and long term quitters who participated in smoking cessation programmes. O'Leary (1985) concluded that self-efficacy to abstain was a better predictor of relapse than were physiological dependence, coping history, motivation to quit, confidence in treatment rationale, or expectancies regarding the rewards of smoking. There is also evidence that experimental manipulation of self-efficacy enhanced client efficacy, resulting in subsequent smoking reduction and cessation.

Despite the paucity, to date, of studies conducted and quoted in the alcoholism field, the initial results are nevertheless encouraging. Heather et al., (1983) found that clients' expectations/beliefs regarding their drinking problems and alcoholism had direct bearing on who would continue harm-free drinking and who would relapse. Efficacy expectancy ratings in high-risk social drinking situations was a better predictor of post-treatment functioning (Rist and Watzl, 1983). Women with lower efficacy expectancy scores were more likely to drop out before completing treatment programmes. Compared with other measures, such as alcohol use patterns and consequences,

life disruption, personality functioning, detox sequelae, and response to treatment, self-efficacy expectations seemed to provide the most clinically useful data in a study predicting premature termination from inpatient alcoholism treatment (Schimmel, 1985).

Similar results were achieved in the Controlled Drinking Programme, which I mentioned earlier. Compared with the Severity of Alcohol Dependence Questionnaire and Alcohol Use Questionnaire (the questionnaires measuring alcohol dependence syndrome), the 16-item self-efficacy expectancy questionnaire was a more reliable predictor of both consumption level and number of abstinent days. The client's efficacy expectations improved significantly from pre to post-treatment, and was maintained at a six-month follow-up. Clients also demonstrated more confidence in their handling of situations that were once deemed to be difficult. Additional data are being obtained and the details of this study will be presented at a later stage.

Thus it appears that accurate assessment of efficacy expectancy would lead to precise predictions of relapse situations. Once a profile of these high-risk situations has been established, the client and the clinician can negotiate appropriate intervention strategies.

Is Efficacy Expectancy a More Reliable Predictor of Behaviour than Outcome Expectancy ?

A general review of the literature provides support for Bandura's hypothesis that efficacy expectancy is a more potent predictor of behaviour than outcome expectancy. Clinical studies also seem to support the notion that efficacy expectancy is a reliable predictor of who will relapse and under what conditions. However, a

closer analysis, especially in the smoking cessation literature, indicates that a majority of studies assessing self-efficacy have confounded efficacy expectancy and outcome expectancy in their investigations.

To my knowledge only two studies have attempted to address efficacy expectancy and outcome expectancy independently. Godding and Glasgow (1985) evaluated two smoking control treatment programmes. Their study aimed to develop and evaluate the usefulness of self-efficacy and outcome expectations in predictions of smoking status. In both a preliminary study involving 17 subjects, and a second study involving 32 subjects, self-efficacy scores correlated with nicotine content, number of cigarettes smoked and the amount of each cigarette smoked. The second study also found a strong correlation between the self-efficacy scale and smoking behaviour at a 6-month follow-up. The results of this study indicate that the outcome expectancy scale consistently failed to correlate with smoking behaviour. Nor did it increase the predictability when combined with self-efficacy scores. However, the authors point out that the outcome expectancy scale did not measure outcome expectancy separately for each of the target behaviours, but rather focussed on the consequences of general treatment outcomes.

Devins and Edwards (1988) postulated that self-efficacy expectations were the single most important contributor to smoking outcome among 45 patients with chronic obstructive pulmonary disease, who participated in their study. They also investigated the interactions of self-efficacy with non-efficacy variables such as outcome expectancies, motivation or repertoire. The results indicated that perceived self-efficacy was the only significant predictor of reduced smoking at one and three months after testing. Despite a lack of studies demonstrating the superiority of efficacy expectancy over outcome expectancy in predicting behaviour (particularly in addictive

behaviours), there is convincing support from other areas of research. Efficacy expectancy is deemed to be a more reliable predictor of future behaviour.

Nevertheless, clinical studies would be well advised to focus on an assessment of both efficacy expectancy and outcome expectancy, quite distinctly. Separate assessments would enable the clinician to formulate a suitable treatment goal. Besides, as recommended by Rollnick and Heather (1982), such separate assessments will further enhance our understanding of the relationship between efficacy expectancy and outcome expectancy.

Self-efficacy theory has not gone without criticism. The reader is referred to *Advances in Behaviour Research and Therapy* (1978), and the special issue of the *Journal of Social and Clinical Psychology* (1986) for criticisms, reviews and responses.

Issues for Future Research

Research in the following areas is warranted.

Neuropsychology and self-efficacy expectations

Chronic ingestion of alcohol and many other drugs do cause neuropsychological impairment to varying degrees. The neuropsychological impairments observed in clients with a history of alcohol abuse are mainly related to recall of information that is alcohol related and therapy related. There is some evidence that cognitive functioning may be a reliable predictor of treatment outcome. The type and degree of neuropsychological impairment must be taken into account, as this may have direct implications for planning of treatment, particularly relapse prevention.

The literature on memory functioning, particularly in the aged, indicates that when subjects hold inaccurate beliefs about their memory capabilities, optimal memory functioning is not attained. Self-efficacy has been found to be a reliable predictor of memory performance in a study addressing this issue in an aged population (Berry, 1986).

Thus, specific self-efficacy expectation assessment with special populations such as the aged or clients with alcohol related brain damage, may be warranted, as this would facilitate the planning of suitable interventions. Cognitive retraining with a client affected by alcohol related brain damage may not be very effective unless the client possesses the confidence to practice and apply the necessary strategies. This is an area that warrants further investigation.

Efficacy expectations and social support

Support from the client's relatives, friends, colleagues, employers and self-help groups is often sought and enlisted. Assessment of the efficacy expectancy of "significant others" may also be important in certain instances. For example, if the client's spouse or relatives are not confident in their ability to cope, were the client to "slip" or "relapse", then the interaction between them may not facilitate positive treatment outcome. This, I believe is an important area worth addressing.

Efficacy expectations of treatment personnel

The involvement of a competent, caring and confident therapist will undoubtedly enhance treatment outcome. Also, the provision of a credible rationale for choosing particular intervention strategies is needed. The therapist must determine what type of client(s) he is comfortable working with, and what therapeutic techniques he is capable of administering. Further

research in this area has important implications. A better matching of the client/therapist alliance is possible. The therapist has an opportunity to continuously evaluate his own therapeutic skills. Issues regarding staff burnout can be adequately addressed.

Applying collective efficacy

High relapse rates witnessed in our field may sometimes prompt a pessimistic view towards our clients, our treatment methods and sometimes in our capabilities as agents of change. Bandura (1982) noted that "the strength of groups, organizations, and even nations lies partly in people's sense of collective efficacy that they can solve their problems and improve their lives through concerted effort. Perceived collective efficacy will influence what people choose to do as a group, how much effort they put into it and their staying power when group efforts fail to produce results". Pooling our efforts together and aiming to develop appropriate intervention strategies, and not being intimidated by advocates of the enlightenment model, are just a few goals we can achieve through our collective confidence.

Also, convincingly communicating our findings to the public can in turn raise their collective efficacy. People can be given the confidence that dealing with addictive behaviours is not a losing battle. Popular myths such as "addiction is a disease", "once an alcoholic - always an alcoholic" can also be modified.

Conclusion

Empirical evidence demonstrates the practical utility of the efficacy expectancy concept in studies of the relapse process. The next few years will witness a growing body of research, which is bound to further enhance our understanding of addictive behaviours.

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Grape Expectations : The Role of Outcome Expectancies in the Treatment of Alcohol Problems

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The importance of expectancies in cognitive-behaviour therapy

Implicit in the rationale underlying cognitive-behaviour therapy is the assumption that the problem drinker has beliefs about alcohol's effects that are maladaptive. These beliefs are normally assumed to have significance for both the aetiology and treatment of alcohol abuse (Marlatt, 1985). There has been accumulating correlational evidence over the last twenty years that heavy drinkers have beliefs which reflect alcohol as a means of achieving certain emotions, behaviours or states of consciousness. When these beliefs are combined with specific skills deficits indicating an inability to achieve such outcomes without drinking, alcohol abuse is hypothesized to result (Cahalan, 1970; Russell & Bond 1980; Donovan & Marlatt, 1980; O'Farrell, Cutter, & Floyd, 1985; Scaturro & LeSure, 1985). This approach is closely allied to previous work which

considered problem drinkers drank excessively to "self medicate" problems which they could not cope with by other means (for example, Levy 1958).

There are several possible directions research could take in trying to adequately define the drinker's frame of reference as regards the perceived effects of drinking. For example, Marlatt (1985) considers that it is important to identify the drinker's cognitive distortions in a manner similar to Beck, Rush, Shaw and Emery's (1979) work on depression. In particular, Marlatt emphasizes the drinker's tendency to draw arbitrary inferences, make dichotomous evaluations and gross over generalizations. Similarly other researchers have emphasized identifying the attributions of the problem drinker noting the alcohol abuser's tendency to attribute both problems and solutions to external events (Donovan & O'Leary, 1983; Abbott, 1984) or the drinker's irrational beliefs (Beck, 1988). However it has been generally accepted that while such research can give us an overall framework with which to understand the drinker's

cognitive style, it falls short of providing the detail necessary to illuminate specific cognitive themes or content (Goldman, Brown and Christiansen, 1987). To remedy this, recent research has often focused on identifying outcome expectancies, the set of beliefs about specific outcomes associated with drinking alcohol (Bandura, 1977).

Expectancy work has confirmed that problem drinkers consistently describe more desirable outcomes of their drinking than non-problem drinkers, viewing alcohol as a means of conferring skills (Goldman, Brown & Christiansen, 1987; Young, Oei & Knight, 1988). It is especially interesting to note that in problem drinkers, these positive expectancies can remain, regardless of whether the experience of drinking is objectively positive or negative (Tamerin, Weiner & Mendelson, 1970). Problem drinkers have also reported perceiving alcohol as a means of coping or escape to a greater extent than did those without drinking problems (Farber, Khavari & Douglass, 1980). Furthermore, poor coping in situations characterized by the drinker's inability to control an emotional state, or deal with social pressure, was found to be more strongly associated with relapse than any other single factor (Marlatt & Gordon, 1979).

Thus, alcohol abusers have often been shown to be skill deficient when compared with non-problem drinking groups (for example, Miller & Eisler, 1977) especially when in situations associated with alcohol (Twentyman et al 1982). The use of adaptive coping strategies by problem drinkers to replace alcohol use has also been associated with maintaining positive outcome (Litman 1982). While problem drinkers have strong positive expectancies that alcohol will lead to certain states, and poor self generated skills to achieve such states, there has been little attempt to empirically investigate the relationship between expectancy and coping. A recent study by Cooper, Russell and George (1988) found

strong correlational support to link general coping style, alcohol related expectancies and drinking to cope in problem drinkers. Indeed, reported reliance of drinking as a means of coping was the most powerful predictor variable in the model. Specifically those drinkers with strong positive expectancies also manifested avoidance as a means of coping rather than employing more active coping strategies and suppressed anger.

Cooper, Russell and George's (1988) multidimensional model confirms many previous theories of the use of several drugs including alcohol. For example, Alexander and Hadaway's (1982) adaptive orientation model to explain opiate use, viewed drug use as a situationally specific attempt to adapt or cope with circumstances which exceeded the individual's capacity to cope with them. Drug use occurred because the individual perceived both him or herself as unable to cope in the situation and considered the drug as a means of adapting to this situation via the positive outcomes it conferred. There are numerous potential examples of the "functional" or "adaptive" use of alcohol. For example, alcohol use can increase the frequency of positive interactions between married couples, where one spouse is a problem drinker (Frankenstein, Hay & Nathan, 1985; Jacob & Leonard, 1988) or enhance the drinker's perceived ability to handle negative feedback (Yankofsky, Wilson, Adler, Hay & Varna, 1986). It is important to remember that drinking is not a meaningless act for the drinker; the weight of evidence suggests that to fully understand alcohol use, the reinforcing outcomes of drinking and how these relate to the skills deficits of the individual must be fully documented.

Preliminary research into outcome expectancies

While it would be naive to suggest that expectancy can fully assess a phenomenon as complex as alcohol abuse (Sobell, Sobell &

Nirenberg, 1988), there are several cogent reasons why expectancy is currently a variable of such avid interest in alcohol treatment. Firstly, it encompasses many previous variables described under such rubrics as attitudes (McArdle, Fishbein & Ajzen, 1980), attributions (Donovan & O'Leary, 1983) or conditioned associations (Shapiro & Morris, 1978). Secondly, there is evidence that expectancy is important, drawing on empirical data from the balanced placebo studies of the 1970s, primarily conducted by Wilson and colleagues (see Marlatt & Rohsenow, 1980). Marlatt and Rohsenow (1980) indicated that the expectation of having consumed alcohol can be more important in determining subsequent behaviour than whether or not alcohol had actually been consumed. Thirdly, evidence from social sciences outside psychology had identified expectancy as important. For example, MacAndrew and Edgerton (1970) in their anthropological study of the use of alcohol across cultures, concluded expectancies largely mediated the "comportment" of drinkers subsequent to having consumed alcohol. Finally, given the predominantly poor record in treatment of the addictions in the past, it is useful to uncover which strategies ex-problem drinkers who have not sought professional help effectively employed to change their behaviour. The "spontaneous remission" research has documented a change in the perceived outcomes of drinking as being of high importance, although this research has not demonstrated the direction of the causal relationship between beliefs and outcome (Ludwig, 1985; Tuchfield, 1981). Thus the combined weight of convergent evidence from social science research conducted over several cultures, using laboratory and field techniques, clinical and non-clinical samples, points to expectancy as potentially important in our understanding of drinking behaviour.

It has also been frequently hypothesized that successful treatment for alcohol-related problems is mediated by cognitions (e.g. Marlatt, 1985).

Cognitive-behaviour therapy has been successfully applied to clients using self-help books (Miller & Munoz, 1976), group therapy (Oei & Jackson, 1982, 1984) and individual therapy (Sanchez-Craig, Annis, Bornet & MacDonald, 1984), however the precise cognitive factors which mediate therapy, or even whether cognition is related to outcome, is unknown (Oei, Lim & Young, 1989). Given the predominance of outcome expectancies in the alcohol "belief" research, it is probably most profitable to examine the role of outcome expectancies in treatment first, in preference to other cognitive constructs. Clearly this has required the development of psychometric instruments which measure outcome expectancies with high scientific integrity.

Measurement and Assessment Issues

There are several widely used assessment devices which document alcohol expectancies, for example, the Alcohol Use Inventory (AUI) (Wanberg and Horn, 1983) or the Marlatt Drinking Profile (Marlatt, 1976). However, both these instruments are rather limited for this purpose, as the AUI contains several potentially discrete expectancy groups within single factors making it difficult to strongly establish a profile of alcohol-related reinforcement. As the Marlatt Drinking Profile (Marlatt, 1976) is based upon an open-ended format it does not ensure that all relevant expectancy domains will be systematically evaluated and clients responses may also be limited by their expressive abilities.

There are many potential alternatives which would allow for comprehensive and discrete expectancy sets to be tapped. Clark (1988) has reviewed the main methods employed in cognitive assessment, for example, diaries, prompted recall, etc., concluding that for most clinical purposes, pencil and paper inventories are as strong a tool in tapping cognitions as any other method. Brown,

Goldman, Inn and Anderson (1980) developed the first pencil and paper inventory which specifically focused on alcohol related outcome expectancies, the Alcohol Expectancy Questionnaire (AEQ). The AEQ (Brown, Goldman, Inn & Anderson, 1980; Brown, Christiansen & Goldman, 1987) is a six factor measure which has been designed using American samples. The questionnaire has been administered to problem drinkers to investigate the development of alcohol abuse (Brown, 1985a), the prediction of relapse (Brown, 1985b) and to assist with treatment planning (Goldman and Klisz, 1982). There are also recent and comprehensive AEQ alcoholic norms (Connors et al, 1986; Zarantonello, 1986).

Despite these strengths, however, the AEQ has been criticized on theoretical grounds. For example, Brown et al (1980) did not include negative expectancies in the AEQ because "They do not form part of the reinforcement matrix for alcohol" (p.425). It is well documented that drinking behaviour can be affected by negative as well as positive consequences (for example, Farber, Khavari & Douglass, 1980; Maisto, Connors & Sachs, 1980; Southwick, Steele, Marlatt & Lindell, 1981; Bauman, 1986). The nature of the expectancy statements themselves in the AEQ has also been criticized (Rohsenow, 1983) as the questionnaire confuses general and personal beliefs. General and personal beliefs about alcohol often differ, personal beliefs being of most importance in determining addictive behaviour (Fishbein, 1982; Critchlow, 1986; Oei, Hokin and Young, in press).

Southwick, Steele, Marlatt and Lindell (1981) subsequently developed the Alcohol Effects Questionnaire which heeds some of the above criticisms. The Southwick et al (1981) measure, which has three factors, has been recently used in a student problem drinking population (Fromme, Kivlahan & Marlatt, 1986) however there are no extensive clinical norms. Similarly, Rohsenow

(1983) has attempted to redress some of the weaknesses of the full AEQ by adding two new four item scales, cognitive/motor impairment and carelessness. These two new "factors" are consistent with the view that negative expectancies should also be measured. However like the full AEQ the Rohsenow (1983) scale does not use statements of both positive and negative valence to minimize response set bias and restricts responses to a true/false format.

The literature thus suggests that no single measure appeared adequate for use in either experimental studies or clinical settings. This is further complicated by the direct application of American measures to non-American cultures with little attention being paid to the incorporation of local understandings of alcohol use into the measures. There is limited data indicating that Australasian and American conceptualizations of alcohol, and alcohol abuse in particular, are significantly different (Rivers, Sarata & Anagnostopoulos, 1986).

Recent research has indicated that consistent differences exist across cultures in expectancy profiles (Christiansen & Teahan, 1987). Cross cultural differences have also been identified by piloting items from Brown et al (1980) AEQ in a New Zealand drinking sample (Young, 1986). Following a method of development very similar to that of Brown et al (1980) AEQ, a measure of New Zealand alcohol expectancies, was developed from interviews, items being selected by strict selection criteria (Young & Knight, in press). The initial Drinking Expectancy Questionnaire (DEQ) was piloted on a sample of 333 subjects contacted through community organizations in New Zealand's four main centres. The DEQ has since been refined using both Australian and New Zealand student and problem drinking samples, and the psychometric characteristics of the scale show little difference between the two countries.

Factor analysis of both the community and student samples has revealed a core of eight outcome expectancy factors (Young & Knight, in press; Young, Oei & Knight, 1988). The eight outcome expectancy factors can be summarized by alcohol being related to outcomes of sexual enhancement, assertiveness, affective change, social enhancement, aggression, relaxation, cognitive impairment and carelessness. The DEQ also contains an expectancy factor which has been labelled as "dependence" or "loss of control" which reflects the drinker's own personal philosophy of their drinking behaviour, primarily whether they consider their drinking to be under volitional control or not. As these factors are collectively similar to those measured by other expectancy measures it appears the DEQ has convergent validity. Furthermore there are distinct advantages in using a multifactorial expectancy measure like the DEQ. Unfortunately many expectancy measures yield just 2 or 3 scores which do not offer a comprehensive analysis of drinking outcomes (e.g. Farber, Khavari & Douglass, 1980).

Psychometric data from the DEQ is as sound as the AEQ data derived from American samples. Currently problem drinkers' responses to the DEQ are being factor analysed to see whether the factors which summarise the expected outcomes of drinking in those abusing alcohol are similar to those found in non-abusing populations. The AEQ has not yet been factor analysed in a problem drinking sample. Furthermore the DEQ is being revised to provide a more complex analysis of expectancies, the updated version requiring drinkers to rate both the frequency and perceived importance of each cognition (Clark, 1988). The importance or utility of cognitions has been previously demonstrated as necessary to provide an accurate individualized picture of alcohol use (Young, 1982; Bauman, 1986; Critchlow, 1986).

Due to advances in the measurement of alcohol-related expectancies, the perceived outcomes of

drinking have been operationalised and can now be subjected to further experimental scrutiny. It must be reiterated that expectancies should not form the sole, or even main, basis of assessment, expectancy information must be complemented with other data to attempt to give a well rounded description documenting a variety of areas in the drinker's life, many unrelated directly to drinking (Sobell, Sobell & Nirenberg, 1988). Our current "core" assessment package involves measures of alcohol consumption (Farber & Khavari, 1978), alcohol problems (Selzer, 1971), level of alcohol dependence (Rankin, Hodgson & Stockwell, 1980), general well being (Kamman & Flett, 1982), self efficacy (Young & Oei, 1988), family history of drinking problems, neuropsychological status (e.g. the Trail Making Test, Reitan, 1969) life goals, perceived strengths and weaknesses as well as outcome expectancies.

Expectancies and Drinking Behaviour

The role of expectancies in the development of drinking behaviour

The notion that outcome expectancies may be important constructs in the development of drinking behaviour was first proposed by Bandura (1977). Outcome expectancies can be the result of vicarious learning (e.g. Bandura, Ross & Ross, 1963), classical conditioning (Marlatt & Rohsenow, 1980) or pharmacological responses to the drug (Valins, 1966).

Adolescent alcohol use can be powerfully predicted by parental or peer drinking attitudes (e.g. Barnes, 1977; Barnes, 1981), although in late adolescence the role of peer attitudes is particularly important (Wilks, 1986). It is interesting to note that the development of specific alcohol expectancies from social learning factors occurs before alcohol has been tasted (Christiansen, Goldman & Brown, 1985). Such expectancies can thus provide a means of

interpreting the act of drinking and associated sensations, once it occurs. Furthermore, outcome expectancies predict problem drinking more accurately than traditional demographic predictors, such as delinquency or socio-economic status (Christiansen & Goldman, 1983).

Goldman, Brown and Christiansen (1987) noted three possible processes by which drinking may accelerate once outcome expectancies have been formed. Firstly, early social learning experiences may lead to the formation of specific expectancy sets which then lead to certain types of drinking behaviour. Secondly, drinking experience may selectively alter some of the expectancies which were formed prior to the commencement of alcohol use.

Lastly, physiological or metabolic differences across individuals may account for the development of different expectations. For example, Schuckit et al (1984) discovered that the tension reduction response to alcohol in adolescent males at high risk for developing alcoholism was greater than those at low risk for the development of alcohol problems. Such differential physiological effects would be likely to be important determinants of beliefs about the outcomes of drinking.

In summary, however, while the evidence for a contribution of expectancies in the acquisition of drinking behaviour is strong from cross-sectional studies, longitudinal research is necessary to fully confirm this hypothesis. From the developmental data available to date, it cannot be stated with certainty whether expectancies are a cause or effect of drinking behaviour.

Alcohol expectancies and "in-vivo" drinking behaviour

Data which relates outcome expectancies to overt behaviour in actual drinking situations is almost non-existent. Sher (1985) investigated

the effects of expectancies of alcohol as a global agent of transformation, as measured by the AEQ, on drinking experience. He found that expectancy, mood and setting (being alone or with others) were all significantly related to the expression of alcohol's effects.

An initial study in our laboratory focused on a simple research question: were outcome expectancies stable across situations or changes in blood alcohol, and were such changes possibly related to the expression of alcohol's effects? (Young, Knight & Oei, 1988). Our study of the generalization of expectancies focussed specifically on tension reduction expectancies given the historical significance of the tension reduction theory (Cappell & Greeley, 1987), the high incidence of tension reduction expectancies (Young, Oei & Knight, 1988), and the possible association between tension reduction expectancies and maladaptive drinking patterns (Brown, 1985a; Young, Oei & Knight, 1988). Alcohol expectancies, as measured by the DEQ, were found to be extremely stable across a non-drinking situation to a drinking situation and as blood alcohol level rose up to 40mg%. Despite there being no change in expectancies within groups, there was, as would be expected, a significant difference between "heavy" and "light" drinkers, in terms of the strength of their tension reduction expectancies. This stability and the difference between heavy and light drinkers is consistent with both Christiansen and Goldman's (1983) expectancy research and Rotter's (1981) work on alcohol related reinforcement.

As Young, Knight and Oei (1988) did not, however, examine subjects who had weak expectations of tension reduction, the effect of expectancy per se cannot be estimated. All subjects in Young, Oei and Knight's (1988) study had strong expectations of alcohol as a tension-reducer. The observed results in these subjects indicated that both overt tension and

self-reported tension decreased when alcohol was consumed. This is consistent with a link between expectancy and consumption in mediating alcohol's effects. A controlled experiment with low and high expectancy subjects is currently testing a revised tension reduction hypothesis, based on expectancy (Young, Knight and Oei, 1988). Furthermore, a diary study just completed by our laboratory, but not yet analyzed, is investigating the ongoing relationship between expectancies, including tension reduction, skills deficits, mood and drinking behaviour.

The clinical utility of alcohol-related expectations

As previously noted, the majority of clinical "measurement" studies conducted to date have consistently found that the outcome expectancies of alcohol abusers are more positive than those of non-problem drinkers (Brown, 1985a; Zarantonello, 1986; Goldman, Brown & Christiansen, 1987). However, this finding is tempered with the fact that most studies to date have employed the AEQ (Brown et al, 1980) which taps only positive outcomes of drinking. Our Australasian study, using the DEQ (Young & Knight, in press) which taps both positive and negative outcomes of drinking reveals a slightly different picture. The comparison of Australasian problem and non-problem drinkers' expectancy profiles partially replicates Zarantonello's (1986) study comparing the AEQ scores of alcohol abusers and general medical patients and Connors et al's (1986) study comparing AEQ responses of alcoholics and non-problem drinkers. For example, while Connors et al (1986) found consistently higher factor scores amongst alcoholics the DEQ results suggest that alcohol abusers do not receive uniformly greater reinforcement from drinking over all expectancy domains than do more moderate drinkers. In particular, the problem drinkers in our sample derived less social reinforcement and positive

affective change from drinking than did those in the general community sample. Problem drinkers also considered that drinking resulted in greater cognitive impairment, carelessness and problems of control than did those in the general sample, consistent with their greater degree of alcohol-related problems.

This study therefore suggests that the reinforcement derived from drinking in problem drinkers is complex, problem drinkers as a group obtaining greater reinforcement in some domains than less abusive drinkers (for example, assertiveness, relaxation) and less reinforcement in other domains (for example, social enhancement and positive affective change). As with the developmental data, longitudinal research would be necessary to establish the direction of the causal relationships between belief sets and problem drinking.

With the difference between expectancy sets strongly established, a recent study in our laboratory has examined which expectancy sets best discriminated between problem drinking groups who differed in severity (Young, Oei & Melville, 1988). The DEQ, along with drinking history and current drinking problems measures were administered to 65 alcohol abusers presenting for inpatient or outpatient treatment. According to this data subjects were divided into three groups which differed in drinking severity. Discriminant analysis revealed the first discriminant function was composed of four DEQ factors. Factors of affective change, power/aggression, dependence, and carelessness accounted for 90.8% of the variance in drinking problem severity. Such potent statistical evidence again points to the potential importance of expectancies in assessment and treatment.

A comprehensive analysis of the different expectancy domains related to relapse has been undertaken using the Alcohol Expectancy Questionnaire (AEQ, Brown et al, 1980). Brown

and his colleagues documented the expectancies of alcoholics towards the end of a 28-day inpatient treatment programme. She found that strong beliefs that alcohol is a tension reducer or a creator of physical and social pleasure expressed at assessment, were highly correlated with treatment outcome one year later. Most of the other expectancy domains of the AEQ, including sexual enhancement, social assertion and global positive change, were also significantly correlated with outcome. Total AEQ scores were a more accurate predictor of year-long abstinence, days of non-problem drinking and continued treatment involvement than measures of stress and social support, traditional relapse predictors (Sandahl, 1984).

There is therefore indirect evidence from retrospective interview studies of spontaneous recovery (for example, Ludwig, 1985) and prospective studies of relapse (for example, Brown, 1985b) that outcome expectancy change is necessary to adopt a non-problem drinking style, as the significance of alcohol to the individual is altered. However, there is little published evidence investigating the relationship between expectancy and therapeutic outcome. Oei and Jackson (1984) compared two treatment groups: one which emphasized personal experience and reinforced positive expectancies of future behaviour change with a group which had no direct expectancy focus. The personal expectancy group not only differed from the control group in terms of their verbal self-statements during therapy and at 12-month follow-up, but also showed fewer drinking problems over the follow-up period. No published studies to date other than a single case (Goldman & Klisz, 1982) and a secondary prevention programme using college students (Fromme, Kivlahan & Marlatt, 1986) have employed standardized expectancy measures in treatment. This absence of data is surprising, considering the predominance of the cognitive-behavioural model in clinical psychology and its continued

use in the addictions (Oei, Lim & Young, 1989). Rather than adopt the correlational approach which has characterized expectancy research to date, our recent studies have examined the therapeutic process and the possible ways in which expectancy may mediate therapeutic change.

The expectancy differences between community and problem drinking samples (Young, Oei & Knight, 1988) have been confirmed in our treatment pilot study which utilized expectancy change as a process monitor in therapy (Young & Longmore, 1987). Young and Longmore (1987) concluded that the ability of treatment to alter the problem drinker's beliefs, or personal meanings, of his or her drinking is likely to be an important mediator of outcome. The study randomly assigned 24 outpatient problem drinkers to group therapy emphasizing cognitive-behavioural principles or group therapy based on supportive therapy and alcohol education. Outcome data indicated cognitive behaviour therapy was more effective than supportive counselling and, furthermore, those given cognitive behaviour therapy showed a significant decrease in the strength of their alcohol-related expectancies. Amongst the cognitive behaviour therapy group the individuals who most improved had significant changes in their outcome beliefs relating to assertiveness, relaxation, and cognitive/physical impairment. As previously noted, these were three of the seven factors which showed significant differences between problem drinking and community samples. The monitoring of these beliefs in therapy thus suggests that at best changes in alcohol expectancies may lead directly to a decrease in problem drinking. At the very least, such changes are likely to be a useful index of treatment effectiveness in distinguishing between those likely to relapse following treatment and those who may require less intensive follow-up. The role of beliefs in outcome and relapse is now being investigated more precisely with the

monitoring of beliefs and drinking patterns being carried through to 12-month follow-up.

The possibility of matching clients to treatments based on expectancies has also been supported by our recent clinical work, such an approach readily acknowledging the drinkers' perceptions and frames of reference. Utilizing the drinkers' expectancies to enhance personal responsibility, motivation and an internal locus of control is consistent with recent motivational interviewing techniques (Miller, 1983, 1985). Miller et al (1988) propose that motivational interviewing techniques utilize three major processes: affirmation, where the clinician offers empathy and optimism; awareness, where the drinker is made more cognizant of personal risk; and providing alternatives, where realistic means of behaviour change are offered. Outcome expectancy data lends itself to all three processes by acknowledging the drinker's own perspective, by providing information as to which expectancy sets are particularly "dangerous" and by generating treatment possibilities based on the client's belief system. In treatment, offering expectancy feedback readily acknowledges that the aim of therapy is not to label the drinker, but to understand the role alcohol fulfills in his or her life.

The DEQ can help to document the unique way in which individuals use alcohol. The heterogeneity of problem drinking samples is well demonstrated (Wanberg & Horn, 1983). Problem drinkers differ along many dimensions including the way in which they use alcohol (Sobell & Sobell, 1987). Matching clients to treatment could be enhanced by using the expectancy profile of the client to help "prioritize" therapy. For example, a client with strong beliefs of alcohol as a tension reducer and a vehicle to achieve assertiveness may be likely to benefit from relaxation and social skills training. Our single case studies employing the above matching approach have proved efficacious. Group

treatment studies are now planned to more fully evaluate expectancy as a basis for individualizing treatment.

Expectancies and treatment philosophy

Disease-based treatment philosophies

From a pragmatic and ethical standpoint, it is important that the philosophies which underlie treatment offer the client hope. At an extreme, rigid models which view alcoholism as a disease, with strong biogenetic components offer little hope of change to the drinker. In particular, such models are based upon much professional interpretation of the drinking problem and negation of the client's personal experience. This medical model purports that outcome expectancies are denial, a rationalization of drinking, or simply lying. For example, Tarter et al (1984) summarize such beliefs "as the problem drinker's unconscious attempt to protect himself (or herself) from the threatening or aversive aspects of his (or her) drinking behaviour" (page 21), whereas Twerski (1981) considers that therapists should be wary of "the alcoholic's great proclivity to lying, which is present in great abundance" (Twerski, 1981, page 21). Twerski (1981) includes a quote from a successfully treated, abstinent, problem drinker to illustrate his point, "You can always tell when an 'alky' is lying by watching his lips. If they're moving, he's lying" (page 21).

A strictly medical perspective also frequently offers an A.A. model of drinking behaviour. This model, which considers the problem drinker has no or little control over drinking behaviour, should be made to accept the label "alcoholic" and should place faith in a higher power, communicates several important themes. Firstly, it offers a dogmatic model where the drinkers conceptualization of his or her own behaviour is

of little relevance, simultaneously discouraging the adoption of an internal locus of control and self responsibility. Secondly, successful treatment using a "disease based" approach requires that the problem drinker's personal outcome expectancies regarding alcohol be extinguished and a new, narrowly defined set of beliefs be adopted. When this does not occur, the "clash" of ideologies may result in relapse (Elal-Lawrence et al, 1986).

Marlatt has repeatedly drawn attention to rigid medical models as counter-productive, given that the relapse rates for all addictions are high and it is probable that most problem drinkers will drink again or be confronted with alcohol. After accepting a strong disease model, a problem drinker who consumes even a small amount of alcohol is thus hypothesized to be at risk for a fully blown relapse. Consuming only one drink breaks the rigid code laid down by the disease philosophy, resulting in an "abstinence violation effect" (Marlatt, 1979).

Social learning-based treatment philosophies

Social learning models are becoming increasingly aware that the clients' own belief system regarding: the acquisition of their drinking behaviour; what positive functions alcohol provides them with; and how they consider realistic change may be achieved, forms a solid basis for beginning therapy (Miller et al, 1988). Clients arrive for treatment with a cognitive set regarding their drinking which has evolved over many years, and the clinician can choose to attend to this cognitive set or not. Whether a disease based or social learning model is appropriate as a starting point for therapy, is largely up to the client and not the clinician. Ignoring the client's personal philosophy will not negate their experience. Indeed, dismissing the client's philosophy and adopting a confrontational stance may lead to many problems as a positive therapeutic relationship is less likely

to ensue (Rogers, 1957) with subsequent negative outcome (Hunt et al, 1987). This further disempowerment of the problem drinker may exacerbate the reasons why they started drinking in the first place.

McClelland, Davis, Kalin and Wanner (1972) first proposed that problem drinkers drank to attain power and the outcome expectancy literature has offered a more microscopic way to investigate this somewhat "global" notion. By definition, the social learning model considers that alcohol does confer power, as alcohol is perceived as providing drinkers with skills they do not consider they have without alcohol. Medical models, rather than demystify alcohol and strip it of this power, simply reinforce the idea that alcohol is a very powerful substance, beyond the control of the problem drinker (Peele, 1984). This is likely to enhance rather than alleviate the drinkers' feelings of disempowerment.

The issues of ethics, empowering the client to deal with his or her own problems, and perceive himself or herself as the primary agent of change, is far more than an academic debate. It is important that the therapist tries to comprehend as fully as possible the client's notion of self and their wishes for change, and act as an advocate in this process. Investigating outcome expectancies provides in an empirical manner a way of taking up this challenge. While it is hardly suggested that this emphasis will be a panacea for alcohol problems, it marks a commitment to responsive, caring, and understanding treatment of problem drinking. Clinical research should not exist in an ethical or moral vacuum; we must fully weigh up what the implications of the treatment models we adopt are for our clients.

Conclusions

Research into alcohol-related outcome

expectancies is a logical consequence of the emergence of a cognitive-behavioural model of problem drinking. It is strongly established that problem drinkers, as a population, manifest both skills deficits and beliefs which perceive alcohol as a means of coping with skills deficits. Our own research has successfully developed a measure of stable outcome beliefs which is cognizant of cultural understandings of alcohol use amongst Australasian drinkers. While we have only gained tentative evidence to date that such beliefs are related to actual drinking behaviour, outcome beliefs as measured by the DEQ, differ significantly between non-problem and problem drinkers and can discriminate between problem drinking groups of different severity. Importantly, successful treatment of problem drinkers appears to be related to significant changes in outcome expectancies. This preliminary data offers promise for the cognitive-behavioural treatment model, which on current evidence, can only be described as in its infancy. Despite the tentative nature of the model, it appears to offer several advantages. For example, fundamental to a treatment model based on outcome expectancies is a philosophy that the client's conceptualization of their drinking forms the fundamental starting point of therapy and that therapy should empower the client to deal with both the alcohol problem and other more fundamental problems, which they may be attempting to deal with by drinking. The cognitive-behavioural model represents a marked shift away from dichotomous, diagnostic models of alcohol abuse and instead emphasizes understanding the complexity of factors maintaining problem drinking. There is now a basis for investigating the model in a scientific and methodologically sound manner using outcome expectancies. It is unfortunate that progress in testing the model has been comparatively low-key and slow to date, however care must be taken to avoid what is currently tentative evidence being elevated to "truth". The tendency of some researchers in the field to offer

complex models of understanding without empirical data, although thought provoking, is risking the "psychologizing" of alcohol abuse in a manner analogous to the "medicalization" that has preceded it. It is hoped that comprehensive evaluation of the cognitive-behavioural approach is not far away, and it is logical that such an evaluation should emphasize outcome expectancies, given the weight of available data.

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The Marlatt Model of Relapse: A Critique

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Writing in 1985, Donovan and Chaney noted that no fully formalized model of relapse had yet been established. They argued that what was needed was the adoption of an integrative perspective so that different aspects of the various ideas of relapse could be amalgamated into a comprehensive model. Our task is to critique what is probably the best known model of relapse, that of Marlatt and his co-workers (Marlatt and Gordon, 1980; Marlatt and George, 1984) and we hope that we have applied Donovan and Chaney's plea for an integrative, rather than an adversarial approach, to this task. We would also like to stress that a critique is an analysis that covers both strengths and weaknesses, and wish from the beginning to acknowledge the very real contribution that Marlatt and his colleagues have made to the understanding of relapse. However, it is now a decade since the 'Marlatt model' was first proposed so it is timeous to consider possible limitations of his model and moot amendments which we hope you will find theoretically useful and practically germane.

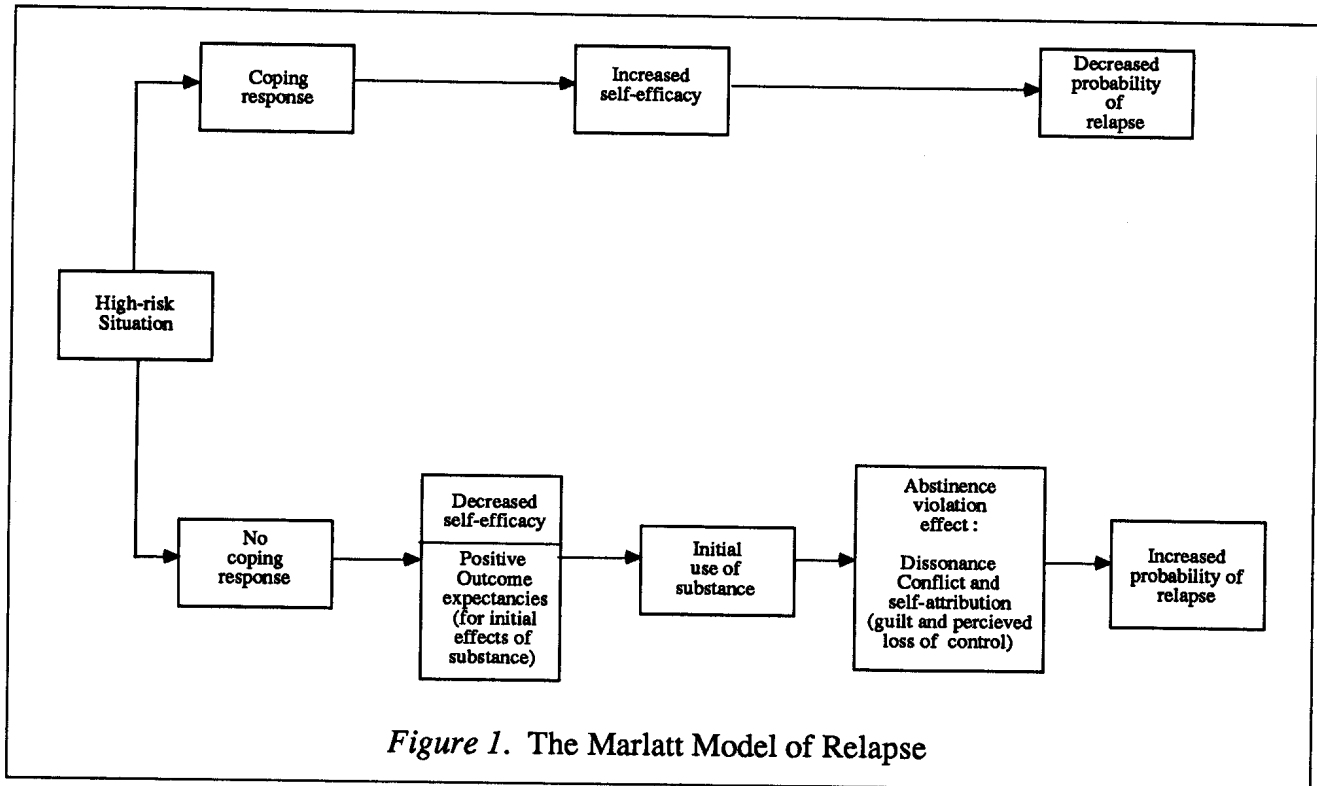
The ideas reported in this paper are partly based on chapters written by the authors which will appear in Gossop, M., (Ed) *Relapse and the Addictive Behaviour*, London: Routledge (1989).

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Whilst the Marlatt model is probably well known to many of you, it is necessary to begin by briefly outlining his model and this is best done diagrammatically, using Marlatt's own portrayal (Figure 1).

In the model relapse is described as essentially a two-staged process, with the division between the two stages being the point immediately subsequent to the initial re-use of the substance. For Marlatt there is a distinction between those factors that lead to the first use of alcohol after a period of abstinence, and those that prompt the continued use of alcohol. In the Marlatt model, the initial use of alcohol occurs because the individual encounters a situation with which she/he is unable to cope. This failure triggers the first drink, and further use is precipitated by what Marlatt has labelled the Abstinence Violation Effect (AVE).

This concept has recently been re-formulated (Marlatt, 1985), and the AVE is considered to be the end result of two psychological processes. These are to do with the attributions of the individual about the causes of the behaviour and the emotional responses to that attribution. Marlatt has argued that if an individual attributes the resumption of alcohol use to factors that are deemed to be uncontrollable and perhaps unchangeable (e.g. such as a personal defect, or to being in the grip of a disease) then a sense of



hopelessness may be generated and the probability of an extended relapse increased. Alternatively, if the individual perceives the cause of her/his relapse as being due to external, perhaps "one-off" factors, then the emotional reaction to this type of attribution will be less severe, since the characteristics of the situation will be deemed transitory, and not insurmountable. The AVE is therefore a dimensional construct with the severity of a relapse being dependent upon the degree of the emotional response to the initial resumption of drug use. The greater the AVE therefore, the greater the push toward resumed use.

At this point it must be noted that Marlatt's formulation of his model has stimulated much research and discussion, and has also allowed clinicians and counsellors to get to grips with a phenomenon which was often ignored; largely on the basis that counsellors were as much defeated by relapse as were their clients. Interestingly the model has been accepted with modification, by both disease and non-disease adherents. For example, in Western Australia,

counselling offered by statutory and non-government organizations operating on markedly discrepant models of addiction do have relapse prevention and management programmes included in their treatment responses. This is a testimony to the face-validity of Marlatt's model, and his prolific writing and skillful marketing of the model.

Indeed it must be acknowledged that it was the opportunity to read some of Marlatt's early work, and then having the opportunity to discuss his ideas with him, that prompted both Steve Allsop and myself to become more interested in the area of relapse. Our subsequent comments - or five 'points to ponder' are an acknowledgment that his work prompted us to think, and to become involved in the clinical application of relapse prevention and management techniques. Over the course of our work, especially clinically and in teaching about relapse, a number of issues have arisen and these form the basis of this critique. Much of what follows is speculative and your reflection or comment on these issues will be most welcomed.

Point to ponder: - I

Is the Emphasis on the Immediate Situational Determinants Warranted?

Marlatt's relapse model stemmed from earlier work he had conducted assessing the effectiveness of electrical aversion as an intervention for problem drinkers (Marlatt, 1973). Marlatt recorded details of the situations in which patients reported resumptions of drinking or relapse. On the basis of data provided by 65 problem drinkers, he broadly classified reasons for relapse into frustration and anger (cited by 29% of the sample) social pressure (23%), intrapersonal temptation (21%), negative emotional states (10%) and others, such as celebrating success. This analysis was subsequently further extended to include the reports of relapses by heroin addicts, smokers, and gamblers and a more detailed classification of relapse situations was derived (Cummings, Gordon and Marlatt, 1980). In essence, relapses could be dichotomized as being due to either interpersonal or intrapersonal situational determinants, and these broad headings could be further subdivided.

In one study in which Steve Allsop and I were involved in Scotland (Fulton, 1983), the relapses of 30 patients, who had received abstinence oriented treatment were followed up and their relapses investigated.

This is one:-

"Saturday night at 9 o'clock I went for a carry out. I went to the hotel and bought a half bottle and came home with it. I was fed up. From my window I see them going up and down the road in the pub and you know exactly where they are going and I said I'm going for one as well, that's how it happened. Friends and neighbours I saw, it's only

a wee village I stay in and you know everyone in it. You can more or less tell what pub they are going to. I thought I have been off it five months - surely I can go for a nice drink".

The above example raises a number of issues. The first is that relapses are complex experiences, the explanations of which are difficult to classify. Is the above an example of interpersonal or intrapersonal determinants? The respondent notes being 'fed up', being influenced by external cues, plus having a desire to test out personal control. We discovered that, unlike Marlatt, our ability to reliably classify relapses was poor. We also encountered something else. Whereas patients are often reluctant to admit their relapses to treatment personnel, - who often by necessity operate on a 'one more relapse and you're out' philosophy, - when acting as an independent researcher, who has no say in the clinical management of the client, one is not infrequently the recipient of 'confessions'. In this capacity 'relapses' can take on a different hue. But 'good' and 'bad' relapses are reported. Indeed one becomes impressed by the skill with which some relapses are arranged and undertaken, and also by the very evident enjoyment and excitement that derives from 'having a relapse'. For some clients there is no doubt that a relapse is the only candescence in the bleak tedium of abstention. One illustration will suffice:-

"It was Wednesday, I was down the town doing the shopping and I met a friend on the corner. He had a big win on the horses. He asked me to go for one and I thought that one drink would be alright but it wasn't. I was happy as hell that day."

While the above may well constitute a high risk situation, to attribute this relapse to a skill deficit - presumably that of an inability to say 'no', is to miss the complex, idiosyncratic nature of the

relapse. In the above case an unemployed male, "doing the shopping", which is a task not normally undertaken by working class males in the west of Scotland, is confronted with the opportunity to partake in the considerably more masculine task of 'celebrating' a friend's success. This was no doubt an especially attractive proposition because of the anticipation of largesse. It is to be wondered if any social drinker of similar personal circumstances would not be prompted to over-consume. If such behaviour is considered as normal, then is it legitimate to ask of counsellors that they imbue their clients with 'coping skills', that are not possessed by social drinkers? This raises the issue of the social context of relapse, an issue that will be examined in detail later.

There is also the issue of attribution. Retrospective reports of clients' relapses are suspect not only because it is usually the 'bad ones' that get reported to clinical staff, but also because the individual has to explain her or his relapse in terms that will allow the counselling process to be sustained. Thus the attribution, or explanation of any relapse, is in all probability going to be couched in external terms - "I did poorly because there was a lot of pressure on me" rather than internally, as attributions of success usually are - "I did well because that's the type of effective and strong person I am". We are all inclined to claim any successes for ourselves and to attribute any failures to others or to overwhelming circumstances. None of us like to admit, especially to others, that what seemed like a very good idea last week, was in fact a decision that caused much personal or familial misery this week. Thus, relapsed clients are unlikely to report that they deliberately decided to recommence their drug use, but rather that they were overwhelmed by circumstances and it was not really their fault. This is not to say that some relapses will not be caused by an abstainer being overwhelmed, that does of course happen; but it is the proportion of relapses that are so engendered that is important. It is our view that the high-risk

situation/no coping skills emphasis has been overstated. The emphasis within Marlatt's model is that relapses happen to people, rather than people make or allow relapses to happen.

In this regard it is relevant to cite another relapse report as illustration:

"I met an old friend in the High Street, and made arrangements to meet him the next day. I knew I would take a drink when I was to meet him. Next day I met him in the pub. I was feeling guilty about drinking but pleased to have met him. I was reasonably happy".

The issue here is not only one of pre-planning of relapse, but also that the client in question had been in similar situations previously and had socialized in pubs without drinking alcoholic beverages. This relapse was not due to a lack of coping skills but rather that the client decided not to use the skills he had. Thus, having coping skills is not the same as deciding to use them.

Interestingly Shiffman (1982) in his work into the relapses of smokers noted a similar problem. In a study of the situational determinants of 183 ex-smokers who called an independent relapse hot-line (thus overcoming some of the client-counsellor difficulties noted above), Shiffman found that negative affect, particularly anger, anxiety or depression; or positive mood states often preceded relapses or 'near-relapses'. Interestingly though, whether a crisis became a relapse was determined by the degree to which people deployed coping skills. Shiffman concluded that neither situational events nor coping skills were the whole answer:

"Data currently under analysis suggests that all of them [relapsers] were able to report coping responses they had applied in the past. Smokers previously treated in smoking clinics

(and therefore presumably provided with coping skills) were not exempt from such lapses of coping. Lack of coping skills, per se, was therefore not the issue. Those ex-smokers had coping skills but seemed to apply them erratically and intermittently". p.84.

This is an important issue and introduces our second point to ponder - The issue of resolution and commitment to change.

Point to ponder: - II

Psychological Antecedents to High Risk Situations

Marlatt (1973) has noted that 'causes have causes' and it is relevant to consider the events that precede an individual being tempted to re-use any substance. We consider that it is useful, and necessary, to broaden this analysis out, to include the process whereby any person attempts to alter any established pattern of behaviour. Marlatt and Gordon have defined relapse as 'a breakdown or failure in a person's attempt to change or modify any target behaviour'. Thus, one can relapse from an exercise programme, a saving plan, a diet or resolution to give up the horses or cigarettes. The point here is that making a resolution to change is a common process, undertaken by all of us from time to time, and usually with only short-term impact.

Elsewhere (Saunders and Allsop, 1987), we have defined relapse as being "a reversal, either temporary or permanent in a resolution to change". In both definitions it is implied that relapse is a process; however, in the latter definition emphasis is placed not only upon the reversal, but also on the initial decision to alter the specific troublesome behaviour. Thus the subject area covered by relapse includes those factors that influence an individual to make a

resolution to change, the quality of the resolution, and the consequences both negative and positive of undertaking resolutions.

What we contend, is that we need not the tighter and closer inspection of why 'alcoholics' 'relapse', but the greater investigation and cognizance of why you and I do not keep our resolutions. Being a 'relapser' really is a common process, the understanding of which is best served by investigating non-pathological conditions, in normal rather than in clinical samples using established psychological models.

In this regard the work of Sutton (1986) warrants mention. In a series of studies he has attempted to apply mainstream decision making theory to the giving up of cigarette use. Sutton has recently outlined the problem facing those of us who attempt change:-

"The key decision is seen as one of whether or not to try to change one's behaviour... Once the person has embarked on such an attempt he or she will be faced repeatedly with another decision, namely whether to persevere with the attempt, often in spite of unpleasant withdrawal symptoms, or whether to abandon it. *It is an unfortunate fact that the decision to try to change can always be deferred and when acted on can be revoked at any time*" (p.109) (our emphasis).

In his investigation of why people give up smoking Sutton has employed Subjective Expected Utility theory, a decision making model based on the premise that individuals act *as if* they were weighing up the pro's and con's of any behaviour in terms of its expected benefits and costs. In one study involving smokers who had responded to a T.V. programme offering a self-help quit kit, 2,000 respondents completed questions as to their anticipated outcomes if they

were to continue or to stop smoking. Respondents reported whether they thought stopping or continuing to smoke would reduce/increase the likelihood of various outcomes - for example developing heart disease, lung cancer, being irritable, experiencing withdrawal symptoms or putting on weight. In this study Sutton discovered that respondents did evaluate the various suggested possible outcomes differently, and that these could be added up to produce an overall value score which indicated whether the individual perceived stopping as being more desirable than continuing, or vice - versa. Those that did place greater value on stopping rather than continuing were more likely to indicate that they would attempt to stop in the future, and on three month follow up were also more likely to have made an attempt to stop. The value of perceiving addiction behaviour in this way is that it allows individuals to simultaneously have reasons for stopping and reasons for continuing to use. The eventual outcome depends on the overall balance of these conflicting expectations.

This approach is consistent with Stimson and Oppenheimer's (1982) view - adroitly expressed in their report of a 10 year follow up of 128 heroin users - that:

“at any time there are some advantages in continuing as an addict and some in ceasing. The conflict between reasons for continuing and reasons for stopping is a source of tension. In retrospectively assessing their lives, many (addicts) saw a shift in the balance between advantages and disadvantages as having led them to make a decision to stop using drugs.”
(p.160)

Prochaska and DiClemente (1986) in writing about the transition from being a pre-contemplator (i.e. a happy user) to that of contemplator (or to a stage of feeling two ways about one's drug use)

and then to actioner, have acknowledged that whilst the path from one to the other is poorly understood:

“decisional-balance variables are associated.... with movement from pre-contemplation to contemplation... The pro's of smoking clearly outweigh the con's until subjects move into the contemplation stage. During this stage however the cons being to surpass the pro's even though both are important for the smoker” (p.16).

These and similar studies, have several implications for our understanding of 'relapse'. The first is that people who attempt to change are not all the same. The task of giving up smoking for example, is approached with different levels of inclination or perceived value. How worthwhile once considers an activity will influence the amount of time, effort and costs one is prepared to expend to reach the set goal. An important implication of Sutton's work is that any investigation of why people make and then break a resolution, requires an understanding of the overall value placed on the attempt by the individual. Examination of, for example, common immediate precipitants of 'relapse' is severely flawed if in such investigation it is assumed that all people start equally and hence are similarly influenced by a given event. An individual who is only just convinced of the value of giving up smoking is more likely to be challenged by an offer of a cigarette after dinner, than is an individual who places high value on stopping.

Thus high risk situations are only high risk because the individual perceives them as such, which is more a function of the individual than the specific event. It is possible that relapses occur because the individual embarks on behaviour change whilst the balance between the costs and benefits of continuing or stopping to

use drugs are still tipped toward continued use.

If a literary example is allowed, Iris Murdoch's description of the separation of the two central characters in 'Nuns and Soldiers' (1981) is most apposite. Murdoch wrote:

"The resolution taken by Tim and Gertrude to make an end of their love had proved a weak one. As they a hundred times said later, they came together again because they could not do without each other. The illness was too extreme, the affinity too deep, the need too violent, the destiny too relentless. They employed many words, smiling at each other and holding hands. Tim had only managed to depart on that night, and Gertrude to tolerate, to survive his departure, because a secret voice in each of them said: 'this is not the end'. (p.279).

How many of us, when making a resolution to give up something, some person, or some activity, are aware, even as we espouse the need for change and embark on action, that this is not really the end of things?

Resolutions to change do vary in their quality, robustness and necessity. The very making of them, in terms of weighing up the pro's and con's of a behaviour, can influence the eventual outcome. This has been well described by Stewart (1987) in her graphic, autobiographical account of heroin use. She duly weighed up the benefits of quitting. Her list included:

"trips to the ballet and the theatre, holidays abroad, buying new clothes, and getting a new hairstyle. At the bottom on the list, as if it did not matter as much as the rest came the single statement 'change life'. It stuck out like a sore thumb. It was the crux of the

matter. A new hairdo could not outweigh the hunger for smack. The command to change seemed ludicrously grave and quite impossible to carry out. *Nevertheless I got on with the cure, motivated like many others primarily by impecunity. I waited impatiently for the moment when I could relapse*". (p.153) (our emphasis).

In summary, it is perhaps useful to stress that how high-risk a situation is, depends on (i) the quality of the initial resolution to change one's behaviour, and (ii) the commitment, or time, energy and dedication, with which one pursues the intended behaviour change. If one is robustly resolved, and the commitment to change is also high, then challenges, even of some magnitude will be resisted. However if the initial resolution is weak, the commitment half-hearted, then a moderate temptation may well tip the individual over into re-use. In essence, situations are only high risk because one's resolution and commitment make them so. All the coping skills in the world will not render a high risk situation innocuous unless the individual wants to remain faithful to her or his initial resolve.

As will be discussed by Steve Allsop in the following paper this perspective has important clinical implications. The principal task may well be to ensure that people's resolves are resolute and their commitment high, rather than trying to inoculate people with coping skills. In understanding relapse there is a need for an understanding of how the resolution to change was precipitated and where in the overall context of the individual's drug use career, the intention to stop, or curtail drug use, fits. Given these considerations it is relevant to raise a related issue, which is my third point to ponder.

Point to ponder: - III

Is Relapse Really Two-Staged?

As noted above, Marlatt has suggested that relapse occurs because an abstainer encounters a high-risk situation, which then, because of the Abstinence Violation Effect, is escalated into continued use. We should come clean at this point and note that intuitively we do not like the AVE concept, and our reasons for being so prejudiced are three-fold. The first is that if relapse is a process that can be understood by reference to social-psychological principles, is the field well served by the packaging of concepts such as cognitive-dissonance and attribution theory into "The AVE"? This has the potential of being an addiction-specific entity which further mystifies the issues of relapse and removes it from the experience of ordinary, non-addicted people. A second problem is that the AVE is postulated by Marlatt to occur when:

"the individual is personally committed to an extended or indefinite period of abstinence and a lapse occurs during this time period".

Under these parameters the AVE can only account for some relapses. For example, patients on controlled drinking programmes, or non-abstinence drug therapies such as methadone, would be excluded from experiencing the AVE. In addition, the mechanism by which the AVE works, paradoxically implies that the most committed will relapse severely; whilst the hesitant or undecided will not be so greatly affected. This is obviously illogical.

A third problem is that it is very possible that people move from initial to continued use of a substance for other reasons. Addiction behaviours are acquired over many years of practice, and because such behaviours are over-learned they

are characterized by predictability. In the situation in which one resumes drug use after a period of abstinence, 'spontaneous recovery' may be of importance. Pavlov (1927) was the first to report that after the performance of any specific, well rehearsed behaviour has ceased for a time, its repetition, for any reason, will result in the rapid reinstatement of the full, previous behaviour pattern.

Additionally many lapses occur in situations heavily endowed with attendant cues for continued use. In a current study of gender differences in relapse (Saunders, Baily and Allsop, in preparation) we have found that none of the males in the study that have relapsed have taken a single drink but have 'gone drinking', with their first drink being taken in situations where further supplies were readily to hand. Similarly smokers tend to relapse and re-use more than one cigarette when alcohol is available and they are surrounded by other smokers and easy access to cigarettes (Lichtenstein and Weiss, 1986).

Also Hodgson, Rankin and Stockwell (1979) have demonstrated, such cues for continued drinking also include the internal, physiological concomitants of alcohol use, with 'severely dependent' people being more likely to be triggered off into heavy use because of the impact of a priming dose. Heather and his colleagues (Heather, Rollnick and Winton, 1983) have found that belief, or expectation is also an important determinant, with people who believe that controlled alcohol intake is not possible, being more prone to heavy alcohol use if they resume at all. Finally, the very nature of the addiction behaviour may make heavy alcohol use probable if a resolve to abstain is broken. If one does take up an addictive behaviour again, then knowing that such re-use may well cause the individual trouble (e.g. spouse complaint, work difficulties or adverse physical symptoms) makes doing more of it (rather than less) make sense. After all,

if trouble is inevitable you may as well have a major involvement rather than a dabble.

All of the above factors are possible alternative explanations for why initial re-use becomes established re-use. Janis and Mann (1977) working from decision-making theory have also proposed a mechanism whereby ill-conceived decisions are maintained. They have argued that an individual can reduce the psychological discomfort of a bad decision, and noted that in order to avoid:

“perceiving himself as weak-minded, vacillating, ineffectual and undependable, the person turns his back on pressures to reconsider his decision and stands firmly with his chosen alternative, even after he has started to suspect that it is a defective choice.” (p.283).

Whilst speculative, many of the above mechanisms, if operable, would not be consistent with a two-staged process for relapse. Rather continued re-use would be the outcome of factors that were already having effect upon the individual prior to her or his resumption of use.

It is also relevant to note that given the centrality of the AVE concept in Marlatt's relapse model, it has not drawn the research attention that it merits. Cooney et al (1987) did find that problem drinkers who were allowed to hold and smell their favourite drink, did report decreased self-confidence and guilt after the cue-exposure, findings which are not inconsistent with an AVE like entity even though no alcohol was ingested. Similarly Curry, Marlatt and Gordon (1987) in a study of smokers, reported that abstinent smokers whose lapses developed into relapses, were more likely on retrospective report to make global, internal and stable causal attributions (i.e. report a more intense AVE) than were those subjects who lapsed but then returned to abstinence. The

AVE was found to be the strongest single predictor of the resumption of tobacco use.

However, as noted by Brandon, Tiffany and Baker, (1986) the difficulty with such work is that the retrospective nature of the data collection may cause a bias. It is possible that subjects who relapse, and thus know that they failed in an attempt to change, report more guilt and low self esteem than those who lapse but then stop. Rather than being a cause of a lapse escalating into a relapse, the AVE may well be a consequence of having relapsed. In a study of 82 people who had undertaken a two week smoke-stopping programme, Brandon et al found that of the 54 subjects who smoked at all during a two year follow up, the resumption of smoking after initial use was very variable. The average delay between first and second cigarette was 13 days - but half of the subjects did have a second cigarette on the same day as the first - and resumption of daily smoking (3 consecutive days) occurred an average 42 days after initial use. The investigators examined closely the cognitive, emotional and physical responses to subjects' initial relapse.

Interestingly one-third did not remember or cite any cognitive responses, and nearly half reported no affective/emotional consequences. Of those that did report emotional responses to their first use, self-blaming or self-depreciating thoughts were the most common, but such subjects did not have worse relapses. Brandon et al concluded:

“One disappointing aspect of this research is that we were unable to obtain data that strongly supported Marlatt's relapse model. For example there was no evidence that reacting to a lapse with depression or hopelessness resulted in a worse prognosis than did a different affective reaction. There was a tendency for subjects who were depressed before their relapse to return

to regular smoking more rapidly than other subjects... Moreover we found no evidence that particular cognitive responses to relapse (e.g. self-depreciation) was related to relapse rate. Nor was there any evidence that relapse progressed more quickly the longer an individual had been abstinent". (p.116).

To conclude this point to ponder, it is relevant to note that whilst the Marlatt model has prompted much research into the initial precipitants of relapse, the second stage of the model has been less well investigated. It is relatively easy, of course, to speculate and what is needed is careful and deliberate comparative studies of those whose lapses escalate and those whose lapses are temporary breaks in abstention.

Point to ponder: - IV

Are we studying the correct group?

"The phrase 'relapse prevention' may usefully stimulate thought, break old moulds, get the adrenaline flowing, give the title to a book, but at the end of the day it can be an invitation to an artificial segmentation of the interacting, total and fluctuating process of change".

This challenging quotation by Edwards (1987), merits consideration. Is it possible that the close scrutiny of relapse has distracted researchers from a focus upon the real issue - that of the giving up of addiction behaviours? The study of relapse is after all the investigation of those that only give up for a time. Perhaps focusing on the 'succeeders', or those that make the break, would be more informative?

Inevitably, if one studies a particular area, that scrutiny does become narrowed down,

individualistic, and reductionistic. It can also become removed from being able to address the major variables that influence the area of concern. In the study of relapse has sight been lost of the individual drug user being a social actor with a drug use career and her or his own set of social circumstances? It is highly probably that the answer is yes. For example, Polich, Armor and Braiker (1980) have shown that the lives of people attempting to make the break from excessive alcohol consumption are less well endowed than those of non-problem drinkers. The impact of bad housing, poor job opportunities, embittered relationships and dissatisfaction with one's lot in life, are variables which are critical to outcome but which have not received sufficient emphasis within the relapse literature.

In reviews of treatment outcome it is consistently reported that client characteristics, in terms of marital status, social stability and employment record, are predictive of outcome. Individuals whose lives are more intact do better. For example addictive patterns of drug use are so time consuming that once stopped, acres of time are available. This is much easier to pass if one has home, family, friends and employment. Lacking such resources, the boredom of giving up can be immense.

The work of Billings and Moos (1983) is relevant here. They compared 'relapsers' and 'survivors' and found that respondents who reported high ratings on family and job satisfaction scales tended to do well, whilst those without such supports reported twice as many adverse life events and high 'relapse' rates. They also reported that the gradual achievement of abstinence prompted the development of more effective ways of coping with everyday existence. There is a need to consider the development of such skills against the background of social supports and quality of everyday life. As Tuchfield (1981) found, in his study of some 50 'spontaneous remitters' from alcohol problems,

successful resolution was a staged-process in which the initial resolution prompted action, which was then maintained by those who had supportive families, good quality relationships and worthwhile employment. These social factors are also reported by Stall and Biernacki (1986) in their across-the-addictions review of why people give up.

The implications for the study of relapse is clear. The social context in which the decision to change is made is critical in determining outcome. Giving up excessive drinking or revoking a resolution to do so, is a process that is influenced by the events that precede the decision to stop, as well as those that follow - all set against the background of the individual's social circumstances. The strength of the resolution to change is not immutably set at the beginning but is influenced, perhaps daily, by the consequences of undertaking action. The benefits of the action will be influenced by one's social milieu, the response of friends, relatives and social contacts. The amount of plasticity in one's life-style, the opportunity for movement and change, needs to be taken into account.

Perhaps nowhere is this better portrayed than in the following quotation taken from O'Connor's (1983) work with aboriginal fringe dwellers:

"Alcohol is as essential to the life and existence of those camps, where heavy drinking has become a way of life, as is the air they breathe to the persons who live there. This is a form of dependence, which I have termed contingent drunkenness. It is contingent in that it depends for its occurrence or character upon some prior occurrence or condition: the correct physical and social environment.

In the tightly-knit life of the fringe camps, relying on traditional kinship

responsibilities and beset from without by threats to their way of life and even existence as an entity, conformity and solidarity are cherished values To belong to the group and to live in the fringe camp is to drink with the group. If one does not drink with the group one may have a physical presence there, but one does not belong".

The issue here is that if research tells us that life style, social circumstances, jobs, houses, family life and quality of opportunity matter, then perhaps relapse prevention and management needs to be concerned with intervention at that level as well as with individuals. This theme has been addressed by Grabowski (1986) who noted that:

"the major problem confronting therapists and scientist - clinicians is the... anomalous environment in which tobacco use is not only legal but substantially encouraged on the one hand and deemed hazardous and unacceptable on the other. This issue is not resolvable by better theory. The greatest increments in enhancement of the diverse interventions will come less from future refinements in the techniques but more through changes in the social environment via legislation and social policy."

Those of us involved in treatment need to appreciate that increasing the resistance skills of individuals or in some way pumping up their moral fibre is of limited value if the environment is allowed to become increasingly amoral. Attempts to induce better coping skills are irrelevant if we simultaneously permit the challenges to become more taxing and the drug related stresses of everyday life more burdensome. Resisting temptation is made easier if there are few or very few temptations - a notion

which has been well summarized by Wallack (1984):

“Health educators should not only seek to empower individuals to change themselves, but provide skills for changing conditions that are central to the problem. If the larger environment is not changed, then individual change, when it does occur, simply will not be sufficient”.

Point to ponder: - V

Is an Alternative Relapse Model Warranted?

Having pondered relapse and given expression to some criticisms of the Marlatt model it is beholden on us to stop quibbling and produce an alternative model which builds upon Marlatt’s pioneering work.

Perhaps the single most telling part of our model is that relapse is omitted. In order to place relapse within an appropriate context we contend that it is necessary to avoid the focusing down and reductionism that the study of relapse per se can encourage. Our model, which is admittedly somewhat tongue-in-cheek, is based on the idea that the individual drug user, or any behaviour changer, is an actor within a social setting, beset by economic, familial, occupational, psychological, career and physiological forces. Relapse, or more pertinently its opposite - behaviour change - is orchestrated and sustained by a complex interaction of forces.

We have divided the process of successful behaviour change into four stages. The predisposing factors for initiating behaviour change are essentially the individual’s drug use career to date, the values placed on continuing to be a user and the converse values placed on stopping, the quality of the individual’s life-style and the influence of family and friends upon the user. All may encourage or restrain drug use and the sum of these influences - which might be labelled ‘motivation’ - will determine whether a resolution to change is precipitated. As noted above, resolutions vary in quality, in type and in robustness, and it may well be that for the giving up of drug use the decision to stop will be a much conflicted and emotional one - hence the flash of lightning in the model.

However, once embraced, the action of carrying out the resolution - in our terms for commitment - is itself influenced by cognitive, social and life-style considerations. The literature is replete with references to self-efficacy, the value one places on the resolution, cognitive vigilance, coping skills and high risk situations. They have their place but these psychological constructs need to be tempered by an appreciation that they are fluid variables open to influence by the individual’s day to day existence. Rather than being the engine room of action they are correlates of the social milieu of the behaviour change. If the individual’s environment is well endowed with, or has the potential for, good quality interpersonal relationships, agreeable employment, and supportive familial contacts,



The Saunders and Allsop Model

then successful outcome is more likely than if the individual is locked into bad housing, unemployment and fractured relationships. The degree of plasticity, or potential for change within the existing lifestyle is important, and will influence the psychological state of the actioner.

In emphasis of this we have labelled our final stage as lifestyle change, since our clinical and research experience dictates to us that maintaining a drug free, or markedly reduced pattern of drug use, is only achieved if such a shift occurs. As for the relapse, the giving up on a resolution can occur at any stage, and can be induced by a shortfall or adverse change in any of the factors contained within the model. From this perspective the issue of why people 'relapse' is a very difficult one and the components in any 'relapse' formula are many and varied.

The test, of course, is whether this type of modeling leads to greater clarity of thinking or improved clinical application. We will leave you to judge for yourselves, but I hope that Steve Allsop will now, in his portrayal of some clinical work based on this understanding convince you of the merits of at least some aspects of this presentation.

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The Effectiveness of Relapse Programmes

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As Bill Saunders has noted (pages 63-76 this volume), we have some concerns with some of the models of 'relapse'. We would particularly stress our concern about the over-emphasis given to immediate precipitating events. Without wishing to denigrate the relevance of these events, this emphasis has diminished the recognition of the *process* of 'relapse'. In addition, we have noted that the term 'relapse' itself, and a reliance on the retrospective attributions of clinical samples, have distinguished the phenomena from ordinary human behaviour and at the same time led to a de-emphasis of the role of decision making. Consequently there have been only limited attempts to incorporate the role of decision making into models of 'relapse' and even less inclination to influence decision making in the clinical setting. Instead it appears that there is often an inherent assumption that all clients who arrive at a clinic have already resolved to change,

are committed to change and simply require skills to maintain that decision. This rush to equip clients with coping skills demonstrates little acknowledgment that many drug users feel two ways about their drug use and that whilst there are disincentives to use, there are also many incentives to continue (Orford, 1985). Many clients may be hesitant, even reluctant, to discontinue their addiction behaviour, and simply offering them assertive skill training, for example, does not address the prime issue of whether the client wants to stop.

We have argued therefore, that to understand the process of 'relapse' we must commence our investigation and clinical endeavour with the initial resolution to change. For this and other reasons, expounded in our earlier paper, we have also defined 'relapse' as a 'resolution change'.

Finally, we have paid some attention to the issue of whether 'resolution change' is a two-staged process and concluded that this modelling is simplistic and misleading. Despite our musings, for many clinicians there is still the vexed question of "why does some use invariably get followed by more use?" Notwithstanding the pertinence of this question, the focus of clinical response has traditionally been on avoiding/preventing the initial use. Discussion of how to avoid 'some use' being followed by 'harmful

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Clinical Practice I

use' has been considered taboo. In the context of traditional explanations of 'loss of control' this is understandable. One cannot develop skills to respond to a physiological imperative. Whilst criticising Marlatt's model of 'relapse', we would concur with his argument that researchers and clinicians should develop strategies that not only help prevent an initial breakdown in resolution but also minimise harm if this does occur.

On the basis of our arguments, we would suggest that the optimal point at which to commence intervention is related to the making of the initial resolution to change. Without a robust resolution to change, even quite trivial challenges will quickly erode any intent to move out of the addiction behaviour, and, with a minimal

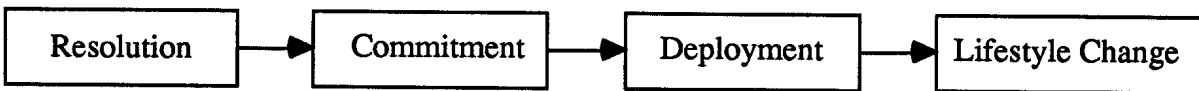


Figure 1. A Model of Resolution Change

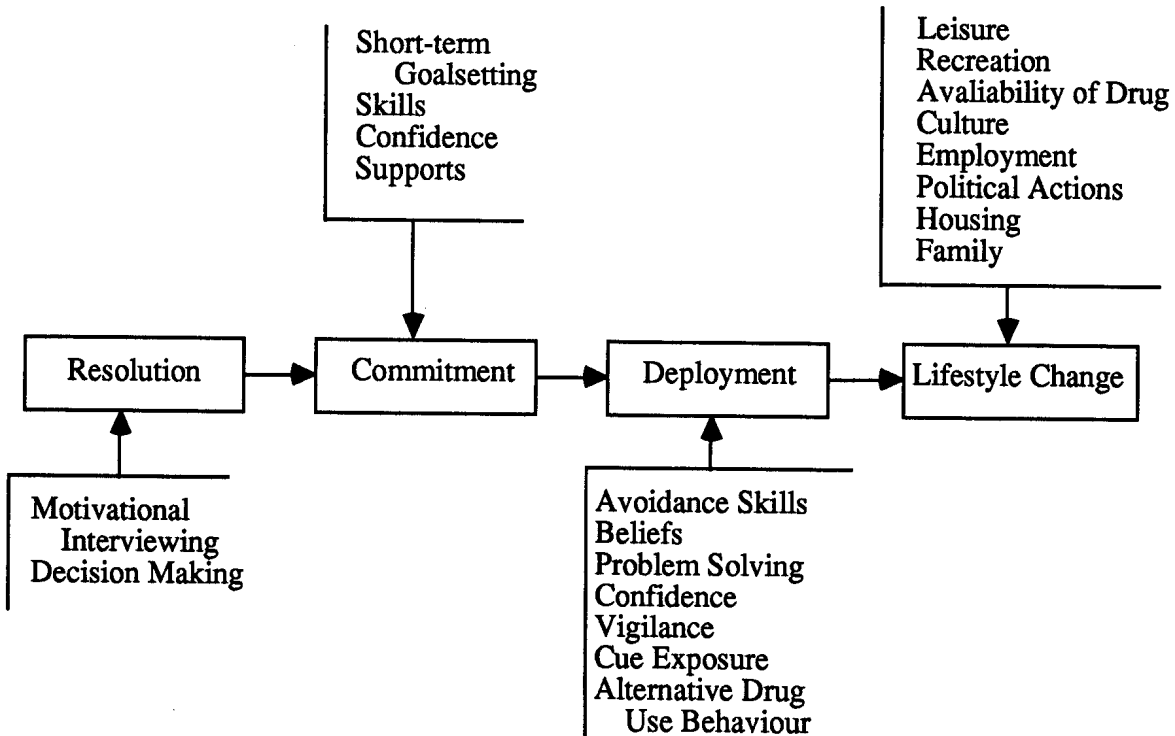


Figure 2. Proposal for an Intervention Programme

or low level intent to change it would be unlikely that any coping skills would even be deployed. Whilst a proportion of clients will have made a poor quality resolution to change, others, in a state of ambivalence, may not have made any such resolution at all. To minimise the risk of 'resolution change' it would seem logical for clinicians to invest effort in developing and enhancing the initial resolution to change.

A Model of Resolution Change

Bill Saunders has already described our model of resolution change. This model has several practical implications. In Figure 1 we have outlined a simple linear version of this model. We suggest that moving out of addiction behaviour involves a process of making the initial resolution to change, translating this into commitment and deploying strategies in line with this commitment. The maintenance of the resolution will be significantly influenced by lifestyle factors, specifically the quality of life after change.

In Figure 2 we have employed the model as a framework for an intervention programme. The programme would commence by developing or enhancing the clients' resolve to change the addiction behaviour. This resolve would then be translated into commitment by negotiating with the client desirable and attainable goals. Such goal setting should also augment the individual's confidence to enact change. The individual will encounter challenges to her/his resolution and therefore will require the appropriate coping responses. Some of these will already be available to the individual but new ways of responding to problems can be taught. Finally, the programme would address itself to the broader environment in an attempt to improve the quality of the client's lifestyle. The various strategies that can be utilized have been outlined in Figure 2.

Whilst this framework could provide a focus for discussion it is incumbent on the proposers to provide both a rationale and indeed to test out their proposals. To meet this demand we have drawn on the addiction behaviours literature and a recent investigation conducted by us into an experimental relapse prevention and management programme.

The Making of Robust Resolutions

A robust resolution to change is likely to be achieved via the elicitation of the client's concerns about drug use and a careful appraisal of the pros and cons of using versus the pros and cons of changing (Janis and Mann, 1977). Miller's description of motivational interviewing (Miller, 1983) is a technique whereby this may be attempted. By encouraging the client to verbalize her/his concerns about drug use the clinician can help tip the motivational balance in favour of change. This intent will be further enhanced if a client comes to perceive that current drug use frustrates the achievement of other desirable goals and that these goals can be achieved as a result of change.

The motivational balance is likely to fluctuate in relation to a number of factors, some of which we will discuss below. One pertinent factor appears to be whether the individual keeps salient the initial reasons for change. Human beings do tend to selectively recall pleasant memories and disregard or forget less pleasant ones. Litman and her colleagues noted that 'survivors' were more likely to keep salient their initial reasons for change (Litman et al., 1983a, 1983b). It would seem appropriate therefore, to encourage clients to record their reasons for change at the outset and then review, and add to these over time - particularly at times of risk.

From Resolution to Action.

Even a robust resolution will come to nought unless there is some translation into initial action, or in our terms commitment. Commitment will develop to the extent that the individual perceives there are attractive alternatives to current drug use and believes that these are achievable. The availability of the requisite skills, confidence in the ability to apply them, and the existence of accessible external resources are components of this translation (e.g. see Biernacki, 1986). It is evident that those individuals who do move out of addictive behaviours frequently cite access to such resources as significant contributors to their commitment to and maintenance of change (e.g. Billings and Moos, 1983; Biernacki, 1986). This would imply that clinicians need to appraise these resources and where appropriate enhance their accessibility to clients. This might be via the use of short term goal setting whereby clients can rapidly experience success or more directly by facilitating the provisions of rewards in the client's social environment.

A highly resolved and committed individual will eventually waiver and succumb to persistent challenges if she/he does not possess appropriate responses, therefore exclusive emphasis on commitment at the expense of the requisite skills is tantamount to fostering a 'committed incompetent'.

Deployment: Meeting the Challenge

Coping skills have been identified as differentiating between 'survivors' and 'relapsers' (e.g. Biernacki, 1986; Billings and Moos, 1983; Litman et al., 1984). Whether these are already available to the individual at the outset or developed after the initiation of change is debatable. Also, a number of specific skills, particularly problem solving, have been included as components of effective treatment programmes. For

example, problem solving was a major component of an experimental treatment package for problem drinkers that was associated with better outcome at follow-up compared to 'discussion groups' and 'no-additional treatment groups' (Chaney et al., 1978). In one study, Jackson and Oei (1978) compared a traditional treatment programme with two different groups, one offering social and assertiveness skills training and another which focussed on the restructuring of beliefs. Subjects in the experimental groups were functioning better at follow-up. Assertiveness and social skills training have been included in other effective treatment programmes (e.g. Freedberg and Johnstone, 1978; Miller and Taylor, 1980).

The challenge for researchers and clinicians will, of course, be the identification of which client will require what programme and when. For example, cognitively impaired drug users may have less capacity to benefit from certain or even all skills training programmes. At least they are likely to benefit more from a programme when their capacity is beginning to improve (e.g. after a period of abstinence), when there are recall aids, such as written material, and when strategies are specific, concrete and performance based.

It is logical to propose that skills training be tailored to needs, not only for economy of effort, but also to ensure personal relevance. One way to ensure this is by identifying what potential challenges each individual is likely to encounter. Two instruments have been developed to assist this process with problem drinkers: the Inventory of Drinking Situations (IDS) and the Relapse Precipitants Inventory (RPI).

The IDS (Annis, 1986) identifies the situations in which the individual used to drink heavily and is classified into eight categories, including negative mood states, interpersonal conflict, social pressure to drink and so on. The use of the

questionnaire can lead to an identification of the sort of situations in which the individual most commonly drank heavily in the past and therefore of potential risk in the future. The RPI (Litman et al., 1984) was developed on the basis of reports made by problem drinkers about the kinds of situations they would anticipate as high risk. The greater the number of situations perceived as high risk, the poorer the outcome over follow-up. Employing such instruments can assist the client and clinician to construct a personal 'at-risk' register. Hierarchically structuring this from least to most threatening can direct the application of coping skills to increase the probability of success experiences.

Success experiences are the most effective way of enhancing self-efficacy. As defined by Bandura (1977a and 1977b), self-efficacy is the subjective expectation that one can execute a behaviour within a given situation. Self-efficacy is associated with the application of skills and persistence in the face of challenges. Low self-efficacy, for example, would predict that the individual would fail to employ a coping skill or fail to persist in its application in the face of difficulty. Given that verbal persuasion is the least, and performance based success experiences are the most effective means to increase self-efficacy, clinical strategies are likely to be effective to the extent that they employ performance based strategies.

The individual's beliefs and attributions are likely to have impact on outcome. If a programme emphasises that the client is likely to be assailed by out of control factors (e.g. "You have a disease") it is probable that the individual's efficacy expectations will be lowered, militating against the deployment of coping skills. One particular context in which this is likely to occur is when the programme and/or client fosters the belief that after the initial breakdown in resolution the individual will experience "loss of control". This is incorporated in Marlatt's model

wherein it is postulated that continued and harmful use will be minimised to the extent that the individual attributes an initial "lapse" to specific and reversible factors as opposed to global and irreversible factors (Marlatt and Gordon, 1985). Thus, it would be appropriate for a client to be encouraged to identify factors that would facilitate continued, harmful use and generate appropriate responses to these as opposed to more traditional approaches which emphasise 'out of control' factors.

Deployment. The Challenge of some Consumption

Drinkers usually take their initial drink, overeaters their first piece of chocolate and smokers their first cigarette in a context replete with cues to continue. With alcohol, for example, a drink is usually found in close proximity to more drink, in the rest of the bottle or in the pub with friends who are also drinking. Even the internal cue of rising blood alcohol level will be associated with continued drinking. In the absence of learned alternative responses to these familiar cues, it should not be surprising that many individuals do respond as they have in the past - with continued drinking.

If a clinician hopes that a client will respond to such a situation by ceasing or moderating use, then it is incumbent on her/him to provide the opportunity for the client to learn the appropriate repertoire of responses. One suggestion worthy of investigation is that even those clients who opt for abstinence may benefit from inclusion of skills rehearsal to moderate use. Given the evidence that most abstainers will return to harmful use, the development of alternatives would appear crucial.

Recent reports of 'cue exposure and response prevention' have much to recommend in this regard (Rankin et al., 1983). Rankin and his colleagues have argued that having a raised blood

alcohol level is a powerful cue to continue drinking. For many, the resultant temptation to continue drinking is seldom resisted.

In the study reported by Rankin and his colleagues, problem drinking subjects consumed sufficient alcohol to raise their blood alcohol levels to 65 - 100 mg/%. They were then encouraged to resist the temptation to continue, a response seldom, if ever, exercised in the recent past. Over six sessions of such exposure and response prevention, subjective ratings of the ability to refuse further alcohol increased significantly compared to a control group.

The current authors were impressed by the manner in which individuals react to cue exposure. Piloting the technique for possible inclusion in a broader programme, one subject was encouraged to resist the urge to drink whilst being exposed to the cue holding a glass of his favourite drink. This was a powerful cue for him to take a drink, resulting in subjective reports of an almost overwhelming 'craving' and accompanied by tremor and perspiration. After several exposures the subject reported: "It went away. I never knew it went away. I always thought I had to get a drink or it would get worse." The subject was clearly impressed with the experience of his diminished 'craving' in the absence of consuming alcohol. This practical demonstration of self-mastery can be of value in reinforcing the message to clients that they are not inevitable victims and it is possible that this belief would have some impact on behaviour.

The clinical applicability of these techniques, specifically relating to resolution change is currently under investigation by Greeley, Heather and Prescott (1988). The limited evidence that is already available is encouraging.

An additional strategy would be to encourage clients to view 'resolution change' as a problem to be solved. The factors that would be associ-

ated with continued use could be identified by the client and problem solving employed to select a range of appropriate responses. An exercise which can be of value in enhancing a client's ability to be alert for - and perhaps more importantly take responsibility over - difficult situations is to present him/her with a 'relapse' situation. In this exercise the therapist would read out the circumstances that preceded the 'relapse' and ask the client to comment on whether it was inevitable, out of the individual's control, or whether the individual could have influenced the process. Interestingly, what we have usually found is that clients clearly accept that an individual can avoid or manage a potential 'relapse' situation but often choose not to do so. Consequently the client would be encouraged to view 'resolution change' as a function of decision making and specific reversible factors. Appropriate preparation would therefore include resolution enhancement exercises and the rehearsal of specific coping responses.

Maintaining the Change: Make it Worthwhile

The literature on 'giving up' an addictive behaviour consistently identifies lifestyle factors as central to the maintenance of change. As already noted, Billings and Moos (1983) and Biernacki (1986) have reported that 'survivors' had access to existing resources and the opportunity to improve their lifestyle. Similarly, successful treatment has been associated with improving access to recreation, leisure, relationship and employment opportunities (Azrin, 1976; Azrin et al., 1982; Hunt and Azrin, 1973). In our earlier paper Bill Saunders has argued in more detail that if lifestyle factors are important in 'giving up' they must be equally significant in the process of 'resolution change.'

Influence on the broader environment may also have implications for those who elect not to enter formal treatment. It is recognised that, for a variety of reasons, only a proportion of those

engaged in addictive behaviours seek out formal treatment programmes (e.g. Biernacki, 1986; Tuchfeld, 1981). Exclusive focus on clinical strategies is only likely to have significance for clinic attenders. However, endeavours that have impact on the broader environment may be a means to facilitate movement out of addictive behaviours for a greater number of people.

Clinical Practice II : Putting it to the test

Several investigations have been conducted assessing the impact of various programmes on 'resolution change' (e.g. Chaney et al., 1978; Ito et al., 1988; Jones et al., 1982; Hall et al., 1984). For the purpose of this paper, we will concentrate briefly on the investigation conducted by Chaney, and then in more detail on one that was undertaken by us.

In Chaney's study, inpatient problem drinkers were allocated to one of three groups : a skill training group, discussion group and a no-additional treatment control group. The skill training programme focussed on problem solving, teaching subjects to generate solutions to pre-selected high risk situations, the rehearsal of these, and feedback from other subjects and therapists. Subjects in the experimental group were functioning better on a skills assessment measure immediately after treatment, and at one-year follow-up 'relapse' episodes were less severe and of shorter duration.

The experimental package concentrated rather exclusively on coping skills and there was no attempt to enhance resolution or commitment to change. Further limitation exists in that the 'high risk situations' were not individually generated, and response rehearsal was limited to the clinical setting. This would minimise the personal relevance and generalisation of coping responses.

In view of the above criticisms and in align-

ment with our model of 'resolution change' we designed an experimental treatment package (Allsop et al., 1989; Saunders and Allsop, 1987). The study design was similar to that conducted by Chaney and his colleagues : the experimental group was compared to a 'relapse discussion group' and a 'no-additional treatment group.'

Subjects were recruited from an Alcohol Treatment Unit (ATU) in Scotland and all subjects engaged in the usual six week treatment programme offered by this service. This included detoxification, general health care, alcohol education, relaxation training and group discussions about the effects of alcohol. Subjects entered the study two weeks after they were admitted to the ATU, that is, after a minimum of two weeks abstaining from alcohol. A research plan is illustrated in Figure 3.

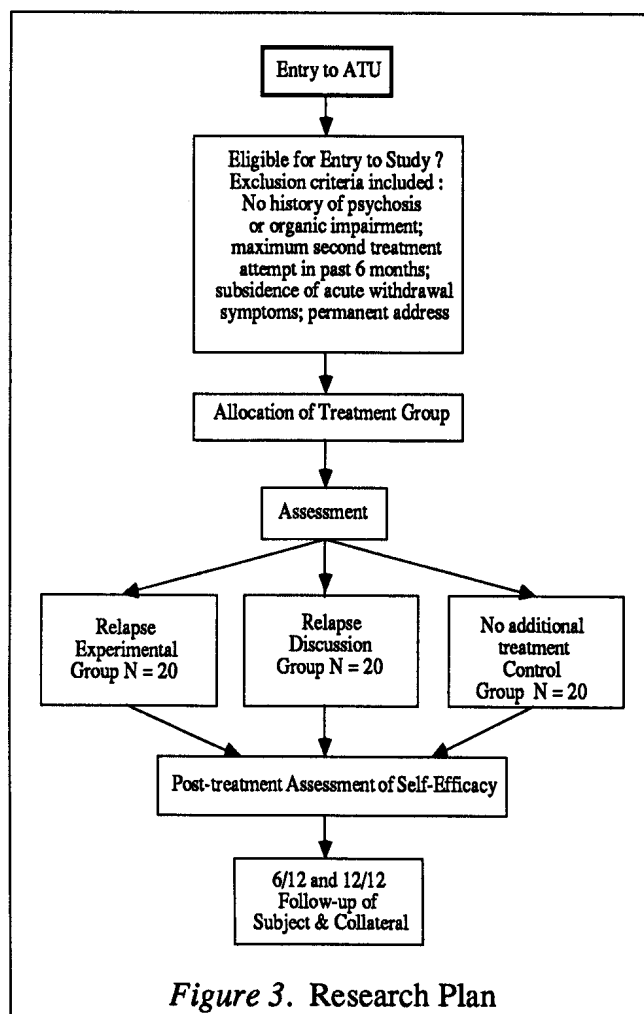


Figure 3. Research Plan

A total of 60 male subjects were recruited. After random allocation to one of the three treatment groups, a detailed assessment was conducted. Information was elicited about drinking history and related harm, demographic details, identification of subjective high risk situations and self-efficacy ratings for coping with these in the future. The programmes for both the experimental and discussion groups were conducted over eight one hour sessions, with one nurse therapist and two subjects in each group. A self-completion handbook was used in both of these groups to facilitate recall. The handbook for the experimental group included an outline of problem solving techniques (drawn from Robertson and Heather, 1983), based on the work of D'Zurilla and Goldfield (1971).

The experimental group commenced with a resolution enhancement exercise developed around the framework of 'motivational interviewing' as outlined by Miller (1983). Subjects were encouraged to verbalise their perception of the positive and negative consequences of their alcohol use and to indicate their degree of concern about the latter. The emphasis was not on the number of problems but on providing the opportunity to explore subjective concerns. For example, marital disharmony may only be of significance if the individual places value on the marital relationship.

A related exercise conducted during the eighth session was to have subjects record the short and long-term costs and benefits of continuing to drink heavily versus changing their drinking behaviour (based on the 'decision matrix' as described by Marlatt and Gordon, 1985). Thus, subjects identified and verbalised the pushes and pulls into and out of their alcohol use and the therapist used the opportunity to attempt to tip the motivational balance in favour of change. Subjects were asked to write down the reasons they had for reducing/stopping their alcohol use and to make a decision about whether or not to

change.

The second session focussed on teaching subjects the skill of problem solving, using written material, verbal instruction, modelling and role play. The ensuing two sessions involved the application of the technique to high risk situations identified by each subject during assessment. These were ranked in terms of degree of risk, with situations of least risk being initially considered, thus increasing the probability of the subject dealing with these successfully. Solutions were cognitively or behaviourally rehearsed in the treatment setting. In addition, homework assignments involved the application of the technique outside this context.

The fifth and sixth sessions were focussed on the development of responses to an initial change in resolution. Subjects identified factors that might facilitate continued drinking after an initial drink or drinks. It was proposed that this was a problem to be solved and as such problem solving could be employed to develop a personally relevant list of potential responses. The therapist ensured the selection of specific responses which could be planned in detail. For example, the response "Call a friend" would be followed by the questions "which friend? What is his/her telephone number?" The therapist might then contract with the subject that contact would be made with the friend to discuss how he/she might be of assistance. Rehearsal of this action and any subsequent call for assistance would then occur with the therapist role playing the friend. Subjects would thus have a list of potential strategies recorded in their handbook and the opportunity to prepare and rehearse specific responses.

These sessions culminated in the subjects engaging in a subjectively challenging, but not overwhelming, real life high risk situation. These were identified through the initial assessment and negotiation between the therapist and each

subject. Situations varied, from walking past an alcohol retailers to socialising in a public house. Potential challenges were identified and the problem solving technique employed to develop appropriate coping responses before each subject embarked on his task. On completion of this exercise debriefing encouraged subjects to attribute success experiences to their own actions.

In the final session, a 'decision matrix' was employed to review and enhance the initial resolution to change. The self-completion booklet ensured that each subject left the programme with their own record of reasons for change, identification of high risk situations, how to respond to these and what to do in the event of 'resolution change.'

The discussion group was conducted over the same time frame and with the same therapist to subject ratio. However, the programme was verbally based as opposed to performance based. Subjects and therapist explored reasons for change, discussed how high risk situations might be avoided in the future and planned how 'resolution change' might be prevented and/or managed. Homework consisted of reviewing each session. As with the experimental group, subjects maintained a self-completed handbook.

What was the impact?

Outcome was assessed in terms of pre-post treatment self-efficacy ratings, and drinking behaviour and related problems at 6 and 12 month follow-up. Subjects in the experimental group demonstrated significant increases in self-efficacy as compared to the other two groups. 17/20 experimental subjects increased their confidence ratings compared to 9/20 in the discussion group and 11/20 in the control group. The actual ratings demonstrated that the experimental group increased their self-efficacy significantly compared to the discussion group ($p < 0.005$) and the control group ($p < 0.01$).

At 6 month follow-up, 95% of the subjects were contacted for interview. Subjects in the experimental group were more likely to have abstained for the full 6 months, less likely to report morning 'relief drinking' and reported fewer alcohol-related problems. For example, one outcome variable was termed 'weeks functioning well.' This was defined as number of weeks when subjects either abstained or drank no more than 30 standard drinks in one week or no more than 8 standard drinks in any one day. Subjects in the experimental group reported an average of 19.4 weeks functioning well, significantly greater than the 14.9 and 9.4 weeks in the discussion and control groups respectively.

Survival analyses were conducted on subjects reports of when they had their first drink and their first 'heavy drink' (defined as 30 standard drinks in 3 days or less). These indicated that subjects in the experimental group 'survived' significantly longer than the other two groups. For example, the average survival time until 'heavy drinking' for the experimental group was 211.5 days compared to 108.0 in the discussion group and 68.0 in the control group. Again these differences were statistically significant.

Finally, a discriminant function analysis indicated that post-treatment self-efficacy rating was the best predictor of outcome at 6-months. This was reflected in significant associations between self-efficacy ratings and individual outcome variables. For example, self-efficacy was positively and significantly related to the time elapsed before subjects engaged in 'heavy drinking' ($r = 0.52$ $p < 0.001$).

It should be noted that at the 12 month follow-up, whilst it was apparent that subjects in the experimental group were still functioning better than the other groups, these differences were being eroded. Unfortunately, although 80% were contacted for follow-up, there was dispropor-

tionate contact for each group rendering interpretation of analyses difficult.

Conclusion

In developing our treatment packages we unfortunately paid little heed to one crucial element of our model : that of lifestyle change. In light of the poor employment opportunities, limited recreational facilities, social isolation and readily available alcohol plus the impact of a heavy drinking culture, we should perhaps be impressed that we were able to demonstrate any treatment effects at all. The results suggest that these treatment effects began to be eroded after 6-months, perhaps being swamped by the circumstances of the subjects' environment.

The message is clear for clinicians. The impact of treatment will be restricted to the extent that endeavour is limited to the clinical setting and the individual. To simply attempt to inoculate the individual against his/her environment is facile. If we ignore a cultural or sub-cultural context that endorses heavy use of a drug, if the availability of drugs is left unchecked, if recreational, leisure and employment opportunities are limited for the individual and if, as a result, opportunities to experience an improved quality of life are restricted, we should anticipate limited treatment impact being reported. Clinical endeavour must be directed at, and conducted in tandem with, increased accessibility to improvements in lifestyle.

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Differences between Current and Former Heavy Drinkers on Relapse Related Processes

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Although the majority of alcoholics reduce their drinking initially with treatment, only one third remain moderate drinkers or abstainers on follow up (see Riley et al, 1987). Recognition that initial control over drinking fails in many cases to translate to long-term improvement has led to the focusing of attention on the relapse process. Interest has been directed to antecedents of relapse, when and where relapse is most likely to occur, and the consequences of violation of control over drinking on future behaviour. Several models of the relapse process have been formulated (see the review by Niaura et al, 1988, comparing conditioned withdrawal, conditioned compensatory response, conditioned appetitive motivational, and social learning models of relapse).

A distinctive feature of the social learning model of relapse formulated by Marlatt and his colleagues (see Marlatt & Gordon, 1985) is the emphasis given to cognitive processes associated with the consumption of alcohol. Relapse is considered likely to occur when the perceived self control of former problem drinkers is challenged after a period of abstinence or controlled drinking by high risk drinking antecedents such as negative emotional states, interpersonal conflict, and social pressure. Self-efficacy in relation to control over drinking will be reduced when the person not only lacks effective ways of coping with risk factors, but

has used alcohol in the past to modify emotional states. Positive expectancies, such as a belief that mood changes will follow from the consumption of alcohol, increase the likelihood that a person will drink. At the same time cognitive dissonance develops, since the person's concept of themselves as an abstainer or controlled drinker is inconsistent with the present level of alcohol consumption. The conflict and guilt associated with abstinence violation lead to the person believing that control over drinking is no longer possible. The lapse becomes a relapse, with the person acquiring a sense of low self-efficacy for control over drinking in high risk situations in the future.

The study we now report compared current and former heavy drinkers in terms of several relapse related processes included in the above model. Most participants in our study had at some time made attempts to reduce their drinking. The current heavy drinkers can be considered as relapsers, since they were unsuccessful in achieving control. Since the former heavy drinkers had maintained control for one year or more, they can be termed non-relapsers. The objective of the study is not only to identify the coping strategies used by non-relapsers and relapsers when they wish to avoid heavy drinking, but to determine whether the two groups differed in antecedents to heavy drinking, alcohol expectancies, and perceived control over alcohol

at the time of heavy drinking. The underlying issue of interest is whether long-term control over the consumption of alcohol reflects relapse related processes at the time of heavy drinking.

The extent to which a person's drinking is open to change may depend upon which risk factors are antecedents for the consumption of alcohol. Cummings, Gordon, and Marlatt (1980) identified the major risk factors for alcohol relapse as negative emotional states, interpersonal conflict, and social pressure. However, risk factors may differ between individuals in ways associated with long term outcome. By comparing antecedents for high alcohol consumption between current and former heavy drinkers, we can consider, for example, whether a person who drank heavily to relieve negative emotions was more likely or less likely to become a non-relapser than a person who drank heavily to induce positive emotional states.

The relapsers and non-relapsers in the present sample are also compared in terms of their alcohol expectancies at the time of heavy drinking. Anticipated consequences of consumption of alcohol have been studied extensively within the balanced placebo design and through surveys of adolescent, social, and heavy drinkers (see Marlatt & Rohsenow, 1980). However, the relationship between positive alcohol expectancies and relapse has been subject to limited investigation. Brown (1985) found that alcoholics with positive alcohol expectancies who believed that alcohol is a "tension reducing agent" were the more likely to be problem drinkers a year later. The question of interest from this result is whether the former heavy drinkers in the present sample had less positive alcohol expectancies at the time they were drinking heavily than the current heavy drinkers.

There is limited direct evidence that relapse is associated with attributions of self blame and feelings of guilt created from the cognitive

dissonance of violating an abstinence goal. In fact, Ruderman and McKirnan (1984) found that, instead of eliciting further drinking, a slip led to overly controlled (restrained) drinkers increasing their self control. The question of interest in the present study is whether the relapsers and non-relapsers in the sample differed at the time of heavy drinking in their perception of control over alcohol.

Coping skills that have been identified as associated with control over drinking include thought blocking (Samsonowitz & Sjoberg, 1981), thinking about negative aspects of excessive drinking (Ludwig, 1985), stimulus control strategies and the use of alternative behaviours (Perri, 1985), positive thinking (Litman et al., 1983), and an assertive drink refusing manner (Rosenberg, 1983). However, the extent to which effective coping strategies are used in high risk situations may reflect socio-demographic factors (see Cronkite & Moos, 1980). It was for this reason that the present interest was not only in the strategies used by current and former heavy drinkers when they wished to avoid drinking, but the extent to which coping by the two groups was associated with similar socio-demographic factors.

In summary, relapsers and non-relapsers within a sample of people who have had drinking problems were compared on several relapse related measures (antecedents, alcohol expectancies, perceived control over alcohol) specific to the time of heavy drinking. The two groups also were contrasted in terms of strategies they now use to cope with not drinking heavily. Moderating effects of socio-demographic factors are explored. The objective of the study is to establish whether the present status (relapser or non-relapser) of a person who has had a drinking problem is associated with particular cognitions and other processes while the person was drinking heavily. Since the research employs a retrospective design, attention will be given later

to problems in the interpretation of data associated with this methodology (see Niaura et al., 1988).

(more than 10) attempts to control their consumption of alcohol.

Method

Procedure

Subjects

For purposes of recruitment of subjects, heavy drinking was defined as the consumption of more than 38 drinks of 10 gms alcohol per week over at least one year. Fifty five current heavy drinkers and 66 former heavy drinkers were recruited through newspaper advertisements and with the assistance of staff in alcohol and drug agencies. The former heavy drinkers currently consumed 3.71 standard drinks per week, and they had been at this level for 5.72 years. Previously they had averaged 162.59 standard drinks per week over a period of 11.98 years. The current heavy drinkers averaged 144.67 standard drinks per week, and they had been heavy drinkers for 10.98 years.

The two groups did not differ significantly in terms of sexual composition, weeks worked in the year, yearly income, years of education, attempts to reduce alcohol consumption, age first intoxicated, drink drive convictions, consumption level when a heavy drinker, and number of years of heavy drinking. However, significantly more former heavy drinkers (59%) than current heavy drinkers (31%) were married or in a defacto relationship, Chi squared (1) = 8.11, $p < .05$, and the former drinkers had received significantly more hours of treatment for alcohol-related problems than had the current drinkers, $F(1,100) = 5.52$, $p < .05$. Sixty six percent of current drinkers had received no treatment in contrast to 48% of former drinkers, while 17% of former drinkers had received considerable treatment (52 hours or more) in contrast to 2% of current drinkers. Few subjects had never attempted to reduce their drinking, and almost half had made many (six to 10) or numerous

Each participant completed five questionnaires on an anonymous basis. The completed questionnaires were returned by post. Respondents were first asked to provide demographic information as well as a drinking history. Antecedents to heavy drinking were identified by administration of the Inventory of Drinking Situations (Annis, 1985), a scale which yields scores for five intrapersonal and three interpersonal determinants of drinking. Expectations towards alcohol as a positive transforming agent were assessed through responses to items loading on Factor 1 of the Alcohol Expectancy Questionnaire (Brown et al., 1980). The Restrained Drinking Scale (Ruderman & McKirnan, 1984), a measure of the person's perception of control over alcohol, was used to index the likelihood that a lapse would result in an abstinence violation effect. Coping strategies used to avoid drinking heavily were assessed through the Coping Behaviors Inventory (Litman et al., 1983), a measure specifying the extent to which the person used positive thinking, negative thinking, avoidance/distraction, and social support.

Subjects were told to rate their use of coping strategies with reference to the present point in time. However, retrospective reports were required for antecedents of heavy drinking, alcohol expectancies, and restrained drinking. For these ratings the reference point for the current heavy drinkers was 12 months ago, and for the former heavy drinkers the period when they last averaged 38 standard drinks or more per week over a year.

Results

Table 1 shows mean scores and standard deviations for the two groups for 14 relapse related processes assessed by the questionnaires. The effect size statistic, d , shown for each measure in Table 1 is the ratio of the between-group difference to the within-group variability. The larger the value of d , the more the two groups differ in their distribution of scores. Multivariate analysis of variance showed a significant difference between the two groups across the 14 measures, $F(1,100) = 2.74$, $p < .01$, and differences on specific measures were explored through univariate F tests.

For both groups the most commonly endorsed antecedents to heavy drinking were social pressure, intrapersonal positive emotional states, and interpersonal positive emotional states. There was not a substantial difference (d values of .50 or less) between the two groups in the extent to which these antecedents constituted high risk factors. However, there were differences (d values of greater than .50) in the extent to which less often reported antecedents had served as risk factors for current and former heavy drinkers. The former heavy drinkers were more likely than the current heavy drinkers to have consumed alcohol excessively as a consequence of interpersonal conflict, urges and temptations to drink, and negative emotional states.

The two groups did not differ significantly at the time of heavy drinking in their alcohol expectancy effects. In terms of scores on the Restrained Drinking Scale, the former heavy drinkers claimed greater control over the consumption of alcohol at the time of heavy drinking than the subjects who still were heavy drinkers, $F(1,100) = 13.19$, $p < .001$.

Non-relapsers reported greater use than

relapsers of positive thinking, $F(1,100) = 13.84$, $p < .001$, social support, $F(1,100) = 10.04$, $p < .01$, and negative thinking, $F(1,100) = 9.10$, $p < .01$, as coping strategies used at present to overcome the likelihood of heavy drinking. The two groups did not differ in their reliance on avoidance/distraction as a coping strategy. When the current and former heavy drinkers are considered as a single group, subjects who had at some time engaged in treatment for alcohol-related problems reported significantly greater reliance on positive and negative thoughts, $F(1,105) = 10.97$, $p < .01$, as well as avoidance/distraction and social support, $F(1,105) = 7.65$, $p < .01$, in coping with high risk situations than subjects who had never received such treatment.

Consistent with Marlatt's relapse prevention model, the current heavy drinkers who had relapsed most frequently (as indexed by the number of attempts to reduce drinking) were those with expectancies that alcohol brings 'global positive changes' ($r = .30$, $p < .05$) and with a restrained drinking style ($r = .58$, $p < .001$). In contrast, frequency of relapse was not associated with alcohol expectancies ($r = .11$, $p > .05$) or restrained drinking ($r = .19$, $p > .05$) in the case of former heavy drinkers. For current heavy drinkers alcohol expectancies correlated significantly with consumption level ($r = .61$, $p < .001$), but for former heavy drinkers alcohol expectancies were not associated with current consumption ($r = -.01$, $p > .05$) or consumption at the time of heavy drinking ($r = -.09$, $p > .05$).

The extent to which the use of specific coping strategies was associated with socio-demographic variables was explored through stepwise regression analysis. Separate analyses were undertaken for use of the four coping strategies by current and former heavy drinkers. The results are summarized in Table 2. The former heavy drinkers who make greatest use of coping strategies when they wished to avoid heavy drinking were those who had received most

Table 1
Mean Scores of current and former heavy drinkers on relapse variables, together with effect size (d) values

	Current drinkers		Former drinkers		d
	\bar{X}	SD	\bar{X}	SD	
<u>Antecedent to heavy drinking</u>					
Social pressure	69.28	25.24	77.61	25.73	.33
Intrapersonal positive emotional states	62.91	23.05	73.36	23.33	.45
Interpersonal positive emotional states	57.82	19.35	68.24	22.44	.50
Negative emotional states	44.12	32.63	63.72	33.69	.59
Urges and temptations	43.46	25.07	60.78	27.60	.66
Interpersonal conflict	35.29	26.98	58.77	30.95	.81
Testing personal control	31.48	28.10	42.97	34.37	.37
Negative physical states	30.56	29.99	44.44	30.35	.46
<u>Alcohol expectancies</u>					
Positive alcohol expectancy	41.16	6.75	44.25	7.08	.45
<u>Abstinence violation</u>					
Restrained drinking	108.23	31.25	128.65	24.85	.72
<u>Coping strategies</u>					
Positive thinking	3.14	.87	3.81	.96	.74
Negative thinking	2.71	1.14	3.35	.97	.60
Social support	1.86	.71	2.46	1.15	.65
Avoidance/distraction	2.37	.68	2.41	.83	.05

treatment for alcohol-related problems. For this group past treatment increased the likelihood of use of positive thinking, negative thinking, avoidance/distraction, and social support. No other socio-demographic variables were consistent predictors of the use of coping strategies by the former heavy drinkers. The current heavy drinkers not only made less use of coping strategies when they wished to avoid heavy drinking, but the socio-demographic variables associated with coping skills were different for this group relative to the former heavy drinkers. Current heavy drinkers with high consumption levels in the past were those most likely to use the nominated coping strategies when they wished to avoid heavy drinking. Amount of treatment was not a predictor of use of coping skills by this group.

Associations between coping and the 14 relapse related variables from the antecedents, alcohol expectancy, and restrained drinking domains (see Table 1) were examined through further stepwise regression analyses. The results of these analyses are summarised in Table 3. The former heavy drinkers now making greatest use of positive thinking, negative thinking, and avoidance/distraction as coping skills were those with a perception of control, as assessed by the Restrained Drinking Scale, at the time of heavy drinking. For current heavy drinkers use of positive thinking and avoidance/distraction as coping skills was associated with testing personal control as an antecedent to heavy drinking. Use of negative thinking as a coping strategy was linked with positive alcohol expectancies and a restrained drinking style.

Discussion

Since all participants in the study were volunteers, the groups under comparison may not be representative of current and former heavy

drinkers. As a further methodological problem, the study obtained retrospective reports of antecedents to heavy drinking, alcohol expectancies, and perceived control over the consumption of alcohol. There is the danger that recall reflects the current drinking status of respondents rather than processes at the time of heavy drinking (see Niaura et al., 1988). A further concern is that all data are in the form of unvalidated self reports. Even though questionnaires were completed anonymously, the possibility of extraneous response bias exists. The present data need to be interpreted with regard to these limitations. Prospective analysis, with measures taken during the time of heavy drinking being used to predict not only subsequent coping responses but which individuals will in time come to exercise control over alcohol consumption, offers a more valid approach than the methodology used in the present study. However, there are substantial logistic difficulties in the use of a prospective design.

Consistent with the model of relapse proposed by Marlatt and his colleagues (see Marlatt & Gordon, 1985), the non-relapsers in the sample made more use of cognitive and behavioural coping strategies to avoid drinking heavily than the relapsers. Since the difference was found on three of the four strategies, it may be persons with a flexible coping repertoire rather than a well developed single skill who can most readily prevent relapse (see Shiffman & Wills, 1985).

The two groups did not differ on alcohol expectancies at the time of heavy drinking. A question of interest is whether alcohol expectancy should be conceptualized as a trait measure or in more situational and transactional terms. Even though relapsers did not have more positive alcohol expectancies than non-relapsers, alcohol expectancies in the case of only the relapsers correlated significantly with alcohol consumption level and relapse frequency. Prospective analysis is needed to clarify the role of alcohol expectancies

Table 2

Sociodemographic variables associated with use of coping behaviours by former and current heavy drinkers

Criterion	Predictors	ΔR^2	R^2	Beta
<u>Former heavy drinkers</u>				
Positive thinking	Amount of treatment	.16	.16	.40
Negative thinking	Amount of treatment	.15	.15	.40
	Sex	.14	.29	-.37
	Income	.08	.37	.29
Avoidance/distraction	Age	.12	.12	-.35
	Amount of treatment	.08	.20	.29
	Present consumption	.08	.28	.29
Social support	Amount of treatment	.21	.21	.46
	Attempts to change	.10	.31	.33
<u>Current heavy drinkers</u>				
Positive thinking	Past consumption	.15	.15	.39
	Weeks worked	.12	.27	.37
Negative thinking	Past consumption	.30	.30	.55
Avoidance/distraction	Past consumption	.11	.11	.34
	Level of education	.14	.25	.39
Social support	No significant predictors			

Table 3
Relapse model variables associated with use of coping behaviours by former and current heavy drinkers

Criterion	Predictors	ΔR^2	R^2	Beta
<u>Former Heavy Drinkers</u>				
Positive thinking	Restrained drinking	.14	.14	.37
Negative thinking	Restrained drinking	.24	.24	.49
Avoidance/distraction	Restrained drinking	.14	.14	.38
Social support	Testing personal control	.23	.23	.48
<u>Current heavy drinkers</u>				
Positive thinking	Testing personal control	.24	.24	.48
Negative thinking	Alcohol expectancies	.39	.39	.62
	Restrained drinking	.13	.52	.40
Avoidance/distraction	Testing personal control	.20	.20	.44
Social support	Restrained drinking	.18	.18	.42

in the relapse process.

The relationship between scores on the Restrained Drinking Scale and coping found for former heavy drinkers suggests that perception of control over the consumption of alcohol can itself be a coping behaviour rather than a drinking style that predisposes an abstinence violation effect. Conflict, self blame, and guilt may be responses which some individuals use to prevent further consumption of alcohol after a drinking

relapse. At the same time, a restrained drinking style was associated with frequency of relapse among current heavy drinkers, as was "testing personal control." Possibly it is restrained drinkers who exceed the limit they initially assigned when testing their control over alcohol who are prone to an abstinence violation effect. However, the question of whether restrained drinking should be conceptualized in trait or transactional terms merits consideration.

The current and former heavy drinkers differed on relatively few socio-demographic variables. More former heavy drinkers were married or living in a defacto relationship at the time of data collection, but this circumstance may have been a consequence rather than an antecedent of the reduction in consumption level. More of the former heavy drinkers had received treatment. In the main, however, problem drinkers who had achieved long-term control over alcohol consumption were not different in general and alcohol-specific demographic characteristics from current former drinkers. Other investigators (e.g., Litman et al., 1979; Perri, 1985; Rosenberg, 1983) also have reported lack of differentiation between current and former heavy drinkers by socio-demographic measures.

A question of interest is whether, instead of all problem drinkers being open to eventual change, there are factors associated with heavy drinking that are prognostic of change. The relapsers and non-relapsers in the present sample differed in terms of not only antecedents to heavy drinking and scores on the Restrained Drinking Scale, but relationships between socio-demographic characteristics and relapse related measures. Further, the use of coping strategies by the two groups at the present time was associated with different variables. However, the use of retrospective methodology limits the confidence with which claims can be made about prognosis. Factors at the time of heavy drinking that are predictive of outcome need to be identified through prospective analysis.

Although the former heavy drinkers had overall received more treatment for alcohol-related problems than the current heavy drinkers, 48% of the participants in the study who no longer were heavy drinkers had changed their pattern of consumption without formal involvement in treatment. Schachter (1982) has argued that the traditional outcome evaluation literature provides a too pessimistic account of the extent to which

addictive behaviours are open to change. Schachter documented for smoking and obesity that many individuals achieve self cure. On this basis participants in therapy programmes may be a hard-core group with resistant problems.

Self cure as a process is worthy of more systematic attention than it has received in the past. By studying individuals who have achieved self cure, it may be possible to identify coping strategies that are not well represented in mainstream therapy programs. In the present study, amount of treatment was the major predictor of use of the four strategies represented in the Coping Behaviors Inventory. However, the former heavy drinkers who attained control over alcohol without treatment may have highly effective coping strategies that simply were not covered by the Coping Behaviors Inventory. Even for the same coping skill, self instruction may prove to be a more effective basis for implementation than instruction in the course of treatment. Attention needs to be given in future research to the possibility that relapse related processes are different in the case of changes induced by self cure and formal treatment.

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Cue Exposure : An Alternative Model for the Prevention of Relapse in the Addictive Disorders

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The general treatment method known as cue exposure has been used successfully in the treatment of a number of clinical problems, such as phobias and anxiety disorders. As the name suggests, cue exposure involves exposing an individual to some cue or stimulus which is related in some significant way to the problem the person is experiencing. In the case of drug and alcohol dependence, the cues of concern are external and internal events or stimuli which are related to drug use.

The basic premise underlying the use of the cue exposure method in the treatment of drug and alcohol dependence is the assumption that craving for a drug is, in part, a conditioned response. The concept of 'craving', as used here, refers to a state of intense desire for a drug which is often reported by drug users to precede a drug-taking episode. The notion of conditioned craving suggests that this state can be provoked when a dependent individual is simply exposed to things, places, people or even mood states that have been repeatedly associated with previous drug use. Clinical experience suggests that these cues can maintain their potency as elicitors of craving throughout extended periods of abstinence, and the persistence of these responses is of particular importance in explaining the phenomenon of relapse. An individual may be 'off' drugs for an

extended period of time, yet when presented with drug-related cues may find that the old sensation of 'craving' suddenly reappears.

According to principles of classical conditioning, the occurrence of these conditioned craving reactions can be modified by a procedure known as extinction. If the relevant cues are repeatedly presented, but in the absence of subsequent drug use, then their potency as elicitors of conditioned craving should diminish or extinguish. For example, if an individual who is dependent on alcohol finds that, whenever he goes past his local pub, he experiences a strong desire to go in for a drink (a 'craving'), then the pub would be considered a salient cue for conditioned craving. In order to diminish the potency of that cue to elicit a craving reaction, the individual would need to go by the pub on a regular basis without going inside for a drink. Repeated presentations of the conditioned stimulus in the absence of the reinforcer (which is, in this case, intoxication by alcohol) should result in a reduction or extinction of the conditioned craving response.

Models of Conditioned Craving

The notion of conditioned craving and its extinction through cue exposure have been

presented as a fairly simple and straightforward model. It must be pointed out, however, that there are several competing models to account for the phenomenon of conditioned craving. Three of the most prominent explanations are presented briefly here.

The first and most widely cited model in the clinical literature is the conditioned withdrawal model proposed by Wikler (1948). According to Wikler, events that are associated with episodes of drug-withdrawal eventually acquire the capacity to elicit withdrawal-like symptoms. Experienced drug users learn that withdrawal symptoms are effectively relieved by drug administration. These conditionally elicited symptoms provide the motivation for drug-seeking and drug self-administration. The conditioned withdrawal-like state is the underlying substrate for conditioned craving, and this craving may be a significant precipitant of relapse.

The second model is the compensatory conditioned response model proposed by Siegel (1975). This model was actually developed to explain the influence of environmental factors on drug tolerance; however, it has been extended to explain elements of drug dependence. Siegel proposed that external and internal events that are paired with instances of drug administration come to elicit drug-opposite or compensatory conditioned responses. If these compensatory responses are elicited when a drug is administered, they result in a reduction of the drug's effect or drug tolerance. But, if they are elicited when the drug is not subsequently taken, they may be experienced as withdrawal-like symptoms which may underlie conditioned craving. A basic difference between Siegel's and Wikler's models is the conditions under which conditioned craving is acquired. In both cases, relapse is precipitated by drug-opposite, presumably negative states.

The third and most recently proposed model is

the conditioned incentive motivation model of Stewart, deWit and Eikelboom (1984). This model differs from the other two in that it argues against the notion that relief from withdrawal is the major factor motivating drug-taking in dependent persons. According to this view, external and internal events become associated with the positive aspects of drug-taking experiences. Hence, these events or cues come to elicit positively affective states which resemble the reinforcing effects of the drug. When these states are elicited by drug-related cues, they increase the incentive value of the drug and initiate drug-seeking behaviours. Thus, relapse is precipitated by a positive affective state reminiscent of the drug's positive effects.

Much of the research relating to these models comes from animal studies which will not be discussed here. These models and the evidence relating to each are described in greater detail in an article (Heather & Greeley, in press) which will be coming out in a special issue of the Australian Drug and Alcohol Review sometime this year.

Cue Reactivity

The first step in assessing the relevance of conditioned craving to clinical situations is to find out whether drug- and alcohol-dependent persons actually show any of the effects predicted by the conditioning models. The following is a brief outline of some of the important experimental questions that have been investigated with human subjects and examples of the research strategies employed.

There are typically three types of dependent measures used to assess conditioned craving:

- physiological responses, such as heart rate and skin conductance which are measures of autonomic reactivity;

- behavioural measures, such as speed to consume an alcoholic beverage;
- self-report measures of desire to drink (cognitive aspects of craving).

The research is organised under four simple hypotheses:

1. Drug dependent subjects will show greater reactivity to drug-related cues than to nondrug-related cues.
2. Drug dependent subjects will show greater reactivity to drug-related cues than normal controls.
3. Severely dependent subjects will show greater reactivity than those only moderately dependent.
4. There will be evidence of concordance among physiological, behavioural, and cognitive aspects of craving in dependent subjects.

An example of where hypotheses 1 and 2 were tested in a single experiment is provided in a study by Pomerleau, Fertig, Baker & Cooney (1983). In this study, the responses of alcohol-dependent and nondependent subjects were compared when individuals from each group were exposed to a drug and a nondrug cue. The cues were two different smells, one being the subject's favourite alcoholic beverage and the other a nonalcohol-related smell of cedar chips. A variety of measures were taken, such as heart rate, skin conductance and subjective craving (i.e., subjects gave a rating from 0 to 10 on a calibrated rheostat in response to the question, "How badly do you want to drink alcohol?"). An interesting physiological measure was introduced in this study - the number of swallowing responses observed during cue exposure. This measure clearly has ecological validity in a consideration

of drinking cues given that swallowing is part of the consummatory response involved in ingesting alcohol.

The measures of swallowing and craving showed significant differences (see Figure 1) in that the alcohol-dependent subjects showed greater reactivity than the nondependent subjects and this increase in reactivity was specific to the alcohol-related smell cue.

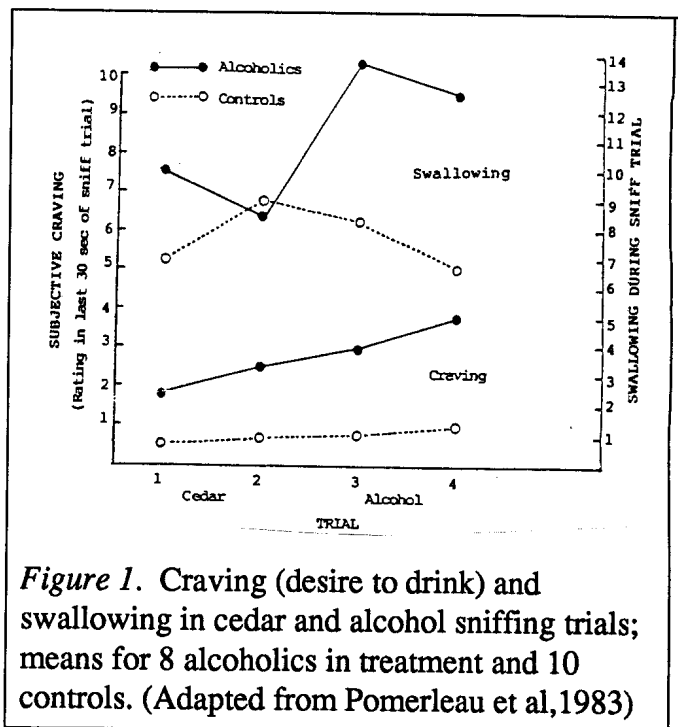


Figure 1. Craving (desire to drink) and swallowing in cedar and alcohol sniffing trials; means for 8 alcoholics in treatment and 10 controls. (Adapted from Pomerleau et al, 1983)

Only a few studies have attempted to investigate the difference in reactivity between severely and moderately dependent subjects. Hodgson, Rankin and Stockwell (1979) compared severely and moderately dependent hospitalized alcoholics on their reactivity following a priming dose of alcohol. In this study, alcohol itself was the cue and a behavioural measure of craving was employed - speed of drinking. After the priming dose (150 ml vodka), the severely dependent alcoholics showed a faster rate of alcohol consumption than the moderately dependent alcoholics.

Studies in which the concordance between different measures of craving have been assessed

report mixed findings. In one study by Kaplan et al. (1985), significant correlations were found between a physiological measure of craving, skin conductance level, and a cognitive measure of self-reported desire to drink. This concordance was seen only in alcohol dependent subjects presented with the sight and smell of their favourite alcoholic beverage and not in a group of nonalcoholic control subjects.

This brief review has given some indication of the relevance of conditioned craving to relapse. There have been some promising research findings which require further investigation and some interesting observations for clinicians involved in the treatment of dependent persons to ponder.

The Role of Conditioned Craving in the Relapse Process

In order to justify paying particular attention to conditioned craving responses in treatment, however, it is clearly necessary to demonstrate that such responses play a role in the relapse process. Is the presence of conditioned craving a necessary and/or a sufficient condition for relapse to occur?

Unfortunately, most of the evidence relevant to this issue is anecdotal, being based on clinical observations and the self-reports of relapsed substance abusers. Retrospective surveys asking about conditions under which relapses have occurred have shown varying percentages attributed to withdrawal symptoms. McAuliffe (1982), for example, reported that only two of 40 street addicts he interviewed said they had relapsed to opiates following conditioned withdrawal. McAuliffe interpreted this as disconfirming Wikler's theory, but reports of the experience of withdrawal itself may be irrelevant to a test of the theory because a "subclinical withdrawal syndrome" would probably be

experienced as craving without overt signs of withdrawal. Moreover, retrospective attributions of this kind are of suspect validity because subjects may not be skilled in differentiating, recognizing, reporting and remembering their bodily and emotional changes.

What is clearly needed are studies that attempt to predict relapse from measures taken at entry to treatment or, at least, at some point in time before relapse has occurred. In this regard, Abrams et al. (1987) found that responses to cue exposure among smokers were related to outcome status at follow-up; quitters had shown significantly less reactivity in heart rate and self-reported anxiety than relapsers. In an unpublished doctoral dissertation, Kennedy (1971) found that alcoholics who continued to exhibit pupillary dilation to the smell of their favourite alcoholic beverage were much more likely to have relapsed three months after discharge than those who did not. It is unfortunate that this important finding has not been pursued.

The main competitor to conditioned craving as an explanation of relapse is, of course, Marlatt and Gordon's (1985) model in which drug-dependent individuals relapse largely because they lack the skills to cope with "high-risk situations" without substance use. In several retrospective surveys of the reasons given for relapse for a range of addictive disorders, in which subjects' open-ended descriptions of relapse were categorized by independent raters, the majority were grouped into "negative emotional states", "interpersonal conflict" and "social pressure". This would appear to specifically exclude conditioned craving in response to substance-related cues and, indeed, Marlatt and Gordon regard conditioned craving as a relatively unimportant contributor to relapse after the initial withdrawal period.

Apart from the criticisms of retrospective surveys made above, Heather and Stallard (1989)

have reported some preliminary data which suggest that, when heroin users are asked to give quantitative ratings of the relative importance of various factors in their latest relapse, the significance of craving in response to substance cues is increased. We will now give a brief account of this research.

A Retrospective Study of Relapse Among Heroin Users

The project originated from certain criticisms we had to make of the way in which the relapse categories reported by Marlatt and his colleagues were arrived at. Our main objection was to the instruction to raters of subjects' open-ended

Table 1

Marlatt and Gordon's Relapse Categorisation System

(Adapted from Cummings et al. 1980)

I Intrapersonal - Environmental Determinants

I - A Coping with Negative Emotional States

I - A1 Frustration and/or Anger

I - A2 Other Negative Emotional States

I - B Coping with Negative Physical - Psychological States

I - B1 Physical States Associated with Prior Substance Use

I - B2 Other Negative Physical States

I - C Enhancement of Positive Emotional States

I - D Testing Personal Control

I - E Giving in to Temptations and Urges

I - E1 In the Presence of Substance Cues

I - E2 In the Absence of Substance Cues

II Interpersonal Determinants

I - IA Coping with Interpersonal Conflict

II - A1 Frustration and/or Anger

II - A2 Other Interpersonal Conflict

II - B Social Pressure

II - B1 Direct Social Pressure

II - B2 Indirect Social Pressure

II - C Enhancement of Positive Emotional States

descriptions of their last relapse that they should decide what the "main reason" was for that relapse and that only one category could be used for scoring. We maintain that it is not difficult to imagine a model of relapse in which more than one "reason" or relapse precipitant applies (see Heather and Stallard (1989) for more details). We therefore wished to know what would be the effect of relaxing this condition and allowing raters to list more than one clear reason for relapse that they could identify in the protocol.

We were also concerned with the more fundamental question of what was the effect of

using raters to determine the subject's main reason for relapse, as opposed to allowing the subject to directly assess the relative importance of various factors identified in the literature. We therefore invented a short sentence to represent each of 16 categories and subcategories in the Cummings et al. 1980 classification of relapse episodes (see Table 1). These may be inspected in Table 2.

Sample and method.

A sample of 64 heroin users found in treatment settings in London and Dundee, UK, form the

Table 2

Items Used to Represent Relapse Categories and Subcategories

Item	Relapse Category or Subcategory
A I felt angry and frustrated, either with myself or because things were not going my way.	I - A1
B I felt bored.	I - A2
C I felt anxious and tense.	I - A2
D When I saw 'works' or heroin I had to give in.	I - E1
E I felt sad.	I - A2
F I felt ill or in pain or uncomfortable because I wanted a hit.	I - B1
G I was in a good mood and felt like getting high.	I - C
H I wanted to see what would happen if I just tried one hit.	I - D
I I just felt tempted out of the blue, and I went off to get a hit.	I - E2
J Someone offered me a hit.	II - B1
K I felt angry or frustrated because of my relationship with someone else.	II - A2
L I was with others having a good time and we felt like getting high together.	II - C
M I felt worried or tense about my relationship with someone else.	II - A2
N I felt ill or in pain but this was not due to withdrawal from opiates.	I - B2
O I felt others were being critical of me.	II - A2
P I saw others using.	II - B2

basis for the preliminary analysis of data reported here. This included 50 males and 14 females (mean age = 25 years, s.d.= 5.7). Subjects who had abstained from heroin for two weeks or longer and then relapsed were seen by one of two trained interviewers, each interview lasting about 20 minutes. Descriptions of each relapse were elicited in two ways: (i) open-ended questions regarding times, place, mood, others present etc., as described by Marlatt and Gordon (1985, pp. 77-93); (ii) a 16-item self-completion questionnaire designed to reflect each of Marlatt and Gordon's 13 subcategories, each item judged by the subject in terms of importance at the time of relapse on a scale of 0 to 10. (In addition, subcategory I-A2 was represented by three separate items and II-A2 by two separate items, see Table 2). Demographic data and information regarding dates of relapse and drug use before and after relapse were also collected.

An experienced clinical psychologist, who was unaware of the rationale for the study, categorized each protocol according to Marlatt and Gordon's instructions, identifying a main reason for relapse. The rater was also asked to identify any other reasons for relapse present in the protocol.

Results

Figure 2 shows the number of occasions in which subjects' identified Main Reason fell into each of the relapse categories and subcategories. These results are similar to previous findings in showing relatively high proportions for Negative Emotional States (Categories I-A1 and I-A2 combined: 22 per cent) and for Social Pressure (Categories II-B1 and II-B2 combined: 19 per cent). Interpersonal Conflict (Categories II-A1 and II-A2 combined: 8 per cent) was less prominent in these results. However, the chief way in which these data differ from those reported by Cummings et al. (1980) and Chaney et al. (1982) is in the greater percentage falling into Category I-C (Intrapersonal/Environmental

Enhancement of Positive Emotional States: 30 per cent - e.g. "I was having a good time and felt like getting high"). Nevertheless, in broad outline, the results resemble those reported by the Marlatt group.

Figure 3 shows frequencies for the assignment of Any Reason identified by the rater. Comparison with Figure 2 shows that, when more than one reason is allowed, this results in increases to Categories I-A2 (Coping with Other Intrapersonal-Environmental Negative Emotional States - e.g. "I'd just got out of jail and

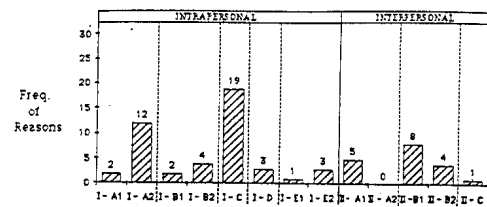


Figure 2. Frequency of Allocation of Main Reasons to Categories and Subcategories of Relapse Determinant

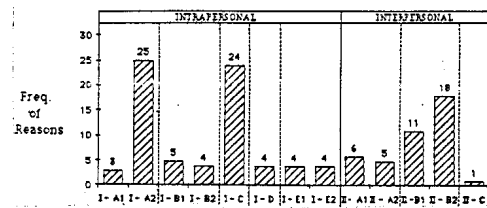


Figure 3. Frequency of Allocation of Any Reasons to Categories and Subcategories of Relapse Determinant

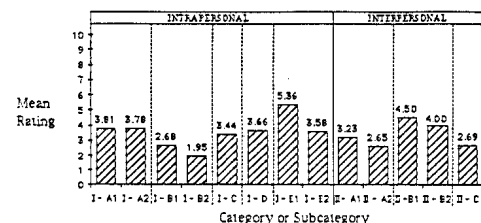


Figure 4. Mean Subject Ratings for Categories and Subcategories of Relapse Determinant

felt depressed") and Category II-B (Social Pressure), especially II-B2 (Indirect Social Pressure - e.g. "I went round to see some mates who started fixing").

The results for Any Reason in Figure 3 suggest that social pressure may act in combination with other types of precipitant in the events leading up to a relapse. The frequency of Intrapersonal-Environmental Negative Emotional States also appears to be underestimated in the same way, although this is not as striking in the results. However, this is again consistent with a model of relapse precipitants which insists that more than one type of determinant may contribute to relapse.

Figure 4 gives mean ratings across the total sample for each of Marlatt and Gordon's categories and subcategories. (Ratings for I-A2 and II-A2 were averaged across the items which represented them). Compared with both categorizations of open-ended descriptions of relapses (i.e. Main Reasons and Any Reasons), the self-rating method results in a marked elevation for Category I-E1 (Giving in to Temptations or Urges in the Presence of Substance Cues - see Item D, "When I saw works or heroin, I just had to give in"). There is also a less pronounced elevation for Category I-E2 (Giving in to Temptations or Urges in the Absence of Substance Cues). It also confirms the suggestion from the categorization of Any Reasons that the Main Reasons analysis underestimates the importance of Category II-B (Social Pressure). Both types of social pressure show relatively high mean ratings but the greatest increase compared with the Main Reason data is for Indirect Social Pressure (II-B2).

Conclusions

The main conclusion we draw from the overall results of this study is that substance cues may be much more important as determinants of relapse than indicated by the Marlatt and Gordon method

for the elicitation of relapse determinants. The most striking aspect of the results is the large increase in the significance of "temptations or urges" when subjects are asked to rate the importance of these factors rather than simply provide verbal descriptions of their relapse. This applies both to temptations experienced in the presence of substance cues (I-E1) and in their absence (I-E2), although the increase was relatively greater for the former than the latter. We also suggest that the increase in the significance of Indirect Social Pressure (II-B2) is consistent with this interpretation, since this category describes relapses in which subjects observed others using prohibited substances. In this case, it would appear that subjects do tend to mention this factor in their open-ended descriptions but that it is less likely than other types of precipitant to be rated as a main reason for relapse.

It should be emphasized that the results reported here are based on the ratings of only one individual. There is clearly a need to replicate these findings, particularly the changes that take place when different methods of rating are employed, using other blind raters. There is also the issue of inter-rater reliability which was obviously not examined here. If the present findings hold up, it will be necessary to extend the method to other samples of heroin addicts and samples of individuals dependent on other substances or activities. Thus, the findings should be regarded as suggestive only at this stage.

Nevertheless, the important aspect of the results is that a blind rater categorized relapses in much the same way as has been reported in previous work by the Marlatt team but that this picture of the nature of relapse precipitants was significantly altered, in the direction of increased importance for substance cues, when more than one reason for relapse was permitted and when subjects' own ratings were examined. The evidence further

suggests that substance cues may be combined with other types of precipitant in the events leading up to a relapse. However, as Cooney et al. (1983) point out, in one sense substance cues are the "final common pathway", by definition, in all relapses.

In any event, these competing explanations for relapse are unlikely to be mutually exclusive. It may be that psychosocial stress factors interact with substance-related conditioned responses to augment the likelihood of relapse. For example, conditioned craving responses in the face of high-risk situations could themselves result in lowered self-efficacy for coping with these situations. It is also possible that negative or positive emotional states come to act as conditional stimuli for craving responses because they have frequently preceded drug ingestion. If this is so, the two positions on relapse may be reconcilable.

In partial answer to the question posed at the beginning of this section, it cannot be the case that conditioned craving by itself is a sufficient condition of relapse; otherwise it would presumably be impossible for a severely dependent individual ever to achieve abstinence. It is obviously possible to resist craving, however intense, without relapse and this suggests that another set of variables, related to the individual's coping and decision-making processes, is essential for a full account of relapse. Thus, a more sensible question with regard to conditioned craving is whether or not it is necessary for relapse to occur; do relapses occur without the experience of craving? If the answer to this is in the affirmative, then we still need to know the proportion of relapses in which conditioned craving does play an important role and how this is related to characteristics of the relapser.

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