Disulfiram, self efficacy and the cue exposure hypothesis

and

Research Portfolio

Doctor of Clinical Psychology Degree

* **This volume was submitted in partial fulfillment of the degree of Doctor of Clinical Psychology**

Catherine Keogh

Submitted in partial fulfilment for the degree of

Doctorate in Clinical Psychology

Faculty of Medicine

University of Glasgow

1998

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 – 1346

Acknowledgements

My thanks to all the patients who took part in the research and to the alcohol services staff who helped in a variety of ways. Special thanks to Dr. Iain Smith, Consultant Psychiatrist at the Alcohol Problems and Treatment Unit, Gartnavel Royal Hospital.

I would also like to thank Dr. Kate Davidson, my research supervisor and all the staff at the Department of Psychological Medicine, especially Mrs. Sheila Neilson, for reasons too numerous to mention. Thanks are also due to Mr. Richard German and staff of The Maria Henderson Library for providing such an efficient and friendly service. Thanks also to my fellow researchers, Dr. Anne Douglas and Dr. Lyndia Greene, for their support and friendship over the past two years.

I owe a huge debt of gratitude to Dr. George Ralston for his advice and encouragement and to all my family, who have helped and supported me in so many ways. I am especially grateful to Moni and Calum, for their meticulous proof reading and computer wizardry. My final thanks are to Maurice, for his endless patience, encouragement and support throughout.

Catherine Keogh

October 1998

TABLE OF CONTENTS

FIGURES

APPENDICES

MAJOR RESEARCH PROJECT LITERATURE REVIEW

Cue exposure Revisited

This and chapter 3 were written according to the guidelines of *Addiction*

A copy of the instructions to authors can be found in Appendix 1.

Cue Exposure Revisited

Classical conditioning has been the predominant discourse in cue exposure research in the addictions. It would be wrong, however, to restrict the definition of cue exposure exclusively to a conditioning theory based mechanism since there are many other possible explanations for the effects of exposure to cues. This paper proposes that cue exposure is a valuable investigative technique that can be studied from a variety of different perspectives that include social learning theory and other cognitive models. A potential of cue exposure is that it provides a means of developing an understanding of addictive behaviour that is firmly rooted in widely studied general theories of behaviour. Furthermore, it provides a methodology to test hypotheses and to study mechanisms of cue reactivity and the effects of cues on problem drinking. In the clinical area in particular, cue exposure affords a more precise method to study the phenomenon of relapse and ultimately, the effects of cue exposure on clinical outcome.

Introduction

The desire to drink when faced with alcohol cues has traditionally been acknowledged as a classical conditioning process. While interpretations of the cue reactivity paradigm were initially derived from the framework of classical conditioning, it has been argued that it is too limiting to restrict the definition of cue exposure to a conditioning theory-based mechanism (Drummond *et al.*, 1995). There are many other possible explanations for the effects of exposure to cues, with social learning theory as a leading alternative candidate. Exposure to alcohol cues results in physiological, cognitive and behavioural reactions which are inextricably inter-linked and mutually interdependent. Just as with neurosis, the term "desynchrony" has been applied to acknowledge the difficulties in mapping relationships between the three (Rachman & Hodgson, 1974; Rachman, 1978). The range of cues that may be relevant is potentially infinite. Exteroceptive cues include basic perceptions such as sight, smell and taste of alcohol and the more complex involve alcohol advertising or temporal cues such as the time of day when alcohol is normally consumed. Interoceptive cues can range from the sensation of alcohol entering the stomach to the effects of alcohol on the central nervous system. One drink may act as a cue for further drinking, the so-called 'priming dose effect', which has been demonstrated in both alcohol-dependent and non-dependent subjects (Drummond *et al.*, 1995). Interoceptive cues can also include moods (such as euphoria or anger), cognitions (such as beliefs about the effects of alcohol) and those related to the withdrawal phase that can occur many hours after the initial drinking episode.

The aim of the present paper is to demonstrate how cue exposure, as a procedure, can be used to extend our knowledge and understanding of alcohol problems. It is proposed that cue exposure is a valuable investigative technique that can be studied from a variety of different theoretical standpoints. In cue exposure we have a means of developing an understanding of addictive behaviour that is firmly rooted in widely studied theories of general behaviour, theories that have been successfully applied to other human disorders (Drummond *et al.*, 1995). As we increase our understanding and ability to measure cue reactivity, we increase the likelihood of developing clinical techniques that are located within a sound scientific framework. The challenge is to make links between advances in all areas and move away from the somewhat focused approach that has existed until recently.

The paper will attempt to do this by focusing on examples from four areas. Firstly, there will be a discussion of the way in which cue exposure studies have extended our understanding of cue reactivity and have incorporated it within a social learning framework. Secondly, the social learning construct of self-efficacy will be discussed with emphasis on how it can modify the effects of cue exposure and experience of craving. Craving in the absence of ongoing drinking is of particular relevance for the study of cue-reactivity and relapse. The third area to be explored will be disulfiram treatment. It has been hypothesised that disulfiram may act as a form of cue exposure and response prevention which could result in the extinction of conditioned craving. Some of the questions that this hypothesis raises will be examined. Finally, a cognitive processing model of cue reactivity will be described. This model rejects craving as a central process in alcohol problems and asserts that physiological reactions to alcohol related cues may be reflecting the cognitive and behavioural demands of the situation.

Cue Exposure Studies

Some authors have questioned the value of cue reactivity in the relapse process (Chaney, Roszell & Cummings, 1982; Marlatt, 1985). Others have contributed to the numerous studies exploring the significance of cue reactivity in relation to alcohol problems. The first randomised group clinical trial of cue exposure was conducted by Rankin, Hodgson & Stockwell (1983). Results showed a decrease in desire for alcohol following in-vivo cue exposure compared to imaginal exposure. Unfortunately, the study had a very small sample size (n = 10) which limits the generalisability of the results and no follow-up data was reported. Treatment was performed in a controlled inpatient setting and was unable to provide information about the long-term effectiveness of cue exposure treatment following discharge. Laberg (1990) reported the outcome of a series of studies on cue reactivity carried out at the Hjellestad Clinic in Norway. These studies supported the notion

previously proposed by Stockwell *et al.* (1982), that degree of dependence is an important determinant of a problem drinker's reaction to drinking cues. They also replicated previous findings that expectation of receiving alcohol exerted a greater influence on craving than the pharmacological effects of alcohol, regardless of the degree of dependence. Overall, it was shown that alcohol expectations could elicit significant alcohol-specific responses in problem drinkers. Under experimental control, an apparently weak verbal cue was sufficient to elicit behavioural, subjective and physiological responses in problem drinkers, regardless of internal pharmacological effects following the ingestion of alcohol. These findings support both conditioning and social learning models of cue reactivity. In a one-year follow-up study (Loberg *et al.*, 1988), it was found that subjects who had participated in drinking experiments were not adversely affected in terms of post treatment drinking outcome. Some subjects reported that participation in these experiments resulted in an increase in feelings of coping, when they were successful in resisting further drinking. The results of the Norwegian studies lend strong support to a range of other studies (Blakey & Baker, 1979; Hodgson & Rankin, 1976; Rankin *et al.*, 1983), which suggested that exposure to alcohol related stimuli, in combination with response prevention training, led to a reduction in craving.

A study by Monti *et al.* (1993) investigated the combined effectiveness of cue exposure with coping skills training compared with a contrast condition involving daily contact with assessment only, in addition to standard treatment. Subjects who had received the experimental treatment had a higher incidence of abstinence and a higher percentage of abstinent days during the 3 to 6 months post treatment than those who had received the standard treatment alone. The fact that some of the experimental subjects who drank during the first 3 months were completely abstinent during the next three months is consistent with the idea that these patients applied coping skills after lapsing to return to abstinence but is inconsistent with an extinction based explanation of the treatment effects. In a study by Drummond & Glautier (1994), subjects were assigned to either a cue exposure condition or to a relaxation control condition in addition to standard inpatient treatment. The authors reported that after a 6 month follow-up period, cue exposure clients did better than controls in terms of latency to reinstatement of heavy drinking, dependence and in quantity consumed. In this study, regression analyses showed that treatment group and cue reactivity independently predicted outcome in terms of latency to reinstatement of heavy drinking and dependence. The mechanism of cue exposure, as suggested by the cue exposure hypothesis, may be more complex than that proposed by a learning model which relies exclusively on reactivity. They speculate that an increase in self-efficacy may have facilitated the use of coping skills in resisting heavier drinking once drinking began. This was similar to the conclusion previously reached by Monti *et al.* (1993).

It would appear that extinction of classically conditioned physiological responses is the only mechanism by which cue exposure treatments may reduce drinking. Other mechanisms of action are a broader operant conditioning model and a social learning model of drinking (Abrams & Niaura, 1987). These involve several cognitive and information processing factors, including breaking the chain of behaviours leading to drinking, disconfirming expectations about the effects of exposure to

drinking cues, developing coping skills and strengthening efficacy expectations regarding the ability to resist drinking when faced with alcohol related cues.

Self-efficacy

There is abundant evidence that self-efficacy is an important factor in relapse (Burling *et al.*, 1989; Solomon & Annis, 1990). There is also strong empirical evidence of the power of self-efficacy judgements in predicting drinking behaviour (Ritz & Watzl, 1983; Annis & Davis, 1988). . Drummond *et al.* (1995) have suggested that Bandura's theory of self-efficacy may provide an important additional dimension to our understanding of the effects of cue exposure on relapse. They stated that: "In the face of difficulties, people who entertain serious doubts about their capacities slacken their efforts or give up altogether, whereas those who have a strong sense of efficacy exert greater effort to master the challenge" (Bandura, 1981, p. 201). High levels of efficacy are posited to offer protection from relapse whereas low levels make it less likely that the problem drinker will engage in necessary coping responses and avoid relapse. A basic tenet of this view is that craving and self-efficacy are reciprocally related. High craving, because it presents a challenge to the problem drinkers coping skills, is hypothesised to reduce self-efficacy beliefs. Low self-efficacy should exacerbate alcohol craving, primarily by augmenting the incentive properties of anticipated alcohol effects. Bandura (1981), also predicted that increased aversive arousal, particularly one over which an individual has no control, is likely to result in decreased self-efficacy. Arousal induced by conditioned responses to alcohol related cues may have a direct effect on self-efficacy as well as outcome expectancy. In a study by Cooney *et al.* (1987) cognitive changes following cue exposure were examined in abstinent problem drinkers and non-problem drinkers. Their results showed that problem drinkers responded to alcohol cues with reports of increased physical symptoms, decreased confidence about coping with future temptation, and increased guilt. These results are in accord with the views of several authors (Marlatt & Gordon, 1985; Wills & Shiffman, 1985), who claim that motivation for alcohol consumption involves a multiplicity of biopsychosocial determinants. In addition to conditioned cue effects, they argue that relapse is influenced by physiological, affective and cognitive variables as they interact in a 'high risk situation'. Marlatt (1990) has proposed that cognitive factors will influence the probability of relapse; if an effective coping response is not available to the individual in the high risk situation, self-efficacy (perceived ability to cope with the temptation) will reduce. Low self-efficacy is thought to increase the likelihood of craving (Bandura, 1981).

Craving

Some researchers (Ludwig & Stark, 1974) have argued that craving is a classical conditioned process which suggests that it is an appetitive urge, similar to hunger, that varies in intensity and is characterised by withdrawal-like symptoms. A logical implication of all the conditioning models is that procedures based on extinction should decrease the probability of relapse. A potentially effective treatment method would be based on exposure with response prevention. The model for this treatment approach derives from extensive research on obsessive-compulsive and phobic disorders (Foa & Kozak, 1986; Rachman & Hodgson, 1980). Just as a phobic individual will not experience fear when certain cues can be avoided, but will experience a high degree of fear when escape is prevented; an addicted individual may experience minimal craving as long as every urge to drink can be followed by alcohol use. According to this view, addicted individuals are likely to experience a high degree of craving when remaining abstinent in the presence of drinking cues. Caution has been advised, however, against making too great a leap of faith in assuming their equivalence to addictive behaviours (Drummond *et al.*, 1995).

The concept of 'craving' has been important in the development of cue exposure research. It has been argued that the subjective experience of conditioned craving in response to drug cues is the important determinant of relapse (Ludwig, Wikler & Stark, 1974). More recently, it has been described as an 'ambiguous concept' which serves to impede progress in the cue exposure field (Drummond, Cooper & Glautier, 1990 p. 728). These authors conclude that the subjective experience described as 'craving' may represent a variety of different internal states between individuals and give rise to erroneous interpretations of the effects of cue exposure. Several researchers have expressed the view that craving may arise from the labelling of physiological or affective states. (Cooney *et al.*, 1993; Drummond *et al.*, 1990), but none of these researchers have provided an extensively formulated cognition-arousal model of craving.

Disulfiram Treatment

The psychological mechanism underlying the use of disulfiram (Antabuse) is deterrence. One problem associated with this model is that "it predicts a relapse after the patient has stopped drinking" (Heather, 1993 p. 15). One way that disulfiram treatment might effect longer-term changes has been proposed by Brewer (1988). He states that disulfiram acts as a form of naturalistic cue exposure and response prevention. Heather (1996) states that according to this extinction hypothesis, unreinforced exposure (by means of response prevention) to alcohol related cues will lead to the extinction of conditioned craving responses. Thus, when a person encounters high-risk

situations in future, craving will not be experienced or will be experienced to a much lesser degree. He also proposes an alternative hypothesis which is that repeated 'mastery experiences' of confronting high-risk situations (with the aid of disulfiram) will lead to greater self-efficacy in coping with those high-risk situations in future. According to Heather (1993), it is not necessary for this hypothesis that craving subsides. Indeed, self-efficacy theorists may argue that it is important for a person to learn to cope with the same high level of craving without relapse. The two mechanisms, however, are not mutually exclusive and it may be that both processes can occur simultaneously, i.e. the person learns to cope with craving better and that craving reduces in intensity through extinction. Craving in the absence of ongoing drinking is of particular relevance for the study of cue reactivity and relapse. For example, will the extinction of conditioned craving responses occur when the consummatory response (i.e. drinking) is unavailable. Alternatively, could disulfiram create a different expectancy set so that patients would not be tempted by alcohol cues while on disulfiram, only to be vulnerable after disulfiram has been discontinued (Rohsenow *et al.*, 1995). These are among the testable hypotheses that remain to be explored.

Finally, if disulfiram treatment works by operating as a form of cue exposure then one of the ways it may affect outcome is by utilising Hammersley's (1992) concept of 'breadth of transfer'. This recommends that cue exposure should be undertaken in a wide range of settings in the hope that the learned extinction will generalise to as many situations as possible. Studies of cue exposure also need to explore cues beyond those directly associated with alcohol use. As with the treatment of phobias, this would involve tailoring cues more carefully to the individual's needs. More entrenched alcohol problems are more likely to require more intensive treatment interventions. Disulfiram treatment is frequently considered to be of benefit for those who have failed to respond to simpler treatments, or for whom the consequences of an early relapse would be particularly disastrous (Brewer, 1988).

A Cognitive Processing Model of Cue Reactivity

A model proposed by Tiffany (1990) concurs with the view that physiological reactions to alcohol related cues are not necessarily classically conditioned responses but may be reflecting the cognitive and behavioural demands of the situation (see Figure 1.1). According to this model, if an individual is addicted to alcohol, drinking is likely to have become an automatic process and will be stimulus bound, cognitively effortless and difficult to impede. Conversely, non-automatic processes are believed to be slow, dependent upon intention and restricted by limited cognitive capacity. This mode of processing is needed in situations in which automatic processes cannot be invoked to produce appropriate responses. For example, one situation requiring considerable non-automatic processing is when an individual is attempting to thwart engaging in a behaviour that has become

automatized (Norman & Shallice, 1985; Schneider, Dumais & Shiffrin, 1984). The model hypothesises that non-automatic processes will be activated in parallel with drinking schemata. These processes will either act in support of the schema and drinking will occur, or act to block the automatized sequence from being completed, as will occur when the individual is attempting to maintain abstinence. An example of the latter situation would be an individual, recently embarked on disulfiram treatment meeting former drinking friends in a setting where alcohol was freely available. It is anticipated that this situation will require considerable non-automatic cognitive processing to avoid the completion of the drinking action schema. Tiffany (1995) reports that the results of several studies suggest craving may disrupt effortful cognitive processes. Many of these studies, however, involve craving in smokers (Brandon, Tiffany & Baker, 1987) or are laboratory based studies (Wetter, Brandon & Baker, 1992; Sayette, *et al.*, 1994) and may not be applicable for problem drinkers in real life settings. Although many of the specific predictions regarding automatic and non-automatic processes in alcohol relapse remain to be investigated, existing data on alcohol craving and the relationship of craving to alcohol use are not incompatible with this model.

Conclusion

Cue exposure as a technique for treating alcohol dependency is considerably more complex and less radically behavioural than it first appeared. This paper has presented a variety of perspectives on the degree to which cognitive processes must be invoked to supplement or supplant traditional conditioning theories of cue reactivity phenomena. For example, Laberg (1990) reports that individuals addicted to alcohol show conditioned alcohol responses when merely told that they are going to be offered alcohol. This supports Hammersley's view that "it is possible that the critical cues to drug use are primarily in the user's mind rather than in the user's environment" (Hammersley, 1992 p. 299). Thus, it is possible that problem drinkers do not automatically crave alcohol upon exposure to some stimuli, but instead their cognitive interpretation of the stimuli may or may not elicit conditioned responses to alcohol. Cognitive approaches offer mechanisms and measures not envisioned by simple conditioning models of cue reactivity. Although cognitive models question whether classical conditioning can provide a complete explanation for cue reactivity phenomena, none challenges the value of the cue reactivity paradigm nor its ability to contribute to a better understanding of alcohol addiction, including recovery and relapse.

References

ABRAMS, D. B. & NIAURA, R. S. (1987) Social learning theory, in: BLANE, H. T. & LEONARD, K. E. (Eds) *Psychological Theories of Drinking and Alcoholism* , pp. 131-178 (New York, Guilford Press).

ANNIS, H. M. & DAVIS, C. S. (1988) Relapse Prevention, in: HESTER R. K & MILLER W. R. (Eds) *Handbook of Alcoholism Treatment Approaches* (New York, Pergamon Press, Inc.).

BANDURA, A. (1981) Self-referent thought: A developmental analysis of self-efficacy, in: FLAVELL, J. H. & ROSS, L. (Eds) *Social Cognitive Development Frontiers and Possible Future* (New York, Cambridge University Press).

BLAKEY, R. & BAKER, R. (1979) An exposure approach to alcohol abuse, *Behaviour Research and Therapy,* 18, 319-325.

BRANDON, T. H., TIFFANY, S. T. & BAKER, T. B. (1987) Characterisation of the process of smoking relapse, in: TIMS, F. & LEUKEFELD, C. (Eds) *Relapse and Recovery in Drug Abuse,* NIDA Research Monograph, No. 72, pp. 104-117 (Washington, DC, US Government Printing Office).

BREWER, C. (1988) The management of opiate abuse: learning from other addictions, *Journal of Drug Issues,* 18, 679-697.

BURLING, T. A., REILLY, M., MOLTZEN, J. O. & ZIFF, C. (1989) Self-efficacy and relapse among inpatient drug and alcohol abusers: A predictor of outcome, *Journal of Studies on alcohol,* 50, 354-360.

CHANEY, E. F., ROSZELL, D. K. & CUMMINGS, C. (1982) Relapse in opiate addicts: a behavioural analysis, *Addictive Behaviours,* 7, 291-297.

COONEY, N. L., BASTONE, E. C., SCHMIDT, P. M., LITT, M. D., BAUER, L. O. & KADDEN, R. (1993) Cue Exposure treatment for alcohol dependence: process and outcome results, in: MONTI, P. M. (Chair), "Cue exposure and alcohol treatment: where do we stand?", Sixth International Conference on Treatment Behaviours, (Santa Fe, NM).

COONEY, N. L., GILLESPIE, R. A., BAKER, L. H. & KAPLAN, R. F. (1987) Cognitive changes after alcohol cue exposure, *Journal of Consulting and Clinical Psychology,* 55, 150-155.

DRUMMOND, D. C. & GLAUTIER, S. P. (1994) A controlled trial of cue exposure treatment in alcohol dependence. *Journal of Consulting and Clinical Psychology,* 62, 809-817.

DRUMMOND, D. C., COOPER, T. & GLAUTIER, S. P (1990) Conditioned learning in alcohol dependence: implications for cue exposure treatment, *British Journal of Addiction, 85, 725-743.*

DRUMMOND, D., TIFFANY, S. T., GLAUTIER, S. & REMINGTON, B. (1995) Cue exposure in understanding and treating addictive behaviours, in: DRUMMOND, D. C., TIFFANY, S. T., GLAUTIER, S. & REMINGTON, B. (Eds) *Addictive Behaviour Cue Exposure Theory and Practice* (London, John Wiley & Sons).

FOA, E. B. & KOZAK, M. J. (1986) Emotional processing of fear: exposure to corrective information, *Psychological Bulletin,* 99, 20-35.

HAMMERSLEY, R. (1992) Cue exposure and learning theory, *Addictive Behaviours,* 17, 297-300.

HEATHER, N. (1993) Disulfiram treatment for alcohol problems: is it effective and, if so why?, in: BREWER, C. (Ed) *Treatment Options in Addiction. Medical Management of Alcohol and Opiate Abuse*, pp. 1-18, (London: Gaskell).

HEATHER, N. (1996) Personal communication.

HODGSON, R. J. & RANKIN, H. J. (1976) Modification of excessive drinking by cue exposure, *Behaviour Research and Therapy,* 14, 305-307.

LABERG, J. C. (1990) What is presented, and what is prevented, in cue exposure and response prevention with alcohol dependent subjects?, *Addictive Behaviours,* 15, 367-386.

LOBERG, T., LABERG, J. C., ANDRESEN, S. & LARSEN, G. (1988) Do drinking experiments have a negative effect on alcoholics' recovery?, *British Journal of Addiction,* 83, 1429-1437.
LUDWIG, A. M. & STARK, L. H. (1974) Alcohol Craving, *Quarterly Journal of Studies on Alcohol,* 35, 899-905.

LUDWIG, A. M., WIKLER, A. & STARK, L. H. (1974) The first drink: psychobiological aspects of craving, *Archives of General Psychiatry,* 30, 539-547.

MARLATT, G. A. & GORDON, J. R. (1985) *Relapse Prevention Maintenance Strategies in the Treatment of Addictive Behaviours* (New York, NY. Guilford).

MARLATT, G. A. (1990) Situational determinants of relapse and skill training interventions, in: MARLATT, G. A. & GORDON, G. R. (Eds) *Relapse Prevention*, pp. 71-127 (New York, NY, Guilford).

MARLATT, G. A. Cue exposure and relapse prevention in the treatment of addictive behaviours, *Addictive Behaviours,* 15, 395-399.

MONTI, P. M., ROSENHOW, D. J., NIAURA, R. S., SIROTA, A. D., COLBY, S. M., GODDARD, P. & ABRAMS, D. B. (1993) Cue exposure with coping skills treatment for male alcoholics: a preliminary investigation, *Journal of Consulting and Clinical Psychology,* 61, 1011-1019.

NORMAN, D. A. & SHALLICE, T. (1985) Attention to action: willed and automatic control of behaviour, in: DAVIDSON, R. J, SCHWARTZ, G.E. & SHAPIRO, D (Eds) *Consciousness and Self-regulation, Advances in Research and Theory*, 4, pp. 2-18, (New York, Plenum Press).

RACHMAN, S. J. & HODGSON, R. (1974) Synchrony and desynchrony in fear and avoidance, *Behaviour Research and therapy*, 12, 311-318.

RACHMAN, S. J. (1978) *Fear and Courage* (San Francisco, Freeman).

RACHMAN, S., & HODGSON, R. (1980) *Obsessions and Compulsions* (Englewood-Cliffs, NJ, Prentice Hall).

RANKIN, H., HODGSON, R. & STOCKWELL, T. (1983) Cue exposure and response prevention with alcoholics: a controlled trial, *Behaviour Research and Therapy,* 21, 435-446.

RITZ, F. & WATTZL, H. (1983) Self assessment of relapse risk and assertiveness in relation to treatment outcome of female alcoholics, *Addictive Behaviours,* 8, 121-127.

ROHSENOW, J. D., MONTI, P.M. & DAVID, B. A. (1995) Cue exposure treatment in alcohol dependence, in: DRUMMOND, D. C., TIFFANY, S. T., GLAUTIER, S. & REMINGTON, B. *Addictive Behaviour*, pp. 169-196.

SAYETTE, M. A., MONTI, P. M., ROSENHOW, D. J., BIRD-GULLIVER, S., COLBY, S., SIROTA, A., NIAURA, R. S. & ABRAMS, D. B. (1994) The effects of cue-exposure on reaction time in alcoholics, *Journal of Studies on Alcohol,* 55, 629-633.

SCHNEIDER, W., DUMAIS, S. T. & SHIFFRIN, R. M. (1984) Automatic and control; processing and attention, in: PARASURAMAN, R. & DAVIES, D. R. (Eds) *Varieties of Attention,* pp. 1-25 (Orlando, Academic Press).

SOLOMON, K. A. & ANNIS, H. (1990) Outcome and efficacy expectancy in the prediction of post-treatment drinking behaviour, *British Journal of Addiction,* 85, 659-665.

STOCKWELL, T. R., RANKIN, H., RANKIN, H. J. & TAYLOR, C. (1982) Alcohol dependence, beliefs and the priming effect, *Behaviour Research and Therapy,* 513-522.

TIFFANY, S. T. (1990) A cognitive model of drug urges and drug-use behaviour: role of automatic and nonautomatic processes, *Psychological Review,* 97, 147-168.

TIFFANY, S. T. (1995) The role of cognitive factors in reactivity to drug cues, in: DRUMMOND, D. C., TIFFANY, S. T., GLAUTIER, S. & REMINGTON, B. (Eds) *Addictive Behaviour Cue Exposure Theory and Practic.* (London, John Wiley & Sons).

WETTER, D. W., BRANDON, T. H. & BAKER, T. B. (1992) The relation of affective processing measures and smoking motivation indices among college-age smokers, *Advances in behaviour Research and Therapy,* 14, 169-193.

WILLS, T. A. & SHIFFMAN, S. (1985) Coping and substance use: a conceptual frame-work, in: SHIFFMAN, S. & WILLS, T. A. (Eds) *Coping and Substance Use*, pp. 3-24 (Orlando, Academic Press).

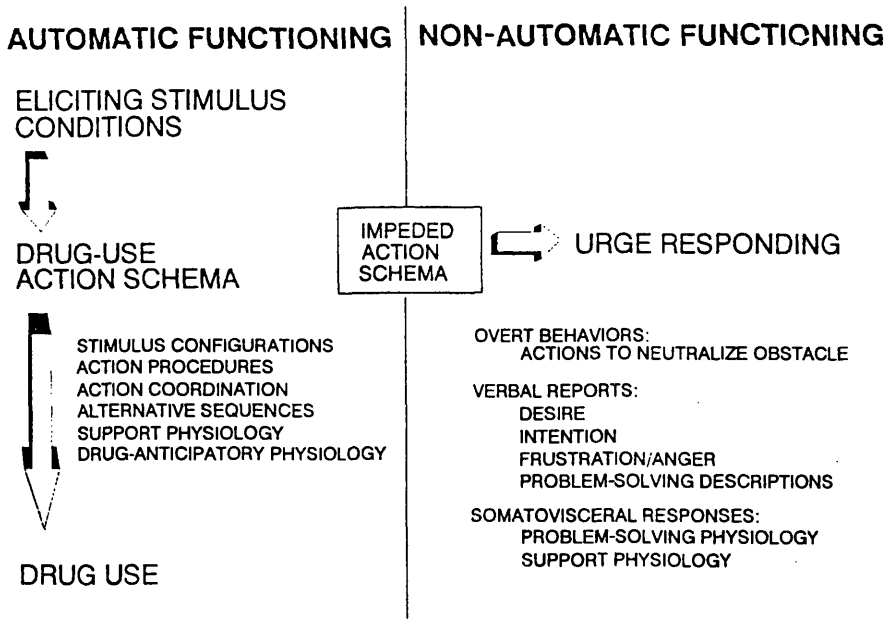

Figure 1.1 Cognitive model processing of cue reactivity (Tiffany, 1990)

2. MAJOR RESEARCH PROJECT PROPOSAL

Disulfiram treatment, self-efficacy and the cue exposure hypothesis

GREATER GLASGOW COMMUNITY AND MENTAL HEALTH SERVICES NHS TRUST

SUBMISSION OF RESEARCH PROTOCOLS TO THE RESEARCH ETHICS COMMITTEE

All research protocols for consideration by the Research Ethics Committee of Greater Glasgow Community and Mental Health Services NHS Trust must be submitted on the standard application form, a copy of which is enclosed. Your attention is drawn to the guidance notes to researchers, and it is suggested that you read these prior to completing your application.

The application must be completed even when a separate protocol (for example, prepared by a pharmaceutical company) exists.

If you wish advice on completing your application, or any aspect of the study you are proposing to undertake please contact Mrs Anne McMahon, Medical Director's Office, Trust Headquarters, Gartnavel Royal Hospital.
Tel: 0141-211-3824.

APPLICATION FORM FOR ETHICAL APPROVAL

NOTES: This application form must be *typed*, not hand written.

All questions must be answered: it is not an acceptable answer to put see *'separate protocol'*; *'not applicable'* is a satisfactory answer where appropriate.

Where a separate protocol exists, this should be submitted in addition to the application form.

---

1. Name and status of proposer: Catherine Keogh
   Chartered Clinical Psychologist

   Supervisor: Dr. Kate Davidson
   Research Tutor
   Consultant Clinical Psychologist
   Dept. of Psychological Medicine
   Academic Centre
   Gartnavel Royal Hospital

---

2. Address for correspondence: Lansdowne Clinic
   3 Whittinghame Gardens
   Great Western Rd.
   Glasgow G12 OAA

---

3. Employing authority:

   Greater Glasgow Community and Mental Health Services NHS Trust

---

4. In which hospital(s) or other location will the study be undertaken:

   Gartnavel Royal Hospital, Glasgow

---

5. Title of project:

Disulfiram, self-efficacy and the cue exposure hypothesis

---

6. Has the proposed research been approved by any other committee on ethics? (Give details):

No

---

7. Has the proposed, or similar, research been carried out in any other centre? (Give details)

No

---

8. Please give a summary of the project, including the question to be answered, the procedures to be used, the measurements to be made and how the data will be analysed (please see question 15 for recording details of how consent is to be obtained):

The aim of the project is to seek a behavioural explanation of why disulfiram works by exploring how it affects an individuals self-efficacy, which is considered to be a central factor in mediating change in human behaviour. Disulfiram treatment enables an individual to confront situations which are high-risk for relapse while forcibly preventing drinking from taking place. One possible explanation is that associated craving responses are extinguished and the individuals self-efficacy is increased. Alternatively, self-efficacy may only increase if the individual can attribute the success of coping efforts in the high-risk for drinking situation to him/herself. When disulfiram has been taken, the credit for coping may be attributed to the disulfiram itself, rather than to a change in personal efficacy.

The following hypotheses will be tested:

1. Compared to those who discontinued disulfiram treatment, those clients who remained on disulfiram treatment, would show increases in self-efficacy from intake to post-treatment.

2. Clients who remained on disulfiram treatment and have experienced more high-risk situations would have higher self-efficacy scores.

3. Compared to those clients who discontinued disulfiram treatment, those clients who continued disulfiram treatment, would report a reduction in craving.

Subjects will be consecutive attenders at the Antabuse Treatment Clinic, Gartnavel Royal Hospital who are within one month of having detoxified. All subjects will be interviewed by the applicant. Measures will be taken at the beginning of treatment and repeated at 3 and 6 monthly follow-up.

The following self-report measures will be used:

1. Generalised Self-efficacy Scale (Schwarzer & Jerusalem, 1993); a 10 item questionnaire which measures generalised self-efficacy.

2. Severity of Alcohol Dependence Questionnaire (Stockwell et al., 1983); a 20 item questionnaire which measures physical dependence on alcohol.

3. Inventory of Drinking Situations (Annis, 1987); a 42 item questionnaire which provides a profile of an individual's high-risk for drinking situations.

4. Revised Inventory of Drinking Situations a modification of Annis' (1987) paper: questionnaire which provides a retrospective report of exposure to high-risk situations.

5. Craving Index (West et al., 1984): a 5 item visual analogue scale which has been adapted for alcohol use.

6. General Health Questionnaire: (Stockwell et al., 1983); a 28 item questionnaire that includes
4 sub-scales measuring somatic symptoms, anxiety and insomnia, social dysfunction and severe depression.

An interview schedule will include demographic information such as age, sex, employment and marital status. Subjects will be asked about alcohol consumption during the 6 months prior to commencing disulfiram treatment.

9. Please state whether there are any expected benefits to patient care and, if so, summarise.

It is predicted that the study will clarify:

- Which individuals would benefit from treatment aimed at increasing self-efficacy and coping strategies.
- Which patients are more likely to default and require additional support.
- An optimum time to withdraw disulfiram treatment which has benefits for individual patients and the alcohol treatment service.

---

10. Please state the likely duration (a) of the project itself and (b) for individual patients:

(a) 2 years (b) 3 sessions: 60min, 40min, 40min.

---

11. Please state who will have access to the data and what steps will be taken to keep data confidential:

Dr. Iain Smith and myself and staff from the Psychology Dept. and the Alcohol Problems and Treatment Unit. Data will be coded to protect patients and stored securely in a locked cabinet in the Psychology Department.

---

12. Please give details of how consent is to be obtained. A copy of the proposed consent form, along with a separate patient information sheet, written in simple, non-technical language, must be attached to this proposal form.

Patients who are commencing disulfiram treatment will be invited to take part in the study. A patient information sheet and consent form is attached.

---

13. Is the power of the study sufficient to answer the question that is being asked? Please indicate the calculations used for the required sample size, including any assumptions you may have made. (If in doubt, please obtain statistical advice).

Power analysis is not appropriate since this is a preliminary and exploratory study and the measures are being adapted for use with patients receiving disulfiram treatment.

---

14. What statistical tests will you apply to your results?
Please give details of proposed methods:

Data will be analysed using repeated measures analysis of variance, correlational analysis and t-tests.

---

15. Scientific background to study (give a brief account of relevant research in this area with references):

Supervised disulfiram treatment is included in Heather's list of behavioural interventions which show evidence of effectiveness.
HEATHER, N. (1993) Disulfiram treatment for alcohol problems: is it effective and, if so, why?, in: BREWER, C. (Ed) *Treatment Options in Addiction: Medical Management of Alcohol and Opiate Abuse* (London, The Royal College of Psychiatrists).

In a review of the disulfiram literature, Brewer concludes that "the evidence for the effectiveness of supervised disulfiram has been accumulating since 1967, with no contrary findings".
BREWER, C. (1987) Disulfiram treatment for alcoholism, *Journal of the American Medical Association,* 926, 257.

An increase in self-efficacy has consistently been found from treatment intake to treatment completion.
Subjects who have not relapsed at 3-6 months follow-up show higher levels of self-efficacy compared to individuals who have relapsed.
BURLING, T. A., REILLY, P. M., MOLTEEN, J. O. & ZIFF, D. C. (1989) Self-efficacy and relapse among in-patient drug and alcohol abusers: A predictor of outcome, *Journal of Studies on Alcohol,* 50(4), 354-360.
SOLOMON, K. A. & ANNIS, H. (1990). Outcome and efficacy expectancy in the prediction of post-treatment drinking behaviour, *British Journal of Addiction,* 78, 659-665.

Burling et al. (1989) also found that individuals who maintained abstinence through 6 months exhibited a significantly greater increase in self-efficacy from intake to discharge compared to individuals who did not maintain abstinence.

---

16. Does the research involve additional invasive procedures over and above the normal treatment of the patient? If so, are there any hazards associated with the procedure?

No

---

17. Please state any other potential hazards to participants arising from the research, their estimated probability (if possible) and the precautions to be taken to meet them:

None

---

18. Please describe any procedures which may cause discomfort or distress to participants, the degree of discomfort or distress entailed and their estimated probability:

---

19. Who are the proposed participants in the research (and controls if appropriate), and how are they to be selected? Please give details of age, sex, numbers involved and any other relevant details:

Consecutive attenders at the Antabuse Treatment Clinic, Gartnavel Royal Hospital.
A minimum of 80 patients is envisaged, between the ages of 18 and 65 years.

---

20. Give names, strengths, doses and route of administration of investigational drugs to be used:

Not applicable

---

21. Are the drugs to be used subject to the terms of:-

A Product Licence:

A Clinical Trial Certificate (CTC) or Certificate Exemption (CTS):

Is an unlicensed Product, but is registered under the DDX Scheme:

Not applicable

Which ever is applicable, please provide documentary evidence:

---

22. Are the drugs used being given in accordance with the Product Licence, with the agreed protocol (in the case of CTX or DDX) or with the CTC?

Not applicable

If no, give details:

---

23. Which manufacturer is organising the trial or supplying investigational drugs?

Not applicable

---

24. If the trial is being undertaken in general practice and involves the supply of drugs, please state the arrangements for storage, labelling and dispensing.

Not applicable

---

25. Are questionnaires to be used? If yes, a copy must be attached to this application form.

Copies attached

---

26. How is the project to be funded?

Self

---

27. Please state any 'interests', ie. profit, personal or departmental, financial or otherwise, relating to the study. Details of payments per patient recruited, and/or any other remuneration details must be included.

Not applicable

---

28. Will the research have revenue consequences for the NHS? If yes, please tick the box(es) applicable below:-

Nursing

Pharmacy

Medical Records

Laboratory services

Other clinical services of the Trust

If you answer yes to any of these, please give details of the revenue consequences.

Not applicable

---

29. Please attach other relevant material: for instance, letters to subjects (which must be in simple non-technical language).

Not applicable

The information supplied above is to the best of my knowledge and belief accurate. I have read the notes to investigators and clearly understand my obligations and the rights of the subject, particularly in so far as to obtaining freely given informed consent. I also confirm that I have read and understood *"The Declaration of Helsinki"*

Date of Submission: 2nd December 1996

Signature of Principal Investigator: _____

Finally, please ensure that you have enclosed, if appropriate:

- Questionnaires
- Letters to General Practitioners
- Letters, information sheets, for the participants
- Copies of consent forms
- Copy of protocol
- Documentation relating to drugs
- Any other material which you think is of relevance to your application

3. MAJOR RESEARCH PROJECT PAPER

Disulfiram treatment, self-efficacy and the cue exposure hypothesis

Summary

Aims. To explore the cue exposure hypothesis which predicted an increase in self-efficacy and a reduction in craving in clients who continued to receive disulfiram treatment. **Design.** Measures were taken at the beginning of treatment and at 3 and 6 months follow-up. Clients who continued disulfiram treatment were compared with those who discontinued. **Setting and participants**. A total of 56 consecutive attenders at Alcohol Problems and Treatment Units, who were undergoing disulfiram treatment, took part in the study. **Findings.** There were no reported changes in self-efficacy or craving during the period of study, in either group. Reported levels of self-efficacy were low at treatment outset and remained low at 3 and 6 months. **Conclusions.** History of chronic alcohol abuse and associated problems may have mitigated against short-term changes. Clients in both groups failed to confront high-risks situations. Further studies are required to test the cue exposure hypothesis.

Introduction

One of the most promising perspectives within the field of problem drinking is self-efficacy theory. It is defined as an individual's appraisal of his/her ability to perform a certain behaviour and has been hypothesised as a central factor mediating change in human behaviour (Bandura, 1977). The strongest support for self-efficacy theory, as applied to addictive behaviours, can be found in the smoking cessation literature (Baer, Holt & Lichenstein 1986; Condiotte & Lichtenstein, 1981). More recently, empirical research evaluating the tenets of self-efficacy theory as applied to treatment for alcohol problems has begun to appear. The results of studies have shown some consistencies and some support for self-efficacy theory. An increase in self-efficacy has consistently been found from treatment intake to treatment completion (Burling *et al.*,1989; Rychtarik *et al.*,1992) or follow-up (Annis & Davis 1988; Solomon & Annis, 1990). Subjects who have not relapsed at short-term follow-up of 3 to 6 months show higher levels of self-efficacy than do individuals who have relapsed (Burling *et al.*, 1989; Solomon & Annis, 1990). Burling *et al.* (1989) also found that individuals who maintained abstinence through 6 months exhibited a significantly greater increase in self-efficacy from intake to discharge compared to those who did not maintain abstinence. The results of these studies suggest that self-efficacy may play a role in determining outcome, however, the strength of the self-efficacy effect, its implications for longer term outcome and its interaction with other behavioural interventions require further investigation.

Supervised disulfiram treatment is included in Heather's (1993) revised list of behavioural interventions which show evidence of effectiveness. In a review of the disulfiram literature, Brewer (1993) concludes that "the evidence for the effectiveness of supervised disulfiram has been accumulating since 1967, with no contrary findings" (p. 34). He has also suggested that one of the ways disulfiram treatment might effect longer-term changes is by enabling the individual to confront situations which are high-risk for relapse while forcibly preventing drinking from taking place (i.e. cue exposure and response prevention). It would be expected that craving responses associated with external and internal stimuli will be extinguished and that self-efficacy (i.e. confidence in coping with the high-risk situation) will be increased. Heather (1993) has argued that this hypothesis, if valid, would offer an explanation of how disulfiram might result in behavioural changes which persist beyond the disulfiram treatment. (Literature Review p. 7). He highlights two problems; the first is the possibility that the extinction of conditioned craving responses only takes place when the drinking response is available. Thus, the individual must be exposed to temptation for extinction to occur and temptation may have been removed or reduced by the knowledge that disulfiram has been taken. Secondly, he suggests that for self-efficacy to be increased, the individual must be able to attribute the success of coping efforts in high-risk situations to him/herself. When disulfiram has been taken, the credit for coping may be attributed to an external agency (i.e. disulfiram). Heather (1993) concludes that even if the cue exposure hypothesis of disulfiram's action is incorrect, then the

least that disulfiram is likely to do is to offer respite, improvement in physical health and a break in the cycle of problems and drinking. He nevertheless argues that Brewer's hypothesis and the two objections that he has raised are 'eminently researchable' (p. 15) among those undergoing disulfiram treatment.

The current study aimed to investigate the relationship between self-efficacy theory and disulfiram in a sample of problem drinkers who were undergoing disulfiram treatment. Exposure to high risk situations and craving was also investigated. The following hypotheses were examined.

Hypotheses

1. Compared to those who discontinued disulfiram treatment, those clients who remained on disulfiram treatment would show increases in self-efficacy from intake to post-treatment.

2. Clients who remained on disulfiram treatment and have experienced more high-risk situations would have higher self efficacy scores.

3. Compared to those who discontinued disulfiram treatment, clients who remained on disulfiram treatment would report a reduction in craving from intake to post-treatment..

Methods

Subjects

The study was carried out at Alcohol Problems and Treatment Units in Greater Glasgow Community Mental Health Services NHS Trust and Renfrewshire Community Mental Health Services NHS Trust. Problem drinkers who took part in the study were consecutive attenders who had commenced disulfiram treatment. Fifty-seven patients were asked to take part in the study, and one refused. Patients were either receiving disulfiram for the first time or were beginning a new episode of treatment.

The Interview Schedule

In all cases data were collected by interview. This took place at the beginning of treatment and was repeated at 3 and 6 months. The interview schedule was pre-tested on a sample of 6 patients who

had been established on disulfiram treatment for several months. Two changes were made to the interview schedule following the pilot study. Firstly, a questionnaire that measured high risk (for drinking) situations (Inventory of Drinking Situations; Annis, Graham & Davis, 1987) was modified to provide a structured way of recording a clients exposure to high risk situations. Secondly, it was decided to use a generalised self-efficacy measure. Two alcohol-related self-efficacy measures had been tested during the pilot, however, the self-efficacy being measured and the criterion measure of behaviour did not correspond. The Situational Confidence Questionnaire (SCQ) (Annis & Graham, 1990) inquires about ability to resist the urge to drink heavily and measures control self-efficacy rather than abstinence self-efficacy. The Alcohol Abstinence Self-Efficacy Questionnaire (AASES) (Diclemente, Montgomery & Hughes, 1993) assesses efficacy to abstain from drinking but includes several questions that made it unsuitable for clients receiving disulfiram treatment. For example, one question asks about confidence regarding not drinking whilst withdrawing from alcohol, another asks about confidence when faced with the urge 'to try just one drink to see what happens'. This is inconsistent with the criterion for disulfiram treatment.

The following measures were taken:

1. Demographic information including age, sex, employment and marital status.
2. Length of drinking history, and number of abstinent days during the 6 months prior to treatment.
3. The Severity of Alcohol Dependence Questionnaire (SADQ) (Stockwell, Murphy & Hodgson, 1983). This was used to measure physical dependence on alcohol. It consists of 20 items each scored on a four point scale. A score of 30 and below indicates mild to moderate dependence, while a cut-off point of 31 and above indicates severe dependence. Disulfiram treatment is more likely to be offered to clients who have a severe dependence.
4. The General Health Questionnaire (GHQ) (Goldberg & Hillier, 1979). The 28 item version of this screening instrument, which rates items on a four point scale, was used. It comprises four sub-scales measuring somatic symptoms, anxiety and insomnia, social dysfunction and severe depression; a threshold score of five and above indicates caseness. There are formidable methodological problems in measuring these disorders in problem drinkers, because of the overlap of withdrawal symptoms being measured. This measure was included to explore the relationship between psychological distress, compliance with disulfiram treatment and self-efficacy.
5. Inventory of Drinking Situations (IDS) (Annis *et al.*, 1987). The 42 item questionnaire provides a profile of an individual's high-risk for drinking situations. Clients were asked to rate each situation or event retrospectively in terms of whether or not they drank heavily. Responses are on a four point scale ranging from 'never' (1) to 'almost always' (4).
6. Revised Inventory of Drinking Situations (RIDS). Following the pilot study, the IDS was modified to allow clients to rate whether or not they had felt like drinking in specific situations.

Responses are on a four point scale ranging from 'never' (1) to 'almost always' (4) .This measure was used at 3 and 6 months follow-up. A copy of the IDS and the RIDS can be found in Appendix 1.

7. The Generalized Self-efficacy Scale (GSES) (Schwarzer & Jerusalem, 1993). The score on this 10 item scale reflects the strength of an individual's generalised self-efficacy beliefs. Respondents were asked to indicate the extent to which each statement applied to them along a four point scale from 'not at all true (1) to 'exactly true' (4).
8. Craving Index (CI) (West *et al.,* 1984). This is a 5 item visual analogue scale which was adapted by the author for alcohol use. Questions relating to cigarettes and smoking were altered by inserting the word alcohol or drinking. Measures of subjective craving for alcohol range from 'not at all' (1) to 'quite a lot' (5). A copy of the modified questionnaire can be found in Appendix 1.

To provide corroborative evidence regarding compliance, blood tests were taken at the beginning of treatment and at 6 months follow-up. These included serum gamma-glutamyl transferase (GT) and mean red cell volume (MCV) which are markers of regular alcohol consumption (Chick, Kreitman & Plant, 1981). Only the gamma GT will be reported.

Compliance was also measured by interviewing client's keyworkers at 6 months follow-up. Supervision of disulfiram treatment is standard practice in APTU's and is normally provided by a keyworker. The client is asked to attend the APTU three days per week and take disulfiram under supervision. If a partner or person with whom the client has regular contact is undertaking supervision then procedures are clarified in advance and the keyworker will support both client and supervisor.

Statistical analysis

All data were analysed using SPSS 7.5.

Results

Sociodemographic information

The sample consisted of 41 men and 15 women. The average age was 43 years, with a range from 25 to 66 years. Sixteen (26%) of the sample were employed, a further 32 (57%) were unemployed, or retired and 10 (17%) described themselves as housewives. Twenty-three (42%) were married with 13 (23%) either divorced or separated and 16 (35%) single. These figures are similar to the

sociodemographic characteristics of consecutive attenders to an Alcohol Problems and Treatment Unit (APTU) described by Allan (1991).

Alcohol dependence and related problems

Thirty-seven (66%) scored 30 or above on the SADQ (mean = 35.6; S.D = 13.2), indicating severe dependence. A history of problem drinking of more than 20 years duration was reported by fifteen (27%) clients and between 10 and 20 years by twenty-seven (49%), the remaining fourteen (25%) reported a drinking history of between 1 and 10 years. The mean GHQ score for the group (N = 56) was 7.8 (SD = 7.2) and thirty-seven (66%) clients obtained a score of five or more on the GHQ at the time of initial interview, indicating high levels of psychological distress.

A total of thirty-two (58%) clients were interviewed at six months follow-up. Of these, fifteen (27%) had remained on disulfiram throughout the study period and seventeen (31%) had stopped taking disulfiram. The latter included three who had to be withdrawn because of adverse reactions (two owing to allergic skin rash, one with nausea). Among the twenty-four (43%) remaining clients, two had moved away from the area, two were in a residential alcoholic treatment centre and one was in prison. The remaining nineteen (34%) failed to keep appointments. Those who defaulted did not differ from the total treatment group in terms of age, sex or marital status, however, a higher proportion were unemployed (16). Numbers were insufficient to test this statistically.

Self-efficacy: changes from pre to post treatment

It was hypothesised that clients who continued disulfiram treatment would show increases in self-efficacy scores (GSES), from intake to post-treatment, compared to those who discontinued disulfiram treatment. A comparison was made between the continued and discontinued group. The GSES scores are shown in Table 3.1.

Table 3.1 GSES scores for groups (continued, discontinued) at 0, 3 and 6 months post-treatment (means; SD)

Dilsulfiram status	GSES 0 month	GSES 3 months	GSES 6 months
	mean (SD)	mean (SD)	mean (SD)
	N	N	N
Continued treatment	23.6 (8.5)	24.4 (7.9)	26.7 (7.4)
	15	13	15
Discontinued treatment	24.4 (5.7)	26.3 (4.9)	26.7 (5.4)
	20	16	17

A repeated measures analysis of variance was performed with group (continued, discontinued) as the between-subjects independent variable and self-efficacy scores as the within-subjects dependent variable. There was no significant interaction effect between group and self-efficacy ($F(2.52)$ = 0.181; NS). There was also no significant main effect for group ($F(1,26)$ = 0.139; NS), nor was there a significant main effect for self-efficacy ($F(2.52)$ = 1.569; NS). This means that there was no increase in self-efficacy scores from intake to post treatment on this measure. Mean scores on the GSES for both groups (continued, discontinued) were below the normative data (29.28; S.D.= 4.6) reported by Schwarzer and Jerusalem (1993).

Self-efficacy and exposure to high-risk situations

The second hypothesis stated that there would be an association between exposure to high risk situations (IDS/RIDS) and self-efficacy scores (GSES) among those clients who continued, compared to those who discontinued disulfiram treatment. This was examined through a correlational analysis, using scores obtained initially and at both follow up periods. The correlations between (IDS/RIDS) and (GSES) ranged from (.048) to (.163). None was significant at the 5% level. There were no significant correlations between high-risk situations and self-efficacy scores at 0, 3 and 6 months.

Table 3.2 Scores of high-risk situations (IDS/RIDS) with scores of self-efficacy (GSES) for 'continued' group (Pearson's correlation)

IDS	GSES 0 month	GSES 3 months	GSES 6 months
0 months	0.048		
3 months (a)		0.163	0.092
6 months (a)			0.090

(a) RIDS

Craving

The third hypothesis was that those who continued disulfiram treatment would experience a decrease in craving (CI) from intake to post-treatment compared to those who discontinued treatment. Scores on CI at 0, 3 and 6 months for both groups are shown in Table 3.3

Table 3.3. CI scores for groups (continued, discontinued) at 0, 3 and 6 months (means; SD)

Disulfiram status	CI 0 month	CI 3 months	CI 6 months
	mean (SD) N	mean (SD) N	mean (SD) N
Continued treatment	15.9 (7.2) 15	15.0 (7.1) 13	13.5(6.3) 15
Discontinued treatment	16.85 (5.3) 20	17.25 (6.1) 16	17.2 (5.7) 17

A repeated measures analysis of variance was performed with group (continued, discontinued) as the between-subjects independent variable and CI as the within-subjects dependent variable. There was no significant interaction effect between group and CI (F (2.52) = .183; NS). There was also no significant main effect for group (F(1.26) = 1.64; NS), nor was there a significant main effect for CI (F(2.25) = .818; NS). This means that those continuing treatment did not report a reduction in craving from intake to post-treatment on this measure.

Psychological distress, attributing success and avoidance

A significant negative correlation was found between GSES and GHQ (0.281, $p< 0.05$), suggesting that higher levels of psychological distress are related to lower levels of self-efficacy.

At 6 months follow-up the 'continued' group were asked to provide percentage ratings that reflected the extent to which they attributed the success of remaining abstinent to themselves and the extent to which they attributed success to disulfiram. The mean percentage scores were (33.83, SD = 29.44) to self and (52.83, SD = 33.59) to disulfiram. This meant that those who had been successful in maintaining abstinence whilst undergoing disulfiram treatment attributed more of the success to disulfiram than to themselves. It was not possible to put this question to the 'discontinued' group. When clients were asked about use of coping strategies when taking disulfiram, twenty-two (39%) of the total number of clients interviewed at 6 months (N = 33) reported avoidance of high-risk situations. Thirteen (23%) of these clients were in the 'continued' group (N = 15).

Treatment outcome

Both groups achieved a reduction in alcohol consumption. During the 6 months prior to treatment, mean abstinent days for the 'continued' group were 47.87 (SD = 49.06) increasing to 179.60 (SD = 1.30) during the 6 month treatment period. For the 'discontinued' group, number of mean abstinent days increased from 20.20 (SD = 30.78) to 88.72 (SD = 48.77). Using Student's *t*-test, there was no significant difference between groups at treatment outset. There was a statistically significant difference between groups at 6 months follow-up ($p < 0.05$).

Corroborative evidence

Both initial and final blood samples were available for only 12 (22%) of the clients in the 'continued' group and 11 (20%) of the discontinued group because some were unable to attend when staff were available to take samples. Mean serum GT levels in the 'continued' group reduced from 141.9 (SD = 142.0) at the beginning of treatment to 20.5 (SD = 10.0) at 6 months follow-up. Pre and post samples in the 'discontinued' group were 154.72 (SD = 150.7) and 94.6 (SD = 100.3). At 6 months follow-up all clients in the 'continued' group had serum GT levels within the normal range (5-50), compared to only four clients in the 'discontinued' group. It was confirmed by APTU staff that 10 (18%) of the 'continued' group attended for regular supervision of disulfiram treatment. Three (5%) were supervised by partners and two (4%) were unsupervised but maintained regular weekly contact with the APTU.

Discussion

The results of the study run counter to the view that disulfiram treatment leads to an increase in self-efficacy. The results also failed to support the extinction hypothesis since no reduction in craving was found among clients who remained on disulfiram treatment.

One important finding was that regardless of whether or not clients continued or discontinued on disulfiram treatment, there was no change in self-efficacy from intake to post-treatment. There could be several reasons why the hypothesis was not confirmed. The sample comprised a group of chronic problem drinkers, the majority of whom reported long histories of alcohol abuse. This is likely to have mitigated against any short-term changes, and change in self-efficacy may have been detected with a longer follow-up period. The group are likely to have experienced a range of problems and past failures and it is perhaps not surprising that they reported persistently low levels of self-efficacy. Identification of clients with low self-efficacy and high levels of psychological distress would seem important. In the present study, the GHQ was only measured at treatment outset; it could have been informative if this measure had been repeated at 3 and 6 months. Intervention techniques based on cognitive behavioural methods may improve self-evaluation and psychological distress in such clients. For optimal effect, this should be offered concurrently with disulfiram. Another reason why self-efficacy may have failed to increase in the manner predicted by the experimental hypothesis was that the majority of those who continued disulfiram treatment attributed a greater proportion of the success of coping to an external agency (i.e. disulfiram). Heather (1993) hypothesised that for self-efficacy to increase, the client must be able to attribute the success of coping efforts in high-risk situations to him/herself.

A majority of clients in both groups reported avoidance of high risk situations. Confronting high-risk situations is central to the self-efficacy hypothesis and there is unlikely to be an increase in self-efficacy when clients are using avoidance as a coping strategy. Heather (1993) suggested that repeated 'mastery experiences' of confronting high-risk situations (with the aid of disulfiram) would lead to greater self-efficacy in coping with those high-risk situations in future. The avoidance of high-risk situations has implications for the extinction hypothesis. This stated that unreinforced exposure would lead to the extinction of conditioned craving responses and a reduction in craving. This view of disulfiram considers it a form of cue exposure and response prevention, similar to methods used to treat phobic and obsessive-compulsive disorders. Since exposure failed to occur in the majority of cases, however, the hypotheses have not been adequately tested. If disulfiram treatment is to bring about an increase in self-efficacy and a reduction in craving, then exposure has to be an essential component of treatment. A future study could ask one group of clients receiving disulfiram treatment to enter high risk situations and compare it with another group who are asked to avoid situations involving high-risk. This may be a more effective test of the hypotheses,

however, the nature of the treatment and the vulnerability of this client group is likely to present an ethical problem.

Finally, there may have been no change in reported self-efficacy because the GSES is a measure of generalised rather than alcohol related self-efficacy and may not have been specific enough to tap into alcohol related increases in self-efficacy. While there are problems with existing alcohol-related self-efficacy measures, it should be possible to modify or develop a more suitable instrument. Goldbeck, Myatt & Aitchison (1997) have recently developed the Self-Efficacy Questionnaire which is a global measure of self-efficacy that specifically refers to abstinence as the chosen outcome goal. This may prove to be more appropriate for a disulfiram treatment group and could be considered for future studies in this area.

Conclusion

Although the present study has failed to find evidence for the self-efficacy and cue exposure hypotheses, several important issues have been raised. Contrary to what had been predicted, clients did not use disulfiram to confront high-risk situations. The majority reported using avoidance as a coping strategy, consequently, the study has not been a true test of the hypotheses. An important finding was that clients reported low levels of self-efficacy regardless of whether they had been successful or unsuccessful in complying with disulfiram treatment. Reasons for this have been outlined, however, this is an area that deserves further investigation. We need to know how disulfiram treatment is affected by co-existing conditions and levels of psychological distress and how assessment and treatment offered concurrently could improve outcome. If we eventually discover that the hypotheses of disulfiram's action proves to be correct, then we need to know how and to what extent we can facilitate the process.

References

ALLAN, C. A. (1991) Psychological Symptoms, psychiatric disorder and alcohol dependence amongst men and women attending a community-based voluntary agency and an Alcohol Treatment Unit, *British Journal of Addiction,* 86, 419-427.

ANNIS, H. M. & DAVIS, C. S. (1988) Relapse prevention, in: HESTER, R. K. & MILLER, W. R. *Handbook of alcoholism treatment approaches* (New York, Pergamon Press Inc.)

ANNIS, H. M. & GRAHAM, J. M (1990) Situation confidence Questionaire (SCQ) Uster's Guide (Toronto, Addiction Research Foundation of Ontorio).

ANNIS, H. M. & GRAHAM, J. M., DAVIS, C. S. (1987) *Inventory of Drinking Situations (IDS) User's Guide* (Toronto, Canada: Addiction Research Foundation of Ontario).

BAER, J. S., HOLT, C. S. & LICHENSTEIN, E. (1986) Self-efficacy and smoking re-examined: Construct validity and clinical utility, *Journal of Consulting and Clinical Psychology*, 54, 846-852.

BANDURA, A. (1977) Self-efficacy: Toward a unifying theory of behavioural change, *Psychological Review*, 84, 191- 215.

BREWER, C. (1993) What the textbooks say about disulfiram: a review of recent publications, in: BREWER, C. (Ed) *Treatment Options in Addiction: Medical Management of Alcohol and Opiate Abuse* (London, The Royal College of Psychiatrists).

BURLING, T. A., REILLY, P. M., MOLTEEN, J. O. & ZIFF, D. C. (1989) Self-efficacy and relapse among in-patient drug and alcohol abusers: A predictor of outcome, *Journal of Studies on Alcohol*, 50 (4), 354-360.

CHICK, J., KREITMAN, N. & PLANT, M. (1981) Mean cell volume and serum gamma glutamyl transpeptidase as markers of alcohol consumption in working men, *Lancet, 1,* 1249-1251

CONDIOTTE, M. M. & LICHTENSTEIN, E. (1981) Self-efficacy and relapse in smoking cessation programmes, *Journal of Consulting and Clinical Psychology*, 49, 648-658.

DICLEMENTE, C. C., CARBONARI, J. P., ROSARIO, P. G. & HUGHES, S. O. (1992) The alcohol abstinence self-efficacy scale, *Journal of Studies on Alcohol,* 55, 141-148.

GOLDBECK, R., MYATT, P. & AITCHISON, T. (1997) End-of-treatment self-efficacy, *Addiction*, 3,313-324.

GOLDBERG, D. P. & HILLIER, V. P. (1979) A scaled version of the General Health Questionnaire, *Psychological Medicine,* 9, 139-145.

HEATHER, N. (1993) Disulfiram treatment for alcohol problems: is it effective and, if so, why?, in: BREWER, C. (Ed) *Treatment Options in Addiction: Medical Management of Alcohol and Opiate Abuse* (London, The Royal College of Psychiatrists).

KRISTENSON, H. (1992) Long term Antabuse treatment of alcohol-dependant patients, *Acta Psychiatrica Scandinavica Supplementum,* 86, 41-45.

RYCHTARIK, R. G., PRUE, D. M., RAPP, S. R. & KING, A. C. (1992) Self-efficacy, aftercare, and relapse in a treatment programme for alcoholics, *Journal of Studies on Alcohol*, 53, 435-440.

SCHWARZER, R. & JERUSALEM, M. (1993) Generalized Self-Efficacy Scale, in: Measurement of Perceived Self-Efficacy: Psychometric Scales for Cross-Cultural Research (Berlin, Freie Universität)

SOLOMON, K. A. & ANNIS, H. (1990) Outcome and efficacy expectancy in the prediction of post-treatment drinking behaviour, *British Journal of Addiction*, 85, 659-665.

STOCKWELL, T., MURPHY, D. & HODGSON, R. (1983). The severity of alcohol dependence questionnaire: its use, reliability and validity, *British Journal of Addiction,* 78, 145-155.

WEST, R., JARVIS, M., RUSSELL, M. A. H. & FEYERABEND, C. (1984) Effect of nicotine replacement on cigarette withdrawal syndrome, *British Journal of Addiction*, 79, 215-219.

4. SMALL SCALE SERVICE EVALUATION PROJECT

Disulfiram Treatment for Alcohol Problems: Consumer Feedback

This chapter was written according to the guidelines of *Psychiatric Bulletin*

A copy of the instructions to authors can be found in Appendix 2.

Introduction

A prominent feature of the Government White Paper "Designed To Care" (1997) is the renewed emphasis on examining the health service from the perspective of patients. Seeking consumers' views of services and involving them in decisions about treatment could improve treatment uptake and compliance and modify care practice. The results of a survey of disulfiram treatment for alcohol problems is presented.

Central to the objective of renewal of the National Health Service is the philosophy that,

> "every aspect of the planning and delivery of services
> should be designed from the perspective of the patient" (section 2,14).

One of the stated aims of The Government White Paper "Designed To Care" is to provide better services for patients in ways that are "responsive to their needs and wishes" (section 2,12). Previous reports (DHSS, 1983; DoH, 1989; Kerruish, Wickings & Tarrant, 1988) have all emphasised the importance of obtaining the opinions of users and of using this information to monitor performance and guide policy. Within the climate of the internal market, this has sometimes been interpreted as seeking the views of the purchasers of services (Duff, 1995; Stallard & Hudson, 1993). The 1997 report, however, takes as a starting point the perspective of patients. It states that priority should be given to the examination of services from their point of view with the aim of implementing change designed to enhance their experience of the NHS.

This renewed emphasis on the patient's perspective is likely to provide opportunities for patients who have hitherto not always been the focus for patient satisfaction surveys and have rarely had their views documented. Within the field of mental health, there has been little interest to date in addressing the views of the more transient and shifting out-patient population, who tend to be inconsistent in their use of the service and/or find it difficult to comply with treatment demands (Ralston, Beesley & Bogue, 1998; Torrens & Harris, 1996). There have also been very few studies of minority groups both in terms of patient and of treatment characteristics (Carr-Hill, 1992).

Patients with an alcohol problem are one group who present a particular challenge to service providers because of their high relapse rate and the problem this creates for the delivery of treatment. According to Fitzpatrick (1991), there are several reasons why consumers views are essential to service providers. Firstly, it has been demonstrated that satisfaction is an important outcome measure in influencing treatment compliance. Secondly, satisfaction can provide a measure of assessing consultations and patterns of communication such as the provision of information and the involvement of the patient in decisions about care and, finally, patient feedback can be used to modify or propose alternative care practices.

Background

Since its introduction in the late 1940's, the alcohol sensitising drug disulfiram (Antabuse) has been used in the treatment of alcohol problems. Disulfiram is an agent which inhibits the metabolism of alcohol, resulting in the unpleasant symptoms (flushing, headache, nausea, dizziness, tachycardia) of the disulfiram-ethanol reaction (DER). The rationale of the treatment is that a patient cannot drink while taking disulfiram and will only have to make one daily decision to take the medication rather than have to resist a sudden urge or temptation at any moment to drink. In the largest study to date of disulfiram treatment, Fuller *et al.* (1986) found that patients who had received disulfiram, had significantly fewer drinking days than patients in control groups. The latter had received either a pharmacologically inactive dose of disulfiram or a riboflavin tablet. There were no significant differences between groups in total abstinence or time to first drink. Fuller *et al.* (1986) concluded from their results that disulfiram may help to reduce drinking frequency following relapse, but does not assist problem drinkers to maintain abstinence or delay relapse. Those who had improved in all 3 groups however were those who had complied best with treatment. A conclusion from Fuller *et al.*'s (1986) study was:

> "The effectiveness of disulfiram in promoting abstinence was limited because the majority of patients did not take disulfiram regularly" (p. 1454).

The conclusion that the chief problem in disulfiram treatment is one of patient compliance has been noted by many workers in the field including Heather (1993). He cites a range of studies in addition to the major work by Azrin (1976), which have demonstrated that supervised disulfiram is superior to unsupervised disulfiram. There is also evidence relating to effectiveness among clients who had already failed in treatment by other methods (Sereny, Sharma & Holt, 1986). Ways of increasing compliance with disulfiram treatment continue to be sought. Even if patients are unable to achieve total abstinence with disulfiram treatment, the benefits in terms of harm reduction are of great interest. At the very least, a successful episode of disulfiram treatment can provide the patient with a respite from the ravages of heavy drinking - an improvement in physical health and a break in the vicious circle of mounting personal and social problems (Heather, 1993). A desire to maximise the window of opportunity that disulfiram treatment offers by improving treatment delivery and patient compliance prompted the present study.

The Study

The aim of the study was to investigate the views of patients who are receiving disulfiram from alcohol treatment services within Greater Glasgow Community and Mental Health NHS Trust. A questionnaire was devised specifically for the study, as at that time no existing standard measure was

appropriate. It consisted of 14 questions, 9 forced-choice and 5 open-ended, including a final question that invited comments on disulfiram treatment. When the questionnaire was being compiled, two of the issues raised by Stallard & Harris (1993) regarding consumer evaluation, were addressed. The first was that satisfaction questionnaires should relate to a specific treatment, since overall general ratings of satisfaction tend to be meaningless, providing no clear information about which aspects of the service are positive and which need to change. The second was that consumer evaluation questionnaires frequently consist of items which the researchers consider to be important. Consumers typically have little involvement in determining pertinent variables, which questions the validity of such measures. In line with Stallard & Harris (1993) recommendation, consumers were consulted regarding what was required and the questionnaire was piloted to confirm its suitability.

The questionnaire was designed to gather information regarding four aspects of disulfiram treatment. The first was concerned with prior experiences and knowledge of disulfiram. The second related to treatment delivery. Employing concurrent therapies was addressed in part three and patients were asked to rank, according to preference, a list of 6 therapies. Finally, questions regarding the use of disulfiram per se were the focus of part four. A total of 57 patients[1] attending alcohol treatment services over a 6 month period, who were receiving disulfiram treatment, took part in the study. Questionnaires were anonymous and distributed by staff members who were uninvolved with the study. A copy of the questionnaire is provided in Appendix 2.

Results

Prior Knowledge and Understanding

Sixty-eight percent reported that they had first heard about disulfiram from the alcohol treatment services, 12 % from an unnamed "other" source and 10% from their G.P. The remainder had heard through other alcohol problem patients (5%) or a friend (3%). The mean time receiving disulfiram was 7 months (range: 1 to 24 months). Fifty percent of the respondents had previously received disulfiram treatment.

Treatment delivery

Ninety-one percent reported satisfaction with the information received prior to commencing treatment. Almost 74% were having their disulfiram treatment supervised, the majority (47%) by APTU staff. Only 16% were receiving supervision from a spouse/partner, 5% from a G.P., 5% from

an unnamed "other" source and 1.8%, i.e. one individual from a local pharmacist. Ninety-one percent of patients felt satisfied with the number of follow-up appointments, 9% considered these were too few.

Concurrent therapies

Thirty-seven percent were receiving additional therapy which comprised individual counselling and/or self-help groups, including 2 patients who were attending Alcoholics Anonymous (AA). The remaining 63% were receiving no additional treatment/therapy. Question 12 enquired about preferences for therapy/treatment to be offered with antabuse. Patients were asked to rank a list of 6 therapies in order of preference. Thirty-three per cent chose individual counselling and support as their first choice, 19% chose a support group, 12% thought education about the harmful effects of alcohol should have priority while help with life-style changes and training in coping skills regarding high-risk situations were first choice for 10% and 7%, respectively. Relaxation training was first choice for 1.8% (i.e. only one patient). The preferred order in which the forms of therapy/treatment were ranked can be found in Table 4.1.

Disulfiram Treatment

Forty-two percent thought that supervision of antabuse treatment (question 8) had been helpful. Some (7%) thought it had led to an increase in confidence regarding their ability to deal with alcohol whilst others (5%) stated that it removed the decision about drinking. Only 9% responded to question 9, which was concerned with unhelpful aspects of antabuse treatment. The majority of these felt that taking disulfiram had undermined their confidence. Unpleasant side-effects (question 10) were reported by 32%, including metallic taste, bad breath and lethargy. Several others (7%) reported that the only unpleasant side-effects they had experienced were after drinking alcohol, whilst on antabuse. In response to the question "How has antabuse helped you to remain abstinent?", 54% felt that it was the deterrent aspect of the treatment that was effective. Comments here related to the "fear factor" of an alcohol/antabuse reaction, to antabuse "buying time" and being the "only solution". A few referred to the benefits of having more money and more opportunity for leisure activities as a result of being on antabuse treatment. The invitation for additional comments was taken up by relatively few patients (7%). Comments concerned fear of being on long-term medication and fear associated with eventually having to stop disulfiram.

Discussion

This paper has presented the results of a survey of patient satisfaction with disulfiram treatment. Results indicate that patients were generally satisfied with the treatment they received. Consumer surveys typically describe high rates of reported satisfaction. Damkot, Pandiani & Gordon (1983) found that the majority achieved a 70-90 percent satisfaction rate. Chadwick & Stallard (1991) suggest that these figures are likely to be affected by the rate of return, which is typically between 50 and 60 per cent. The present study differs in that patients were invited to complete the questionnaire when they attended for outpatient review. Fifty seven of the 58 patients approached completed the questionnaire. The results therefore represent a wider range of views of patients who receive disulfiram treatment and not only those inclined to return questionnaire forms. Restricting the survey to clinic attendees only, inevitably excluded the views of those patients who dropped out of treatment prior to their first follow-up appointment. Information from this group could be useful in helping to address the needs of the more ambivalent patient. It was decided, however, that patients required a minimum of six weeks experience of disulfiram before their views of the treatment should be sought.

In the present study, 68% of respondents reported that they had first heard of disulfiram from the Alcohol Problems and Treatment Unit (APTU) with only 10% having heard from their G.P. This supports Brewer's (1993) finding that despite evidence that disulfiram, when taken under supervision, is a treatment whose effectiveness has been consistently demonstrated, its use in the management of alcohol abuse is far from universally accepted. Heather (1993) has suggested that disulfiram has become generally unpopular because it is seen as a drug treatment associated with an outmoded "medical model of alcoholism" (p. 471). Cognitive and behavioural methods for modifying drinking behaviour have been increasingly used and it has been suggested that disulfiram should be classified as a behavioural intervention rather than a medical treatment (Heather, 1993). The "medical" feature about disulfiram is the fact that it legally requires a medical qualification to prescribe and monitor its use. Another view proposed by Brewer (1993) is that disulfiram treatment has become unpopular because of exaggerated fears of side-effects and the DER. Alcoholics Anonymous regard it pejoratively as a "crutch" and this may also have influenced its use. Patients may feel more confident about disulfiram treatment and view it more positively if encouraged to do so by their G.P. or other health professionals. They are also likely to benefit from intervention at an earlier point in their drinking career before the onset of major physical and social problems. G.P.'s are well placed to offer early assessment and treatment of alcohol problems and may be encouraged to do so if the benefits of treatment were promoted and the myths challenged. Seventeen percent of the respondents had remained on disulfiram treatment for a period of between one and two years. Fifty per cent had previously received at least one episode of disulfiram treatment. This suggests that it is acceptable as a longer term maintenance treatment for a proportion of the alcohol abusing population and that patients are willing to resume disulfiram treatment following relapse.

The adverse effects of the DER are well known therefore patients are counselled prior to commencing disulfiram treatment and provided with written information concerning treatment and future management. A high level of patients (91%), reported satisfaction with the information received prior to commencing treatment and with the number of follow-up appointments offered. Only 9% felt that the information was insufficient and the follow-up appointments too few. Although the benefits of having medication supervised are emphasised and partners are encouraged where possible to be involved, 25% of patients were receiving no supervision. Forty-seven per cent were receiving supervision from APTU staff and only 16 % were being supervised by a partner or spouse. Difficulty in establishing a supervision agreement with the latter, may reflect a tendency to offer disulfiram treatment at a relatively late stage in a drinking career when relationships have broken down and there is less likelihood of partner involvement. Azrin *et al.* (1976) found that supervision by wives was significantly superior to unsupervised use however a form of contract was used and treatment was embedded within a "community reinforcement approach" that involved work, family and social relations.

When asked to rank six alternative therapies in order of preference, individual counselling and support received the highest first choice ranking (33%). Relaxation training received the lowest (1.8%). Training in coping skills regarding high-risk situations was ranked first by only 7% (see Figure 4.1). Since this therapy is not routinely delivered in APTU's, this may be reflecting a lack of knowledge regarding what is involved. Skills training has been shown to be an effective treatment for alcohol abuse and is included in Heather's (1993) list of effective treatment methods. Individual counselling is confined to an alternative list of treatment methods that have not been supported in controlled outcome studies, although they are standard practice in APTU's. A future study could describe the content and aims of the various treatment options prior to asking patients to rate importance. Informing patients in this way could yield a very different set of choices.

Figure 4:1 here

The open-ended questions provided insight into individual views of the benefits of disulfiram treatment. There were few reports of anxiety or concern regarding its use. In line with an earlier view proposed by Heather (1989), it is the "deterrent effect of disulfiram rather than its pharmacological effect that is important" (p. 471). Sixty percent of the patients acknowledged that this was the case.

Conclusion

The basic assumption underlying the present study is that consumers of services should routinely be involved in voicing their opinions with the services they have received and that this feedback should lead to change, where necessary. Involving consumers in the evaluation of services however raises a number of issues that need to be considered if we are to obtain meaningful information upon which treatment services can develop. One of the issues that has arisen in the present study, is the importance of ensuring that patients are in a position to make an informed choice about other treatment options. This is vital and an essential pre-requisite for optimal patient care. Another issue concerns the way in which patients have access to treatment. For example, Heather (1989) has argued that more attention should be paid to supervised disulfiram since treatments of proven effectiveness are few and "desperately needed" (p. 299). Supervised disulfiram has been shown to be effective and should be readily accessible and not confined to specialist services. The latter may need to find more effective ways of informing and collaborating with primary care services. This will be an essential part of the process, if our ultimate goal is to implement change designed to enhance consumers' experience of the NHS.

[1] Clients who took part in the audit project formed a different sample from those who took part in the Major Research Project.

References

Azrin, N. H. (1976) Improvements in the community-reinforcement approach to alcoholism, *Behaviour Research and Therapy*, 14, 339-348.

Brewer, C. (1993) What the textbooks say about disulfiram: a review of recent publications, pp. 29-37, (London, Gaskell).

Carr-Hill, R. A. (1992) The measurement of patient satisfaction, *Journal of Public Health* Medicine,14, 3, 236-49.

Chadwick, R. & Stallard, ,P., (1991) Consumer evaluation: a cautionary note, *Clinical Psychology Forum*, 34, 2-4.

Damkot, D. K., Pandiani, J. A. & Gordon, L. R. (1983) Development, implementation and findings of a continuing client satisfaction survey, *Community Mental Health Journal*, 19, (4) 265-278.

The Scottish Office (1997) Designed To Care: Renewing the National Health Service in Scotland. (Edinburgh, The Stationery Office).

DHSS (1983) The Griffiths *NHS Management Inquiry Report* (London, HMSO).

DoH (1989) Working for Patients, The White Paper on the Government's proposals following its review of the NHS (London, HMSO).

Duff, A. T. (1995) Auditing child and adolescent psychological services: a communication needs survey of general practitioners *Clinical Psychology Forum*, 8, 23-27.

Fitzpatrick, R. (1991) Surveys of patient satisfaction: Important general considerations, *British Medical Journal*, 302, 887-889.

Fuller, R. K., Branchey, L., Brightwell, D. R., *et al.* (1986) Disulfiram treatment for alcoholism: A Veterans Administration cooperative study. *Journal of the American Medical Association*, 256, 1449-1455.

Heather, N. (1989) Disulfiram Treatment for Alcoholism, *British Medical Journal*, 299, 471-472.

Heather, N. (1993) Disulfiram treatment for alcohol problems: Is it effective and, if so, why?, in: Brewer, C. (Ed) *Treatment Options in Addiction: Medical Management of Alcohol and Opiate Abuse,* pp. 1-18 (London, Gaskell).

Kerruish, A., Wickings, I., & Tarrant, P. (1988) Information from patients as a management tool: empowering managers to improve the quality of care. *Hospitals and Health Service Review*, April, 64-67.

Ralston, G.E; Beesley, S. & Bogue, J. (1998) Users' needs and satisfaction with a community-based mental health service, *Psychiatric Bulletin*, 22, 1-4.

Sereny, G., Sharma, V., Holt, J., (1986) Mandatory supervised antabuse therapy in an out-patient alcoholism program, a pilot study: Alcoholism, *Clinical and Experimental Research*, 10, 290-292.

Stallard, G. & Hudson, J. (1993) Referrer satisfaction with a child and adolescent psychology service. *Clinical Psychological Forum*, 10-12.

Torrens, L., & Harris, J. (1996) Do people really know what they want from their mental health services? *Clinical Psychology Forum*, 90, 33-36.

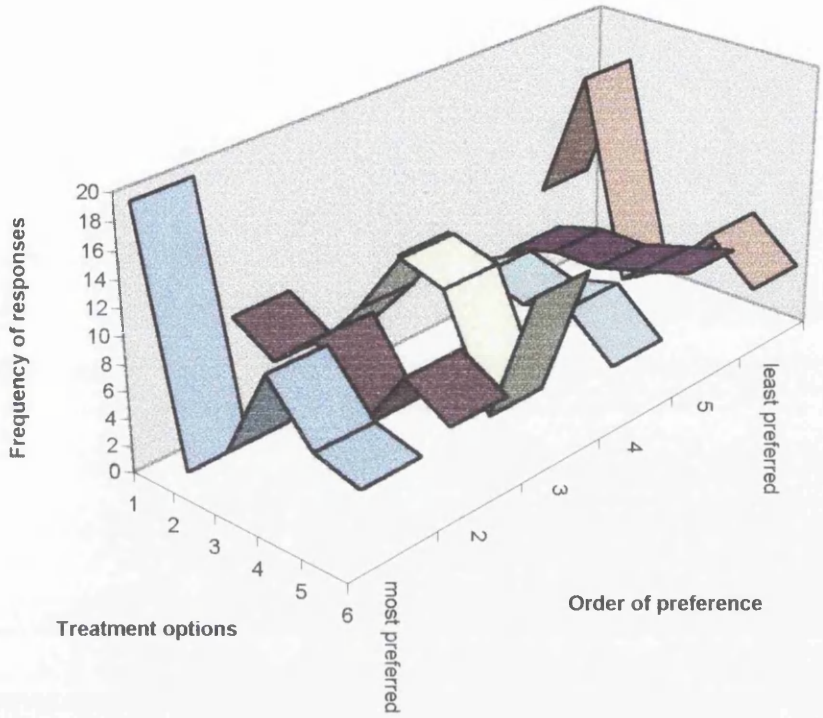

Figure 4.1 Treatment preference of disulfiram clients

Treatment options:

1	individual counselling and support
2	relaxation training
3	training in coping skills and dealing with high-risk situations
4	support group
5	education about the harmful effects of alcohol
6	lifestyle changes

4. SINGLE CLINICAL CASE RESEARCH STUDIES

4.1 Post Traumatic Stress Disorder with Headache Pain

Summary

Studies have shown that post-traumatic stress disorder is commonly found among patients who present with headache pain following a road traffic accident. A case involving the cognitive behavioural treatment of a man who was referred for assessment of headache pain following a road traffic accident is presented. Cognitive behavioural treatment was designed to target headache pain and post traumatic stress disorder. Substantial reductions in headache pain and post-traumatic symptoms were reported after 9 treatment sessions. This study highlights the importance of routinely assessing for PTSD with headache pain presentations.

4.2 The Use of Imagery to Access Core Beliefs in Eating Disorder

Summary

An eating disorder treatment case is presented. Cognitive treatment was successful in eliciting and re-structuring automatic thoughts associated with food and body image, however, underlying dysfunctional assumptions and core beliefs were more intractable. The introduction of imagery and semi-structured probe questions as part of the cognitive component, proved to be an effective means of determining underlying core beliefs. Images appeared to reflect a wider range of idiosyncratic meanings than were apparent in the automatic thoughts alone.

4.3 Comorbidity of Addictive Behaviours

Summary

Alcohol abuse frequently co-occurs within the context of other psychiatric disorders. The following treatment case describes a woman who presented with Obsessive Compulsive Disorder (OCD) and alcohol abuse against a background of chronic depressive illness. There was a substantial reduction in subjective distress associated with OCD symptoms following cognitive behavioural treatment. Relapse to excessive drinking, however, occurred during the course of treatment. The hypothesis that the alcohol problem was secondary to OCD was not supported. Relapse to excessive drinking occurred during a hypomanic episode which could not have been predicted. The study emphasises the importance of continued assessment with treatment cases involving comorbidity.

APPENDIX 1: MAJOR RESEARCH PROJECT PAPER

Addiction

Guidance to Authors

The editorial staff will be most grateful for your assistance in relation to the matters listed below. Please follow this guidance carefully when preparing a submission.

General matters

Addiction is a refereed journal. Its goal is to serve international and interdisciplinary scientific and clinical communication, to strengthen links between science and policy, and to stimulate and enhance the quality of debate. Submissions are sought which are not only technically competent, but are original and contain information or ideas of fresh interest to our international readership. Books and major reports may be submitted for review, and material for the News and Notes section is welcomed. We seek to serve the developing as well as the developed world. We aim to handle submissions courteously and promptly, and welcome dialogue with our contributors and readers. We regret that we are not able to return manuscripts.

Ethical standards

Manuscripts are accepted on the understanding that they are subject to editorial revision. Submissions must be accompanied by a signed statement from all authors saying that: (a) the material has not been published in whole or in part elsewhere; (b) the paper is not currently being considered for publication elsewhere; (c) all authors have been personally and actively involved in substantive work leading to the report, and will hold themselves jointly and individually responsible for its content; (d) all relevant ethical safeguards have been met in relation to patient or subject protection, or animal experimentation. This statement must also declare sources of funding, direct or indirect, and any connection with the tobacco, alcohol or pharmaceutical industries. With regard to points (a) and (b): if data from the same study are reported in more than one publication, this should be stated in the manuscript and/or covering letter to the editor, along with a clear explanation as to how the submitted manuscript differs, and copies of closely related manuscripts reporting these data should be enclosed. If at any stage during the handling of their submission, authors decide to withdraw it, we ask them to notify the editor.

Length

Submissions should be double spaced and clearly legible. There is no maximum length for articles. We ask authors to be as concise as possible and will negotiate with you personally and sympathetically if we feel shortening would improve communication. Case reports are welcomed but should not be more than 6 pages. Letters should not be more than 2 pages.

Layout

Please submit four copies of each manuscript. They should be typed on one side of the paper, double spaced, with margins of at least 25 mm. The first sheet should contain the title of the paper, a short title not exceeding 45 characters, names of authors, the address where the work was carried out, and the full postal address of the author who will check proofs and receive correspondence and offprints. The second sheet should contain only the title, names of authors, and an abstract. Please send one extra loose copy of the abstract with submissions. The entire manuscript, including all references, tables, figures, and any other material, should be numbered in one sequence from the title page onwards. Please put at the bottom of the title page the *total* number of pages and, if possible, include a word count for the text and references (excluding title and abstract pages, tables and figures). Footnotes to the text should be avoided where possible.

Abstract

In the case of research reports, abstracts should use the following headings: Aims, Design, Setting, Participants, Intervention (experimental trials only), Measurements, Findings, and Conclusions. The findings should be clearly listed because it is the list of findings that will form the main basis for the editorial decision. Each finding will be evaluated in terms of its **importance if true** and the **confidence that can be placed on it** given the evidence. In the case of other types of paper, there are no formal requirements for the structure of abstracts but it must be clear from the abstract what conclusions are being drawn because evaluation of these will be central to the refereeing process. Abstracts should normally be no more than 250 words.

References
These may be submitted in either the Harvard or Vancouver systems. When following the *Harvard system* references should be indicated in the typescript by giving the author's name, with the year of publication in parentheses, e.g. Smith (1984); if there are three authors Smith, Green & Jones (1984) on the first citation and Smith *et al.* (1984) subsequently; or if there are more than three authors Smith *et al.* (1984) throughout. If several papers from the same authors and from the same year are cited, (a), (b), (c), etc. should be put after the year of publication. References should be listed at the end of the paper in alphabetical order. Examples are:

ABRAMS, D. B. & WILSON, G. T. (1979) Effects of alcohol on social anxiety in women: cognitive versus physiological processes, *Journal of Abnormal Psychology*, 88, 161–173.
BLANE, H. T. & LEONARD, K. E. (1987) *Psychological Theories of Drinking and Alcoholism* (New York, Guilford Press).

When following the *Vancouver system* references should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in text, tables, and legends by arabic numerals (in parentheses). References cited *only* in tables or in legends to figures should be numbered in accordance with a sequence established by the first mention in the text of the particular table or illustration.

The references should be listed in numerical order at the end of the paper. Examples are:

1. COTTON, N. (1987) The familial incidence of alcoholism, *Journal of Studies on Alcohol*, 40, 89–116.
2. MERIKANGAS, K. R. (1989) Genetics of alcoholism: a review of human studies, in: WETTERBERG, I. (Ed.) *Genetics of Neuropsychiatric Diseases*, pp. 21–28 (London, Macmillan).

Whatever referencing system is adopted, titles of journals should not be abbreviated. All authors should be included. The reference list should not be needlessly profligate and should only include items that are retrievable through standard bibliographic sources. Where foreign language papers or books are cited, the title in English needs to be included in brackets after the foreign language version.

Illustrations
These should not be inserted in the text but each provided separately and numbered on the back with Figure numbers, title of paper and name of author. Illustrations should be prepared about twice their final size. Three copies of all figures must be submitted. All photographs, graphs and diagrams should be referred to as Figures and should be numbered consecutively in the text in Arabic numerals (e.g. Fig 3). The approximate position of each illustration should be indicated in the text. A list of captions for the figures should be submitted on a separate sheet and should make interpretation possible without reference to the text. Captions should include keys to symbols.

Tables
These should be typed on separate sheets and their approximate position in the text should be indicated. Units should appear in parentheses in the column heading but not in the body of the table. Words or numerals should be repeated on successive lines 'ditto' or 'do' should not be used. Tables should not be ruled.

Proofs
Proofs are supplied for checking and making essential corrections, not for general revision or alteration. Proofs should be corrected and returned to the publisher within 3 days of receipt.

Offprints
Fifty offprints of each paper are supplied free. Additional copies may be purchased and should be ordered when the proofs are returned. Offprints, together with a complete copy of the relevant journal issue, are sent about three weeks after publication.

Refereeing
Papers will normally be sent by the Regional Editor for review to an Assistant Editor who will solicit referees' reports and make a recommendation to the Regional Editor. The regional editor will make a decision on the paper and communicate this with the authors. The Regional Editor or the Assistant Editor may return a paper unrefereed if in their judgement it is not suitable for the journal because of serious methodological limitations, the topic addressed or problems with reporting.

REVISED INVENTORY OF DRINKING SITUATIONS

Listed below are a number of situations or events that can cause difficulties for people who have had an alcohol problem.

Read each item carefully, and answer in terms of your own experience over the past 3 months.

If you "NEVER" felt like drinking in that situation, circle "1"
If you "RARELY" felt like drinking in that situation, circle "2"
If you "FREQUENTLY" felt like drinking in that situation, circle "3"
If you "ALMOST ALWAYS" felt like drinking in that situation, circle "4"

I FELT LIKE DRINKING

		Never	Rarely	Frequently	Almost Always
1.	When I felt that I had let myself down	1	2	3	4
2.	When I had trouble sleeping	1	2	3	4
3.	When I felt confident and relaxed	1	2	3	4
4.	When I convinced myself that I was a new person and could take a few drinks	1	2	3	4
5	When I remembered how good it tasted	1	2	3	4
6.	When I had an argument with a friend	1	2	3	4
7.	When I was out with friends and they stopped at a pub for a drink	1	2	3	4
8.	When I wanted to heighten my sexual enjoyment	1	2	3	4
9.	When other people didn't seem to like me	1	2	3	4
10.	When there were fights at home	1	2	3	4
11.	When I was relaxed with a good friend and wanted to have a good time	1	2	3	4
12.	When I was afraid that things weren't going to work out	1	2	3	4
13.	When I felt drowsy and wanted to stay alert	1	2	3	4
14.	When everything was going well	1	2	3	4

I FELT LIKE DRINKING

		Never	Rarely	Frequently	Almost Always
15.	When I wondered about my self-control over alcohol and felt like having a drink to try it out	1	2	3	4
16.	When I passed by an off-licence	1	2	3	4
17.	When I felt uneasy in the presence of someone	1	2	3	4
18.	When I was at a party and other people were drinking	1	2	3	4
19.	When I wanted to feel closer to someone I liked	1	2	3	4
20.	When other people interfered with my plan	1	2	3	4
21.	When there were problems with people at work	1	2	3	4
22.	When I was enjoying myself at a party and wanted to feel even better	1	2	3	4
23.	When I was angry at the way things had turned out	1	2	3	4
24.	When I felt nauseous	1	2	3	4
25.	When I felt satisfied with something I had done	1	2	3	4
26.	When I started to think that just one drink could cause no harm	1	2	3	4
27.	When I unexpectedly found a bottle of my favourite booze	1	2	3	4
28.	When someone criticised me	1	2	3	4
29.	When I was in a restaurant and the people with me ordered drinks	1	2	3	4
30.	When I was out with friends "on the town" and wanted to increase my enjoyment	1	2	3	4

I FELT LIKE DRINKING

		Never	Rarely	Frequently	Almost Always
31.	When pressure built up at work because of the demands of my supervisor	1	2	3	4
32.	When other people treated me unfairly	1	2	3	4
33.	When I felt confused about what I should do	1	2	3	4
34.	When my stomach felt like it was tied in knots	1	2	3	4
35.	When something good happened and I felt like celebrating	1	2	3	4
36.	When I wanted to prove to myself that I could take a few drinks without becoming drunk	1	2	3	4
37.	When I suddenly had an urge to drink	1	2	3	4
38.	When other people around me made me tense	1	2	3	4
39.	When I met a friend and he/she suggested that we have a drink together	1	2	3	4
40.	When I wanted to celebrate with a friend	1	2	3	4
41.	When I felt under a lot of pressure from family members at home	1	2	3	4
42.	When I was not getting along well with others at work	1	2	3	4

CRAVING INDEX

Please answer the following questions using the rating scale provided:

1. How much have you been missing alcohol?

Not al all — Quite a lot
1----------2----------3----------4----------5

2. How difficult has it been to do without alcohol?

Not al all — Quite a lot
1----------2----------3----------4----------5

3. How much have you been aware of not drinking?

Not al all — Quite a lot
1----------2----------3----------4----------5

4. How pre-occupied have you been thinking of alcohol?

Not al all — Quite a lot
1----------2----------3----------4----------5

5. How much have you craved alcohol?

Not al all — Quite a lot
1----------2----------3----------4----------5

APPENDIX 2: SMALL SCALE EVALUTION STUDY

Psychiatric Bulletin

The Journal of Trends in Psychiatric Practice

Notice to contributors

The *Psychiatric Bulletin* publishes original scientific papers, brief review articles and opinion pieces dealing with treatment of mental disorders, administration, audit and management of psychiatric services and training in psychiatry. The *Psychiatric Bulletin* focuses on matters relevant to everyday clinical practice and management in psychiatry. The *Psychiatric Bulletin* will prioritise articles which are of practical clinical relevance, topical and accessible.

All original articles are peer reviewed. Authors should send three copies of their submission, typed double-spaced with wide margins, and give a total word count. A good length is 1500 words. Longer papers are likely to be returned to the authors for editing before being sent to referees. A structured abstract of 100–120 words (headings to include method, results and clinical implications) should be included with all original scientific papers. A summary of approximately 100 words should precede review articles. Authors are encouraged to limit the number of tables/figures to a maximum of three. Photographs and illustrations are welcome. For more detailed advice on referencing (Harvard system), presentation of statistical information and the style of tables and figures, please refer to instructions to authors in the *British Journal of Psychiatry*.

Papers on audit must demonstrate a completed audit cycle. Correspondence is welcome; letters should be no longer than 250 words (please give word count) and include no more than three references, and no tables or diagrams. Letters can be e-mailed to jburnside@rcpsych.ac.uk. The correspondence editor will use a standard letter to inform authors if their letter is to be published or not. Books reviews should be no longer than 500 words.

If an individual patient is described, the patient should read the report before submission, and written consent must be obtained from the patient or an authorised person. Contributors should be aware of the risk of complaint by patients in respect of defamation and breach of confidentiality.

All material submitted should be accompanied by a covering letter to the editor signed by all authors. Contributions are accepted for publication on the condition that their substance has not been published or submitted elsewhere.

The *Psychiatric Bulletin* is published monthly by the Royal College of Psychiatrists, 17 Belgrave Square, London SW1X 8PG. (Registered charity no. 228636.)

Subscriptions
Non-members of the College should contact the Publications Subscriptions Department, Royal Society of Medicine Press Limited, 1 Wimpole Street, London W1M 8AE (tel. 0171 290 2928).

Subscription rate for 1998: £52 (UK and elsewhere), $77 (USA).

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences – Permanence of Paper for Printed Library Materials. ANSI Z39. 48-1984.

Psychiatric Bulletin is covered by the Excerpta Medica database EMBASE.

US Mailing Information: The *Psychiatric Bulletin* is published monthly by the Royal College of Psychiatrists. Subscription price is $77. Second Class postage paid at Rahway, NJ. Postmaster send address corrections to Psychiatric Bulletin. c/o Mercury Airfreight International Ltd Inc., 365 Blair Road, Avenel, New Jersey 07001.

ISSN 0955-6036.

Typeset by Dobbie Typesetting Limited, Tavistock.
Printed in Great Britain by Henry Ling Ltd, at the Dorset Press, Dorchester, Dorset.

Information about the College's publications is available on the World Wide Web at http://www.rcpsych.ac.uk. Correspondence may be e-mailed to jburnside@rcpsych.ac.uk

CONFIDENTIAL

ANTABUSE QUESTIONNAIRE

The questions on this form ask what you think about Antabuse treatment and the care you receive. Please answer every question on both pages of the form. Your answers will be kept entirely confidential so do not write your name on the form. Please be sure to place this form in the box provided before you leave today.

1. Where did you first hear about Antabuse treatment?

   Friend----------GP----------APTU staff----------APTU patients----------other

2. When did you begin Antabuse treatment?

3. Have you previously received Antabuse treatment?

   yes/no

4. Did you feel that you were given enough information about Antabuse before starting treatment?

   yes/no

5. Is your Antabuse treatment being supervised?

   yes/no

6. If your answer to the above is yes, please state who is providing supervision;

   spouse/partner-----friend-----GP-----APTU-----pharmacist-----other

7. Are your satisfied with the number of follow-up appointments you are being offered?

   too many---------about right--------- too few

8. What has been particularly helpful about the way Antabuse treatment has been given?

9. What has been particularly unhelpful about Antabuse treatment?

10. Have you experienced any unpleasant side-effects on Antabuse?

11. Are you receiving any other form of therapy/treatment for your alcohol problem at present?

12. What other forms of therapy/treatment do you think we should offer with Antabuse?
Please list from 1 to 6 according to preference (1=most preferred, 6=least.)

individual counselling and support

relaxation training

training in coping skills and dealing with high-risk situations

support group

education about the harmful effects of alcohol

lifestyle changes

13. How has Antabuse helped you to remain abstinent?

14. Any other comments?

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE