READINESS TO CHANGE QUESTIONNAIRE: USER'S MANUAL
(revised version)

Nick Heather and Stephen Rollnick

Technical Report No.19

National Drug and Alcohol
Research Centre

READINESS TO CHANGE QUESTIONNAIRE: USER'S MANUAL (revised version)

Nick Heather and Stephen Rollnick

National Drug and Alcohol Research Centre
1993
Technical Report Number 19
ISBN 0 947229 34 5

ACKNOWLEDGEMENTS
This research was supported by a Research Into Drug Abuse Program grant from the Commonwealth Department of Community Services and Health as part of the National Campaign Against Drug Abuse.

CONTENTS

1. INTRODUCTION

The *Readiness to Change Questionnaire* (RCQ) is a 12-item instrument for measuring the "stage of change" reached by an excessive drinker of alcohol. It is based on the stages of change model developed by Prochaska and DiClemente[1] which describes the stages through which a person moves in an attempt to resolve an addictive problem. From "Precontemplation" through "Contemplation" and "Action" to "Maintenance", the person is assumed to pass from one stage to the next, with the Relapser re-entering the cycle at either the Precontemplation or Contemplation stages. It may take many cycles around the stages of change before an addictive problem is finally solved.

The main attraction of the model is that it introduces the possibility of using different intervention strategies for clients at different stages of change. For example, focussing on the training of new self-management skills[2] might be a waste of time if the person has not yet reached the Action stage; relapse prevention techniques[3] are ideally suited to someone moving from Action to Maintenance; and motivational interviewing[4] is best directed to someone in the Contemplation stage. All this assumes, however, that the stage a person has reached can be accurately assessed.

For a fuller account of the stages of change model and its implications for the treatment of addictive disorders, the reader is advised to consult the references given at the end of this manual[1,5-9]. Suffice it to say here that in recent versions a *Preparation* stage, in between the Contemplation and Action stages, has been added to the model[5,6].

At the same time as there has been growing interest in the stages of change model, increasing attention has been paid to the use of brief interventions in the modification of addictive behaviours, particularly excessive drinkers with low levels of dependence on alcohol[10-12]. These brief interventions have been mainly developed in health care settings[13-15], and are aimed at a goal of reduced or "responsible" drinking. They are sometimes called "opportunistic" because they attempt to identify excessive drinkers in situations where the individual has not attended specifically to complain of a problem with drinking and then use this opportunity to modify drinking behaviour.

The RCQ was developed to provide a short and convenient measure of the drinker's stage of change for use in conjunction with brief, opportunistic interventions with excessive drinkers in medical and other settings. It was deliberately designed to be quick and easy to administer and score to save time in the busy practices in which it would be used.

This revised version of the User's Manual takes account of recently published data on the predictive validity of the RCQ and describes two different methods, a "Quick" and a "Refined" method, for deciding which stage of change a subject is in. Reference is also made to some as yet unpublished data relevant to the use of the RCQ in matching excessive drinkers to optimal types of brief intervention.

2. PREVIOUS MEASURES OF STAGES OF CHANGE

In a previous attempt to measure the stages of change, McConnaughy, Prochaska and Velicer[7] developed the *University of Rhode Island Change Assessment Scale* (URICA). The URICA was intended to measure change in psychotherapy and is a 32-item scale consisting of eight items for each of the four stages of change (Precontemplation - Contemplation - Action - Maintenance). The scale was administered to several adult psychiatric populations. Factor analysis of the questionnaire resulted in four well-defined components corresponding to the hypothesized stages of change. Results also suggested a predictable movement from one stage to the next.

DiClemente and Hughes[9] applied the URICA to 224 adults entering an outpatient program for alcoholism treatment. Results of a rotated principal components analysis replicated the four-component structure found by McConnaughy *et al.*[7]. The stages of change model has been most extensively applied to smoking cessation interventions and Prochaska and DiClemente[8] found strong evidence for the validity of a classification schema based on the stages of change model among smokers.

The RCQ was developed as part of a larger study at the National Drug and Alcohol Research Centre (NDARC) aimed at comparing the effectiveness in reducing alcohol consumption of two forms of brief intervention (motivational interviewing versus skills-based training) for excessive drinkers identified on general hospital wards. A measure of stage of change was needed which would clarify which types of excessive drinker were most responsive to each of the two interventions and also facilitate the accurate recording of stage of change from before to after the intervention. What was required was an instrument specifically focusing on alcohol consumption and which was short and easy to administer. It was also hoped to develop a questionnaire which would allow allocation of an individual to a particular stage of change in a straightforward fashion. It was felt that the measure of stage of change should include several judgements applying to each of the stages in order to provide a reliable assessment.

3. STRUCTURE OF THE RCQ

The development of the RCQ is fully described in an article by Rollnick, Heather, Gold and Hall[16] and only an abbreviated account will be given here.

The questionnaire was initially developed by giving a pool of 20 items representing each of the four stages of change to a total of 141 excessive drinkers identified by a screening instrument on hospital wards or in general medical practice. The sample consisted predominantly of males showing low levels of alcohol dependence. The characteristics of this sample are shown in Appendix 1.

Analysis of the data soon revealed that items representing the Maintenance stage of change had not been answered by subjects in a reliable fashion. This is not

perhaps surprising given the nature of the population of excessive drinkers under study (i.e. those who were still drinking at hazardous or harmful levels but who had made no formal complaints about their drinking). It is likely that the Maintenance stage has little relevance to this population.

Following the exclusion of Maintenance items and the removal of items which were deemed unsuitable for various other reasons, a 12-item scale was subjected to a principal components analysis. The results of this analysis are shown in Appendix 2. It will be seen that the analysis eventuated in a clear factor structure corresponding to the three remaining stages of change, with the first three factors together accounting for over two-thirds of the total variance in item scores.

For the purposes of further analysis, the items representing each of the stages of change were regarded as scales measuring the extent to which the subject endorsed that stage of change. Each of the three stages (Precontemplation - Contemplation - Action) were represented by four items. In calculating scale scores, response points for items were deemed to run from -2 (Strongly Disagree) to +2 (Strongly Agree). In the case of missing data, if one out of the four items on a scale was missing, the score for that scale was pro-rated; if two or more items were missing, the score was not calculated and was regarded as missing. Using these conventions, mean scores on the three scales were as follows: Precontemplation = -1.19 (s.d. = 3.50); Contemplation = 1.81 (s.d. = 3.77); Action = 0.01 (s.d. = 4.05).

In the initial development of the RCQ, allocation of subjects to one of the stages of change was based on the highest raw score obtained among the three scales. In the event of a tie between two or more scale scores, the stage farther along the continuum of change was chosen to be the allocated stage of change on the ground that this must be assumed to be the farthest point reached in the change process. In this way, 40 (28.8%) of subjects were allocated to the Precontemplation stage, 62 (44.6%) to the Contemplation stage, and 37 (26.6%) to the Action stage (missing data = 2). The preponderance of subjects in the Precontemplation and Contemplation stages is consistent with expectations regarding the stages of change reached by the majority of subjects in this client population.

4. RELIABILITY OF THE RCQ

The *internal consistency* of the questionnaire was established by calculating Cronbach's alpha coefficient for each of the 4-item scales representing the three stages of change. The results were as follows: Precontemplation = 0.73; Contemplation = 0.80; Action = 0.85. This indicates that the item scores can reasonably be regarded as constituting a scale in each case.

Test-retest reliability was established by calculating correlations between two occasions of administration of the questionnaire one or two days apart among 26 excessive drinkers on hospital wards. The results were: Precontemplation = 0.82; Contemplation = 0.86; Action = 0.78. This gives satisfactory reliability for three 4-item scales.

5. CONCURRENT VALIDITY

The validity of the RCQ was examined in the following ways:

(i) Relationships among scale scores. Product-moment correlation coefficients were calculated among the three scale scores to test the prediction that correlations between adjacent scales (i.e. between Precontemplation and Contemplation, and between Contemplation and Action) would be higher that the correlation between non-adjacent scales (i.e. between Precontemplation and Action). This prediction was confirmed (see Rollnick *et al.*[16]). This suggests that there is an orderly movement from one stage of change to the next, as the model would predict.

(ii) Comparison with screening questions. At the screening point, subjects had been asked various questions related to their drinking behaviour and health. As a form of concurrent validation, subjects' responses on the RCQ were compared with their replies to these screening questions.

First, subjects had been asked: "What do you think about your own health? ..... Do you think you drink too much?" The relationship between the subject's level of agreement with this question and allocation to a stage of change by the questionnaire was highly statistically significant[16]. Subjects allocated to Contemplation and Action stages were much more likely than those allocated to the Precontemplation stage to agree that they drank too much.

Secondly, subjects had been asked: "Thinking ahead to the future, will you be trying to do anything extra about your health? ..... Will you be cutting down the amount of alcohol you drink?" The relationship between responses to this question and allocation to a stage of change by the questionnaire will be found in Appendix 3. It will be seen there that there is a clear tendency for subjects to agree more strongly with the statement the farther along the stages of change continuum they had reached. This relationship was also highly statistically significant[16].

Finally, subjects had been asked: "In the last six months, have you tried to cut down your drinking?" Among those allocated to Precontemplation, 5 (14%) out of 37 subjects had answered "yes" to this question, compared with 26 (48%) out of 54 allocated to Contemplation, and 24 (75%) allocated to Action. Again, the relationship between the two variables was highly statistically significant[16].

All these relationships strengthen confidence that the RCQ is measuring what it purports to measure - the likelihood of a reduction in drinking.

6. PREDICTIVE VALIDITY

The predictive validity of the RCQ has recently been described by Heather, Rollnick and Bell[17]. A summarized version of this article will be provided here.

The ability of the RCQ to predict changes in drinking behaviour following discharge from hospital was examined in a sample of 174 male excessive drinkers identified on wards of four teaching hospitals in Sydney. On this occasion, the sample was confined to males because female heavy drinkers were so difficult to find that to have included them would have made the project unacceptably long. Follow-up was initiated eight weeks and six months following discharge.

As a first step, stage of change was allocated to a subject by the simple method of identifying his highest scale score, with ties being decided in favour of the stage farthest along in the continuum of change, as used in the development of the questionnaire (see above). Mean alcohol consumption was calculated for each of the three stages of change (Precontemplation - Contemplation - Action) arrived at in this way and these data are shown in Appendix 4. Significant differences were found only between subjects in the Action stage and those in the other two stages. However, note that all means are in the order which would be predicted by the stages of change model, with Precontemplation lower than Contemplation which is lower than Action. This is unlikely to have occurred by chance.

The next step was to examine subjects' score profiles, i.e. whether the subject obtained a positive or negative score, indicating overall agreement or disagreement with the items in question, for each of the three stages. The eight logically possible profiles are shown in Appendix 5, together with the frequency with which each occurred in the sample and alcohol consumption data for each profile at follow-up. For convenience, the profiles are repeated here, as follows:

Profile	Pattern	Profile	Pattern
A	+ + +	E	- + +
B	+ + -	F	- + -
C	+ - +	G	- - +
D	+ - -	H	- - -

Clearly, some of these profiles do not make sense. For example, Profile B shows a pattern of positive endorsement of Precontemplation items, indicating a lack of concern with drinking, but also a positive endorsement of Contemplation items, indicating that the subject is thinking about cutting down. Again, Profile C means that a subject has positively endorsed Precontemplation items reflecting a lack of concern about drinking but has also positively endorsed Action items indicating an ongoing attempt to cut down drinking. Both profiles in which the direction of endorsement is the same for all three stages, either all positive (Profile A) or all negative (Profile H), are also illogical or "face invalid". The most obvious explanation for these illogical profiles is that they reflect unreliable responses, perhaps as a result of carelessness, deliberate perversity or a failure to understand the meaning of items or the nature of the task.

This suggests that, if the unreliable profiles were eliminated, the predictive validity of the questionnaire might increase, thereby rendering it a more useful instrument. The face valid profiles shown above appear to be those in which only one stage is positively endorsed with the other two being negative, i.e. Profile D (Precontemplation), Profile F (Contemplation) and Profile G (Action). There is also the interesting case of Profile E which Appendix 5 shows to be the most frequently endorsed pattern of all. A moment's reflection suggests that this profile is logical and face valid, since it means that someone is taking action to cut down drinking and is also concerned about drinking. Indeed, it might be argued that Profile G, which was just identified as the Action profile, is illogical because it implies an effort to cut down drinking in conjunction with an overall lack of concern about drinking. In support of this suggestion, Appendix 5 shows that subjects conforming to Profile G were few and demonstrated relatively little reduction in consumption at follow-up.

After some discussion and experimentation, the following fourfold classification of score profiles was chosen on the basis of the most efficient prediction of drinking behaviour:

Precontemplation Profile - those with Profile D (+--);

Contemplation Profile - those with Profile F (-+-);

Preparation Profile - those with Profile E (-++) and a Contemplation scale score greater than an Action scale score;

Action Profile - those with Profile E (-++) and a Contemplation scale score less than or equal to an Action scale score.

This method of stage allocation is dubbed the *Refined Method*, in contrast to the *Quick Method* given above. Calculation of the Refined Method and some indication of the circumstances in which it should be used is given below. Here we may note that it is called "refined" in two senses: first, it eliminates apparently unreliable patterns of questionnaire responses and thereby classifies fewer subjects; and secondly, it includes a *Preparation* stage in between Contemplation and Action. This stage refers to people who are preparing to change the undesired behaviour but who have not yet put this change into effect. It might also be thought of as "late contemplation" in which a person has virtually made up his or her mind to change, as opposed to "early contemplation" in which the person has only just started weighing up the pros and cons of changing behaviour[18]. The Preparation stage is a relatively late addition to the stages of change model by DiClemente *et al.*[5] and has been shown to have utility in the smoking cessation field. Whether it has the same utility in the alcohol field remains to be seen.

In Appendix 6 will be found mean alcohol consumption levels at follow-up for the four groups defined by the *Refined Method of Stage Allocation*. Once more, the only significant differences recorded were between the Action stage and all other stages but the order of means is exactly that predicted by the model.

A further finding should briefly be mentioned. When the questionnaire was compared to other, much simpler ways of predicting reduction in consumption at follow-up (e.g., individual items from the Action scale or a screening question simply asking the subject whether or not he intended to cut down drinking), the RCQ gave the best results[17]. This considerably increases confidence in the utility of the questionnaire and justifies its development and application in practice.

7. ADMINISTERING AND SCORING THE RCQ

The RCQ comes in the form of a one-page instrument and takes only a few minutes to complete. It will be found at the back of this Manual. When administering the questionnaire, it may be important to emphasize to the subject the instructions given on the form that the questionnaire has been designed to find out how people personally feel about their drinking at the present time, and whether or not they wish to change their drinking behavior. Respondents are instructed to read each of the statements carefully and then decide whether they agree or disagree with what is said. They are then to tick the appropriate answer of their choice.

In cases where there may be some doubt on the subject's part, it may be necessary to emphasize that answers will remain completely private and confidential. Whether the questionnaire is being used for clinical or research purposes, stress that no unauthorised person will have access to the data. It is also helpful, of course, to establish a good rapport with subjects so that they are confident their answers will not be used against them in any way.

The procedure for scoring the questionnaire and carrying out the *Quick Method of Stage Allocation* is given in full on the back of the questionnaire form and is repeated here only for the sake of completeness. The scale to which an item belongs is indicated by a 'P', 'C' or 'A' on the right-hand side of the front page and the subject's score for the item (Strongly Disagree = -2; Disagree = -1; Unsure = 0; Agree = +1; Strongly Agree = +2) should be entered in the box provided. To avoid mistakes, it is useful always to enter the sign of the item score (+ or -) in the box. The item scores for each scale are then simply summed and entered in the spaces provided at the bottom of the back of the form.

If one item score on a scale is missing, the subject's score on that scale should be pro-rated by multiplying the sum of the remaining three item scores by 4/3 (or 1.33). If two or more item scores are missing, the scale score cannot be calculated.

The scale score arrived at should be within the range -8 to +8. Note that a positive scale score represents overall agreement with the items representing the relevant stage of change, whereas a negative score represents overall disagreement.

The *Stage of Change Designation* is then made simply by identifying the highest arithmetical score among the three scale scores. The rule to follow in the event of a tie (or ties) among scale scores is to prefer the stage farther along the continuum

of change. Thus Contemplation is preferred to Precontemplation, and Action is preferred to Contemplation.

Another issue concerns what has been called the subject's "Readiness to Change". The point here is that increasing scores on the Precontemplation scale represent a *decreasing* readiness to change on the subject's part, whereas increasing scores on the other two scales represent an *increasing* readiness to change. To obtain a score for Precontemplation which signifies the subject's readiness to change and which can be directly compared with his or her scores on the other two scales in this respect, simply reverse the sign of the score for the Precontemplation scale and enter this number in the box provided. The possible use of this Readiness to Change score will be commented on below.

The *Refined Method of Stage Allocation* begins with classifying each scale score as "+" (positive scores) or "-" (negative or zero scores). The subject is then allocated to one of four stages as follows:

<u>Precontemplation Stage</u>

Precontemplation scale score	+
Contemplation scale score	-
Action scale score	-

<u>Contemplation Stage</u>

Precontemplation scale score	-
Contemplation scale score	+
Action scale score	-

<u>Preparation Stage</u>

Precontemplation scale score	-
Contemplation scale score	+
Action scale score	+
Contemplation scale score greater than Action scale score	

<u>Action Stage</u>

Precontemplation scale score	-
Contemplation scale score	+
Action scale score	+
Contemplation scale score less than or equal to Action scale score	

The *Quick Method* has the advantages of being simple to understand, easy to calculate and applicable to all subjects filling in the questionnaire. It is therefore recommended for use in busy routine practice where a speedy resolution of the client's stage of change is needed, perhaps in order to decide on an appropriate brief intervention strategy to be implemented immediately.

The *Refined Method* is recommended for use primarily in research settings where it is possible to proceed without classifying all subjects. (Present data indicate that the Refined Method will classify about 75% of all those who complete the questionnaire.) It could also be used in practical applications where more time is available for the determination of stage of change. In this case, clients whose responses are mutually contradictory or inconsistent with the model for some other reason might be asked for a clarification of their responses and perhaps requested to complete the RCQ again in the hope that a classifiable profile will emerge.

8. INTERPRETATION AND USES OF THE RCQ

If a person is designated to be at the Precontemplation stage, he or she must be considered as not ready for reduction in drinking. Clients at this stage are either genuinely unaware that their drinking is at hazardous or harmful levels or, if they are aware, are denying, to themselves and/or to others, that this constitutes a problem. Depending on the reasons why a person expresses a lack of concern over drinking, motivational interviewing[4,18,20-22] may be an effective type of intervention here. For some clients in Precontemplation, however, probably all that can be done is to supply information about the dangers of excessive drinking - pamphlets, leaflets or other written information on limits for "safe" drinking - and wait until the client begins to feel and express concern about those dangers. Certainly, an overactive or unsubtle approach will drive clients in Precontemplation away.

Clients designated as being at the Contemplation stage can be thought of as being ambivalent or in conflict about their drinking. They can be seen as being engaged in an implicit "decisional balance exercise"[19] in which the advantages and disadvantages of excessive drinking are being weighed against each other. In order to push these clients on towards Action, the "motivational interviewing" techniques pioneered by William R. Miller and his colleagues[4,20-22] represent the ideal approach. It will probably be unprofitable at this stage to attempt to train clients in behaviour-change skills since they are not yet ready to cut down drinking. Indeed, a too action-oriented approach may be counterproductive in being seen as irrelevant and may lead to a retreat from the possibility of Action.

Those in the Preparation stage (where this stage is included in the assessment) can be seen as preparing to take action and as being engaged in setting appropriate goals and priorities. It may be necessary for them to make a firm commitment to carry out the course of action they propose to take and motivational components of an intervention, such as those applying to the Contemplation stage, are probably still relevant. On the other hand, such clients may need careful advice on the plan for action they are developing, steering them towards methods for behaviour change that are known to be effective and away from those the evidence suggests lead to relapse. But too precipitate a plunge into Action may be counterproductive if it occurs before plans have been fully developed.

If, however, the client is designated to have reached the Action stage, he or she can be considered as ready to learn new skills and this is where self-management techniques[2,23-25] come into play. It may also be necessary to provide some instruction in relapse prevention and relapse management[3,26,27] to prepare for the client's attempt to retain the gains that have been made when the Action stage passes into Maintenance.

It cannot be emphasized too strongly that the above recommendations are not at present based on research evidence from the alcohol problems field. Rather they are based on reasonable extrapolations from the stages of change model as to how a person's location with respect to the stages of change can be matched with optimal intervention approaches. However, this general matching hypothesis requires confirmation in properly controlled research.

Recent research from NDARC[28] is relevant to the issue of matching. We found that if male heavy drinkers on general hospital wards were deemed to be "not ready to change" (Precontemplation, Contemplation and Preparation stages), they were significantly more likely to have reduced drinking if they had received brief motivational interviewing[18,29] on the ward than if they had received action-oriented, skills-based training. This finding makes sense in terms of the stages of change model. If patients were assessed as being in Action, there were no significant differences among those receiving the two types of intervention or, indeed, no intervention at all. However, further research is needed before it can be concluded that those in Action do well with any type of intervention or can reduce drinking on their own without advice.

The main conclusion from this research is that excessive drinking men identified on general hospital wards should be offered brief motivational interviewing if they are assessed as being in a stage of change prior to Action along the stages of change continuum. The results have no direct implications for female excessive drinkers and for those of either sex assessed as being in Action. Strictly speaking, the evidence only applies to excessive drinkers found on hospital wards but extrapolation to other settings, such as general medical practice, is reasonable.
If this or any other matching strategy is adopted in clinical practice, a careful documentation of outcomes will assist in the overall evaluation of the stages of change model and its implications for effective intervention.

It will have been noted that neither the Quick nor the Refined method for assigning a subject to a stages of change makes much use of the relative values of scores on the three scales. If the subject's score for each of the scales can be assumed to be a measure of the extent to which the items representing the relevant stage of change have been endorsed by the subject, it can be regarded as some measure of the "strength" of that stage of change. A potential use of these data would be to identify clients who are in transition from one stage to the next. Thus if a client obtains high, positive scores on two adjacent stages, such a transitional status could be assumed to exist and this information may have clinical value. It is for this reason that the Readiness to Change score is entered on the questionnaire form.

It should be stressed again that this suggestion is not yet supported by research evidence. Indeed, the assumption that the value of a subject's score for a particular stage has utility in predicting a movement to the next stage remains to be confirmed. Clinical experience with the instrument will assist in making this evaluation.

A further use of the questionnaire in practice is to assess any changes in motivation which have taken place during the intervention. This can be accomplished by giving the RCQ before and after brief intervention for excessive drinking.

Needless to say, more research is needed in the effort to improve the relevance and applicability of the RCQ. For example, there is evidence from the smoking cessation field that a subject's allocated stage of change is related to outcome and drop-out from treatment[6] and more evidence is needed along these lines in the alcohol field. Research is also needed on theoretical mechanisms that are thought to be responsible for movement through the stages and change and, therefore, for change in drinking behaviour, either as a result of intervention or through natural recovery processes. Relationships between stage of change and efficacy and outcome expectancies[30] may provide a fertile area of investigation.

It will also be necessary to collect more accurate normative data from a much larger sample of excessive drinkers than were used in the study described in this manual. The preponderance of male excessive drinkers in the sample used to develop the questionnaire will have been noted and this will need to be corrected in future work. The investigators will therefore be grateful to receive data on the questionnaire, accompanied by appropriate information on subject characteristics, from anyone using the *Readiness to Change Questionnaire.*

9. REFERENCES

1. PROCHASKA, J.O. & DiCLEMENTE, C.C. (1986) Toward a comprehensive model of change, in: MILLER, W.R. & HEATHER, N. (Eds) *Treating Addictive Behaviors: Processes of Change* (New York, Plenum).

2. HESTER, R.K. & MILLER, W.R. (1989) Self-control training, in: HESTER, R.K. & MILLER W.R. (Eds) *Handbook of Alcoholism Treatment Approaches* (New York, Pergamon).

3. MARLATT, G.A. & GORDON, W.R. (1985) *Relapse Prevention: Maintenance Strategies in the Treatment of Addictive Behaviors* (New York, Guilford).

4. MILLER, W.R. & ROLLNICK, S. (1991) *Motivational Interviewing: Preparing People to Change Addictive Behaviors* (New York, Pergamon).

5. DiCLEMENTE, C.C., PROCHASKA, J.O., FAIRHURST, S.K., VELICER, W., VELASQUEZ, M.M. & ROSSI, J.S. (1991) The process of smoking cessation: an analysis of the precontemplation, contemplation and preparation stages of change, *Journal of Consulting and Clinical Psychology*, 59, pp. 295-304.

6. PROCHASKA, J.O. & DiCLEMENTE, C.C. (1992) Stages of change in the modification of problem behaviors, in: HERSEN, M., EISLER, R.M. & MILLER, P.M. (Eds) *Progress in Behavior Modification* (Newbury Park CA, Sage).

7. McCONNAUGHY, E.A., PROCHASKA, J.O. & VELICER, W.F. (1983) Stages of change in psychotherapy: measurement and sample profiles, *Psychotherapy: Theory, Research & Practice*, 20, pp. 368-375.

8. PROCHASKA, J.O. & DiCLEMENTE, C.C. (1983) Stages and processes of self-change in smoking: toward an integrative model of change, *Journal of Consulting & Clinical Psychology*, 51, pp. 390-395.

9. DiCLEMENTE, C.C. & HUGHES, S.O. (1990) Stages of change profiles in outpatient alcoholism treatment, *Journal of Substance Abuse*, 2, pp. 217-235.

10. RITSON, B. (1986) Merits of simple intervention, in: MILLER, W.R. & HEATHER, N. (Eds) *Treating Addictive Behaviors: Processes of Change* (New York, Plenum).

11. HEATHER, N. (1989) Psychology and brief interventions, *British Journal of Addiction*, 84, pp. 357-370.

12. HEATHER, N. (in press) Brief intervention strategies, in: HESTER, R.K. & MILLER, W.R. (Eds) *Handbook of Alcoholism Treatment Approaches* (revised edition) (New York, Pergamon).

13. CHICK, J., LLOYD, G. & CROMBIE, E. (1985) Counselling problem drinkers in medical wards: a controlled study, *British Medical Journal*, 290; pp. 965-967.

14. HEATHER, N., CAMPION, P.D., NEVILLE, R.G. & MacCABE, D. (1987) Evaluation of a controlled drinking minimal intervention in general practice (the DRAMS Scheme), *Journal of the Royal College of General Practitioners*, 37, pp. 358-363.

15. WALLACE, P., CUTLER, S. & HAINES, A. (1988) Randomized controlled trial of general practitioner intervention in patients with excessive alcohol consumption, *British Medical Journal*, 297, pp. 663-668.

16. ROLLNICK, S., HEATHER, N., GOLD, R. & HALL, W. (1992) Development of a short "Readiness to Change" questionnaire for use in brief, opportunistic interventions among excessive drinkers, *British Journal of Addiction*, 87, pp. 743-754.

17. HEATHER, N., ROLLNICK, S. & BELL, A. (in press) Predictive validity of the Readiness to Change Questionnaire, *Addiction*.

18. ROLLNICK, S. & BELL, A. (1991) Brief motivational interviewing for use by the nonspecialist, in MILLER, W.R. & ROLLNICK, S. (Eds) *Motivational Interviewing: Preparing People to Change Addictive Behaviors* (New York, Guilford).

19. JANIS, I. & MANN, L (1977) *Decision-making: A Psychological Analysis of Decision, Choice and Commitment* (New York, Free Press).

20. MILLER, W.R. (1983) Motivational interviewing with problem drinkers, *Behavioral Psychotherapy*, 11, pp. 147-172.

21. MILLER, W.R., SOVEREIGN, G. & KREGE, B. (1988) Motivational interviewing with problem drinkers: II The Drinker's Check-up as a preventive intervention, *Behavioral Psychotherapy*, 16, pp. 251-268.

22. MILLER, W.R. (1989) Increasing motivation for change, in: HESTER, R.K. & MILLER, W.R. (Eds) *Handbook of Alcoholism Treatment Approaches* (New York, Pergamon).

23. SANCHEZ-CRAIG, M. (1984) *Therapist Manual for Secondary Prevention of Alcohol Problems: Procedures for Teaching Moderate Drinking and Abstinence* (Toronto, Addiction Research Foundation).

24. ROBERTSON, I. & HEATHER, N. (1985) *Let's Drink to Your Health! A Self-help Guide to Responsible Drinking*. Leicester UK, BPS Publications).

25. KANFER, H.K. & GOLDFRIED A.P. (Eds) (1980) *Helping People Change* (Oxford, Pergamon).

26. ANNIS, H.M. & DAVIS, C.S (1989) Relapse prevention, in: HESTER, R.K. & MILLER, W.R. (EDS) *Handbook of Alcoholism Treatment Approaches* (New York, Pergamon).

27. SAUNDERS, B. & ALLSOP, S. (1991) Helping those who relapse, in: DAVIDSON, R., ROLLNICK, S. & MacEWAN, I. (Eds) *Counselling Problem Drinkers* (London, Routledge).

28. ROLLNICK, S., HEATHER, N., RICHMOND, R. & BELL, A. (in preparation) Matching excessive drinkers to types of brief intervention by the Readiness to Change Questionnaire.

29. ROLLNICK, S., HEATHER, N. & BELL, A. (1992) Negotiating behaviour change in medical settings: the development of brief motivational interviewing. *Journal of Mental Health*, 1, pp. 25-37.

30. BANDURA, A. (1977) Self-efficacy: toward a unifying theory of behavior change, *Psychological Review*, 84, pp. 191-215.

Appendix 1

Characterisitics of Sample (n=141) used in the Research.

Subsample	Cardiff hospital = 28 Sydney hospital = 99 Sydney general practice = 14
Alcohol Consumption (Quantity-Frequency)	Mean = 42.31 standard units (10g per unit) s.d = 27.1 range = 8-174
Age	Mean = 35.4 years Range = 17-69
Sex	94% male 6% female
Marital Status	43% single 45% married /co-habitating 12% separated/divorced/widowed
Employment	68% employed full time or part time 18% unemployed 14% retired/sickness benefits
Socio Economic Status	29% white collar 71% blue collar
Education	average age of leaving school = 16yrs, 39% with some form of further education
Mean SADD Score (Sydney hospital sub sample, n=99) (Raistrick, Dunbar & Davidson, 1983)	Mean = 8.8 s.d = 6.9
Mean Ph Scale Score (for Sydney general practice sub sample n=14) (Miller & Marlett, 1984)	Mean = 6.7 s.d = 7.2

Appendix 2

Item Loadings for the First Three Components Extracted from Varimax Rotation with Percentage Variance Accounted for by Each.

	Components		
	I	II	III
	Action 46.1%	Cont-emplation 12.6%	Precont-emplation 9.9%
Items			
1. "I don't think I drink too much" (P)	-0.20	-0.51	0.35
2. "I am trying to drink less than I used too" (A)	0.74	.0.16	-0.22
3. "I enjoy my drinking, but sometimes I drink too much" (C)	0.02	0.77	-0.05
4. "Sometimes I think I should cut down on my drinking" (C)	0.35	0.72	-0.27
5. "It's a waste of time thinking about my drinking" (P)	-0.15	-0.08	0.88
6. "I have just recently changed my drinking habits" (A)	0.84	0.12	-0.09
7. "Anyone can talk about wanting to do something about drinking, but I am actually doing something about it" (A)	0.86	0.14	-0.12
8. "I am at the stage where I should think about drinking less alcohol" (C)	0.52	0.64	-0.23
9. "My drinking is a problem sometimes" (C)	0.14	0.77	-0.09
10. "There is no need for me to think about changing my drinking" (P)	-0.23	-0.52	0.63
11. "I am actually changing my drinking habits right now" (A)	0.76	0.34	-0.14
12. "Drinking less alcohol would be pointless for me" (P)	-0.15	-0.20	0.84

P=Precontemplation
C=Contemplation
A=Action

Appendix 3

The Relationship between allocated Stage of Change and whether subject thought s(he) would be cutting down drinking in the future.

	DEFINITELY YES	PROBABLY YES	PROBABLY/ DEFINITELY NOT	
Precontem-plation	2 (6%)	8 (22%)	26 (72%)	36 (100%)
Con-templation	17 (31%)	26 (47%)	12 (22%)	55 (100%)
Action	17 (55%)	9 (29%)	5 (16%)	31 (100%)
	36	43	43	122

Appendix 4

Means and standard deviations of reductions in consumption (standard units) for each stage of change allocated by raw scores at pre-intervention assessment (Quick Method of Stage Allocation), with results of significance tests.

CONSUMPTION DIFFERENCE SCORES		PRE CONTEMPLATION (PC)	CONTEMPLATION (C)	ACTION (A)	F =	SIGNIFICANT GROUP DIFFERENCES AT 5% LEVEL
8 week follow-up	Mean =	16.3	20.2	31.3	2.80	A>C=P
	s.d. =	25.0	27.1	35.2		
	n =	37	49	41		
6 month follow-up	Mean =	11.4	14.2	32.7	6.01	A>C=P
	s.d.=	24.4	18.9	40.9		
	n =	39	49	33		

Appendix 5

Frequencies and percentages of raw score profiles at initial assessment, together with means and standard deviations of reductions in consumption for each profile at both follow-up points.

	INITIAL ASSESSMENT		8 -WEEK FOLLOW-UP			6 MONTH FOLLOW-UP		
Pattern	Frequency	%	Mean reduction in consumption	s.d.	n =	Mean reduction in consumption	s.d.	n =
A (+++)	2	1.2	63.0	38.2	2	42.0	6.0	1
B (++-)	9	5.3	32.4	29.1	5	28.6	23.1	7
C (+-+)	3	1.8	22.0	8.7	3	12.0	0.0	1
D (+--)	32	18.7	12.8	19.1	25	7.2	24.5	28
E (-++)	65	38.0	29.4	36.8	53	29.0	35.8	48
F (-+-)	37	21.6	18.1	19.9	23	12.0	19.0	24
G (--+)	6	3.5	16.0	18.1	5	0.0	16.1	3

Appendix 6

Means and standard deviations of reductions in consumption (standard units) for each stage of change, by the Refined Method of Stage Allocation (see text), with results of significance tests.

CONSUMPTION DIFFERENCE SCORES		PRE-CONTEMPLATION (PC)	CONTEMPLATION (C)	PREPARATION (PA)	ACTION (A)	F=	SIGNIFICANT GROUP DIFFERENCES AT 5% LEVEL
8 week follow-up	Mean = s.d = n =	12.8 19.1 25	18.1 19.9 23	19.8 32.9 22	36.2 38.4 31	3.36	A > PA=C=PC
6 month follow-up	Mean = s.d = n =	7.2 24.5 28	12.0 19.0 24	17.5 19.2 20	37.3 42.5 28	5.78	A > PA=C=PC

National Drug and Alcohol Research Centre
University of New South Wales

Subject name..... Hospital/Centre.....
Subject number..... Assessed by.....
Date.....

READINESS TO CHANGE QUESTIONNAIRE

The following questionnaire is designed to identify how you *personally* feel about your drinking right now. Please read each of the questions below carefully, and then decide whether you agree or disagree with the statements. Please tick the answer of your choice to each question. **Your answers are completely private and confidential.**

		Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree	For Offic Use Only
1.	I don't think I drink too much.	☐	☐	☐	☐	☐	☐
2.	I am trying to drink less than I used to.	☐	☐	☐	☐	☐	☐
3.	I enjoy my drinking, but sometimes I drink too much.	☐	☐	☐	☐	☐	☐
4.	Sometimes I think I should cut down on my drinking.	☐	☐	☐	☐	☐	☐
5.	It's a waste of time thinking about my drinking.	☐	☐	☐	☐	☐	☐
6.	I have just recently changed my drinking habits.	☐	☐	☐	☐	☐	☐
7.	Anyone can talk about wanting to do something about drinking, but I am actually doing something about it.	☐	☐	☐	☐	☐	☐
8.	I am at the stage where I should think about drinking less alcohol.	☐	☐	☐	☐	☐	☐
9.	My drinking is a problem sometimes.	☐	☐	☐	☐	☐	☐
10.	There is no need for me to think about changing my drinking.	☐	☐	☐	☐	☐	☐
11.	I am actually changing my drinking habits right now.	☐	☐	☐	☐	☐	☐
12.	Drinking less alcohol would be pointless for me.	☐	☐	☐	☐	☐	☐

Scoring the Readiness to Change Questionnaire
Quick Method

The Precontemplation items are numbers 1,5,10 & 12, the Contemplation items are numbers 2,6,7 & 11. All items are to be scored on a 5-point rating scale ranging from:

-2	Strongly disagree
-1	Disagree
0	Unsure
+1	Agree
+2	Strongly agree

To calculate the score for each scale, simply add the item scores for the scale in question. The range of each scale is -8 through 0 to +8. A negative scale score reflects an overall disagreement with items measuring the stage of change, whereas a positive score represents overall agreement. The highest scale score represents the Stage of Change Designation.

Note: If two scale scores are equal, then the scale farther along the continuum of change (Precontemplation - Contemplation - Action) represents the subject's Stage of Change Designation. For example, if a subject scores 6 on the Precontemplation scale, 6 on the Contemplation scale and -2 on the Action scale, then the subject is assigned to the Contemplation stage.

Note that positive scores on the Precontemplation scale signify a *lack* of readiness to change. To obtain a score for Precontemplation which represents the subject's degree of readiness to change, directly comparable to scores on the Contemplation and Action scales, simply reverse the sign of the Precontemplation score (see below).

If one of the four items on a scale is missing, the subject's score for that scale should be pro-rated (i.e. multiplied by 1.33). If two or more items are missing, the scale score cannot be calculated. In this case the Stage of Change Designation will be invalid.

Scale Scores		**Readiness to Change**		
Precontemplation Score		Precontemplation		(reverse score)
Contemplation Score		Contemplation		(same score)
Action Score		Action		(same score)

Stage of Change Designation
(P,C or A)

N.B. For the Refined Method of Stage Allocation, see User's Manual (revised version).