Northumbria Research Link

DEVELOPMENT OF A READINESS RULER FOR USE WITH ALCOHOL BRIEF INTERVENTIONS

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ABSTRACT

Background: A quick method of assessing readiness to change was needed for a major study of implementing screening and alcohol brief intervention in England. For this purpose, a Readiness Ruler that had been validated among a sample of male college students in the USA was adapted and applied to a sample of excessive drinkers in a general medical practice located in a deprived area of Gateshead, England.

Methods: 72 participants identified as excessive drinkers by health professionals completed a single-item Readiness Ruler, the 12-item Readiness to Change Questionnaire (RCQ) and the AUDIT questionnaire.

Results: In terms of concurrent validity, the relationships between the Readiness Ruler, on the one hand, and either stage of change allocation or a dimensional score derived from the RCQ, on the other hand, were highly significant but weaker than expected. When patients who endorsed the "maintenance" point on the Readiness Ruler were excluded from the analysis, the above relationships were considerably strengthened for reasons that are discussed. On this basis and with another small change, a final Readiness Ruler was developed.

Conclusion: If the validity of the Readiness Ruler is confirmed in subsequent research, a quick and simple way of measuring readiness to change will be available for research or clinical work with alcohol brief interventions.

KEYWORDS: Alcohol problems/ Excessive drinking/ Brief interventions/ General practice/ Readiness to change/ Readiness Ruler

1. INTRODUCTION

An assessment of the patient's readiness to change has been regarded as an essential part of the delivery of brief interventions aimed at changing health-damaging behaviours (Samet and O'Connor, 1998; DiClemente et al., 2004; Epler et al., 2005; Williams et al., 2006). This assessment has implications for how likely the patient is to respond to a brief intervention and, in theory, for the kind of intervention that is likely to be most helpful to the patient. In routine clinical practice, readiness to change is probably most often assessed by informal questioning (Rollnick et al., 1999) but for research a range of instruments have been developed to measure the patient's readiness to change (Carey et al., 1999).

One such instrument, the *Readiness to Change Questionnaire* (RCQ: Rollnick et al., 1992; Heather et al., 1993) is based on the Transtheoretical Model (TTM) developed by Prochaska and DiClemente (1986), a model which has proved very popular among health professionals as a way of describing how people change harmful and risky behaviour. In the TTM, the stages of change are an attempt to describe the stages through which a person moves in an intentional effort to resolve a problem such as excessive alcohol consumption, with each stage representing a set of specific tasks the person needs to address to make progress (Prochaska and DiClemente, 1986). 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. In more recent versions (DiClemente and Prochaska, 1998), a "Preparation" stage has been interposed between Contemplation and Action. Since it may take many attempts before an addictive problem is finally solved, the idea of a cycle of change has been replaced by a spiral in which the person gradually approaches long-lasting recovery (DiClemente and Prochaska, 1998).

The RCQ was developed as a short (12-item) instrument to assess the stage of change a person had reached with regard to changing excessive drinking (i.e., "Precontemplation", "Contemplation" or "Action"). The RCQ has been shown to have satisfactory reliability and validity (Rollnick et al., 1992), including the prediction of treatment outcome (Heather et al., 1993). Using the RCQ, Heather et al. (1996) showed that male hospital inpatients who were not ready to change were more likely to reduce their drinking after discharge if they had received a motivationally-based brief intervention than if they had received a skills-based brief intervention, as theory would predict.

Following publication of the *Alcohol Harm Reduction Strategy for England* (Prime Minister's Strategy Unit, 2004), the Department of Health (DH) awarded a grant to a research consortium based in London and Newcastle upon Tyne for a project (SIPS: *Screening and Intervention Programme for Sensible drinking)* designed to pilot screening and brief intervention procedures in routine practice in three settings: general medical practice; accident and emergency departments; criminal justice services. In the development of the SIPS research protocol, investigators decided that a measure of readiness to change drinking behaviour before the receipt of brief intervention would be essential. Unfortunately, owing to constraints on time in a pragmatic pilot project carried out in routine practice, the RCQ was considered too long for this purpose and a quicker way of assessing readiness to change was sought.

LaBrie and colleagues in the USA have developed a "Readiness Ruler" for assessing readiness to change among excessive drinkers (LaBrie et al., 2005). This consists of a visual analogue scale, i.e., a line with equidistant points from 0 to 10 and written statements reflecting different stages of change at set points along the line. Patients are asked to circle the number that best describes how they feel "right now". LaBrie and colleagues gave the

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Readiness Ruler and the RCQ to a sample of 96 male college students in California who were identified as heavy drinkers and who had reported more than two sexual partners in the previous three months (in connection with a sub-study of readiness to change condom use). Scoring the RCQ as a continuous scale, LaBrie and colleagues reported a highly significant correlation (= 0.77) between the two instruments. It was concluded that the Readiness Ruler could serve as a way of assessing motivation to change drinking behaviour when time for assessment was limited.

However, since the sample used to validate the Readiness Ruler by LaBrie and colleagues was clearly unrepresentative of excessive drinkers identified in clinical settings in England (unrepresentative in terms of age, gender, nationality and clinical status), it was thought necessary to validate the ruler in a separate project in an adult clinical sample of both genders in England. Thus the main objective of the project described in this paper was to establish the validity of a Readiness Ruler aimed at measuring readiness to change drinking behaviour among excessive drinkers identified in general medical practice.

As an additional aim, psychometric properties of the new instrument were compared between two forms of administration - self-completion and interviewer-led. This was done because, in the SIPS research protocol, administration of the Readiness Ruler was envisaged to be by self-completion in person at the initial assessment but interviewer-led by telephone at follow-up and it was necessary to check that these different forms of administration did not affect the validity of the instrument.

In addition to the aim of supporting the use of the Readiness Ruler in the DH-funded SIPS project described above, it was hoped that the validation of this scale and its publication in the scientific literature would have benefits for research and clinical practice with alcohol brief interventions and recovery from alcohol problems more generally.

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2. METHOD

2.1 Participants

Participants were recruited from patients attending routine appointments at Teams Medical Practice, Gateshead, Tyne and Wear. This practice serves a deprived, inner-city community. It is a training practice with three full-time equivalent GPs and has a patient list of around 4,650.

The total sample consisted of 72 patients. Inclusion criteria were that participants should report consuming alcohol above medically recommended benchmarks (14 units/week for women, 21 units/week for men; UK unit = 8g ethanol) and should not be seeking treatment for an alcohol problem. Participants were excluded if they were under 18 years of age, not resident in England, had poor English skills, were experiencing severe discomfort through injury, were suffering from a serious mental health problem, were pregnant, were intoxicated at interview or were diagnosed as alcohol dependent. Diagnoses of alcohol dependence were based on clinical judgement.

2.2 Measures

The RCQ gives scores for three stages of change – Precontemplation, Contemplation and Action - with each scale represented by four items. Respondents are asked to what extent they agree with each item (eg, "I am trying to drink less than I used to") on a 5-point Likert scale. Each item is scored between -2 (strongly disagree) and +2 (strongly agree) and scores on each scale therefore range between -8 and 8. Respondents are assigned to a stage of change by the scale which shows the highest score, with ties being decided in favour of the stage farthest along the continuum of change. In addition to stage allocation, respondents can

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also be given a dimensional score by summing their scores on the Contemplation and Action scales and subtracting their score on the Precontemplation scale (Budd and Rollnick, 1996).

The Readiness Ruler was adapted from a measure developed by LaBrie et al. (2005). However, in the ruler used by LaBrie and colleagues, some anchor statements were not perfectly in line with the numbers on the ruler (see Appendix B, p.115) and it was feared that this ambiguity might influence responses to the ruler and, in turn, how researchers interpreted these responses. We therefore changed the form the ruler took to what was essentially a 5-point Likert scale in which anchor statements describing different stages of change were perfectly aligned with numbers. This form of ruler was preferred to a visual analogue scale with anchor statements confined to extreme points, as described for example by Miller and Rollnick (2002), because of its superior psychometric properties (Oppenheim, 1998). Despite the ruler taking the form of a Likert scale, we continued to call it a "Readiness Ruler" for convenience and to stress its single-item characteristic.

In our ruler, respondents were asked: "Which of the following statements best describes how you feel right now?" and were presented with five options: Never think about my drinking/ Sometimes I think about drinking less/ I have decided to drink less/ I am already trying to cut back on my drinking/ My drinking has changed, I now drink less than before. Responses were scored between zero ("Never think about my drinking") and four ("My drinking has changed, I now drink less than before").

Participants were also asked to complete the *Alcohol Use Disorders Identification Test* (AUDIT; Saunders et al., 1993), a 10-item scale designed to identify individuals with hazardous and harmful drinking. This instrument assesses alcohol intake (items 1-3), dependence (items 4-6) and adverse consequences associated with alcohol use (items 7-10).

Respondents score between 0 and 4 on each item, with AUDIT scores found by summing responses to each item. AUDIT scores, therefore, range from zero to 40, with higher scores indicating more severe problems.

2.3 Procedure

General practitioners and nurses at the practice routinely screen for hazardous and harmful alcohol use by asking patients to estimate their alcohol consumption, with those drinking over recommended benchmarks identified as positive. All patients who screened positive were invited to take part in a study "examining attitudes towards alcohol use". Patients who agreed to take part were shown to another room and were introduced to the researcher. All patients took part immediately following their routine appointment, except for two who arranged to return at a later date.

The researcher explained the nature of the project, provided the participant with an Information Sheet, informed the participant of their right to withdraw at any stage and sought signed informed consent before beginning the study.

Following collection of demographic information, participants were given a questionnaire pack to complete. To control for possible order effects, roughly half the participants (n=38, 53%) completed the RCQ, followed by the AUDIT, followed by the Readiness Ruler, with this order of presentation reversed for the remaining participants (n=34, 47%). All participants completed self-report versions of the RCQ and of the AUDIT. Roughly half the participants (n=34, 47%) completed a self-report version of the Readiness Ruler, with the others (n=38, 53%) completing a version administered orally by the researcher. Participants, therefore, completed one of four questionnaire packs: RCQ first,

self-report, n=19; RCQ first, oral administration, n=19; Ruler first, self-report, n=15; Ruler first, oral administration, n=19). Once all questionnaires had been completed, the researcher debriefed participants.

2.4 Statistical analysis

A statistical power analysis using <http://home.clara.net/sisa/correl.htm> showed that a sample size of only 15 was sufficient to give a 90% chance of detecting a correlation between the Readiness Ruler and the RCQ of 0.77 (i.e., the correlation reported by LaBrie and colleagues) at the 1% significance level (1-tailed). For a correlation of 0.5 and the same level of power, the sample size necessary would be 46. Thus, the project had adequate power to detect a moderate or large correlation between the two measures at a high level of confidence.

Patients' scores on the Readiness Ruler were treated as an ordinal variable and non-parametric statistics were used in all analyses involving this variable. Spearman's rho was calculated to estimate the concurrent validity of the ruler using the RCQ dimensional score as criterion. To examine the relationship between Readiness Ruler scores and stage of change as allocated by the RCQ, patients who placed themselves at each point on the Ruler were stratified across their stages of change allocated by the RCQ. Concurrence was evaluated by comparing proportions across stages of change using the chi square statistic. The strength of this association was measured by a contingency co-efficient derived from the cross-tabulation of Readiness Ruler score and allocated stage of change.

3. RESULTS

3.1 Sample characteristics

Socio-demographic characteristics of the sample are shown in Table 1.

TABLE 1 ABOUT HERE

Table 2 shows measures of central tendency and of dispersion for AUDIT total scores in the whole sample and among men and women separately. AUDIT scores were missing for three male patients. The second to last row in Table 2 refers to the percentages of men, women and all patients whose AUDIT score was at the cut-point for the attribution of hazardous or harmful drinking. This cut-point was 8 or above for men (Saunders *et al.*, 1993) and 7 or above for women (Bradley et al., 1998).

TABLE 2 ABOUT HERE

3.2 Concurrent validity

Table 3 shows the relationship between stage of change as allocated by the RCQ and patients' response on the Readiness Ruler. This relationship was highly significant ($\chi^2 = 37.5$, df=8, $p_{2\text{-tailed}} < 0.0005$). The contingency coefficient for this relationship was 0.59 ($p < 0.0005$).

TABLE 3 ABOUT HERE

Spearman's rho between the Readiness Ruler score and RCQ dimensional score was 0.47 (N=-72, $p_{2\text{-tailed}} = 0.0005$). Although highly significant, this correlation was lower than expected. Figure 1 plots the relationship between Readiness Ruler score and RCQ dimensional score and suggests that the strength of the relationship is reduced by the scores of patients who endorsed the ruler response item "My drinking has changed etc.". When these patients were excluded from the analysis, the correlation between Readiness Ruler score and RCQ dimensional score rose to 0.76 (N=52, $p_{2\text{-tailed}} = 0.0005$). This correlation was

also calculated for each type of test administration (self-report or interviewer-administered) separately. In both conditions of administration, the correlation was highly significant (self-completion, rho = 0.78, N=26, $p_{\text{2-tailed}}$ < 0.0005; interviewer-led, rho = 0.72, N=26, $p_{\text{2-tailed}}$ < 0.0005). The difference between these two correlation coefficients was not significant (Z = 0.45, $p_{\text{2-tailed}}$ = 0.34).

FIGURE 1 ABOUT HERE

4. DISCUSSION

In contrast to the sample upon whom the Readiness Ruler was originally validated (LaBrie et al., 2005), the sample in the present study can be considered representative of patients who attend primary health care in England, albeit of "White" ethnic origin and predominantly male, and who are opportunistically identified as drinking above recommended guidelines. Over 80% of the sample obtained a score on the AUDIT questionnaire indicative of hazardous or harmful drinking (see Table 1). The sample was therefore appropriate for the development of a form of the Readiness Ruler suitable for use in screening and brief intervention for excessive drinking in English conditions.

It will be noted from Table 1 that, despite the policy adopted at the practice of excluding patients with a diagnosis of alcohol dependence on clinical grounds, over a quarter of the sample had AUDIT scores over the cut-point indicating the possibility of dependence (20+) (Babor et al., 2001). This highlights the importance of using screening instruments in assessing patients for suitability for brief intervention rather than relying on clinical judgement alone. Nevertheless, the presence of these patients with possible dependence and the generally high level of AUDIT scores in the present sample must be considered typical of

patients who present to primary health care in England and whose drinking behaviour should be assessed.

The rationale for this study was the attempt to validate the Readiness Ruler against the gold standard of the RCQ, as in the study by LaBrie and colleagues (2005). However, this choice of a gold standard for the assessment of readiness to change among excessive drinkers might be questioned. While the RCQ was able to predict changes in drinking behaviour following brief intervention among heavy drinking male inpatients in Australia (Heather et al., 1996), Williams and colleagues (2006) reported that neither the RCQ nor the Readiness Ruler developed by LaBrie *et al.* were predictive of change in excessive drinkers identified in primary care in the USA. In view of these conflicting findings, further data on the predictive power of the RCQ and the Readiness Ruler are clearly needed. With regard to the Ruler, extensive data bearing on this issue will become available from the results of the SIPS trial, including a comparison of the instrument's predictive validity between the three settings in which the trial will be conducted (primary care, accident and emergency, criminal justice).

In the present study the attempt was made to establish the concurrent validity of the Readiness Ruler by using both stage allocation and a dimensional score derived from the RCQ as criteria. This attempt was only partially successful. Although both RCQ criteria yielded highly significant relationships with scores on the ruler, the association between the two measures was only moderate in strength and weaker than would be expected or considered desirable for validation purposes. However, closer inspection of the nature of the relationship quickly revealed that the main reason for its relative weakness lay in the responses of those patients who endorsed the "maintenance" point on the ruler (see Figure 1). When these responses were excluded from the analysis, the correlation between ruler and

RCQ dimensional scores was substantially increased and reached a magnitude comparable with the correlation reported by LaBrie and colleagues among male college students in the USA. This correlation was roughly as large when the ruler was self-completed as when it was administered by an interviewer. Since there is evidence that reports of alcohol consumption given by telephone do not differ from those given in a face-to-face interview (Greenfield et al., 2000), this suggests that the ruler would be equally valid when given over the telephone as part of a research follow-up, as is intended in the SIPS project, as when self-completed.

It is clear that the underlying reason for the mismatch between scores on the Readiness Ruler and the RCQ was the lack of a maintenance stage in the allocations deriving from the latter. This was because, in the original development of the instrument by Rollnick et al. (1992), a maintenance stage did not clearly emerge from a principal components analysis of responses to a larger questionnaire. It is not possible to be sure, of course, what points on the ruler would have been chosen by those who endorsed the maintenance point had that option not been available to them but it is possible that a clearer relationship to the RCQ stages and dimensional score would have appeared. It is also relevant to observe that the meaning of an endorsement of the maintenance point on the ruler is not at all clear, since all patients who made that endorsement were, by definition, drinking over recommended guidelines and in some cases very heavily. These patients may have been drinking less now than at some time in the past but the meaning of "drinking less" is obviously highly subjective and would have varied considerably among patients. This is a further reason to exclude this response point from future applications of the Readiness Ruler in conjunction with brief interventions.

It is also possible that confusion was caused among some patients by the wording of the precontemplation point on the Readiness Ruler ("Never think about my drinking"). Informal feedback from respondents suggested that this point could sometimes have been rejected for endorsement because patients recognised that they did occasionally think about their drinking, but not necessarily about drinking less. Thus the wording, "Never think about drinking less" would be less likely to cause confusion.

The two changes discussed above (i.e., the deletion of the maintenance point and the rewording of the precontemplation point) were made to the Readiness Ruler for use in the SIPS project and this form of the ruler may be found in the supplementary material accompanying the electronic version of this paper http://dx.doi.org.

At the conclusion of the SIPS project, responses to the ruler at both initial assessment and follow-up will be available from a very large number of individuals who have received a brief intervention in primary health care, accident and emergency or criminal justice settings, together with other information including screening data and outcome of intervention. This will provide an opportunity to examine the relationship between the ruler and aspects of drinking behaviour, whether the ruler can predict outcome of brief intervention and how changes on the ruler over time are related to changes in drinking behaviour. These matters will form the basis for a future communication.

Assuming that the validity of the ruler is confirmed by SIPS data, it will be useful in both research and clinical applications of brief interventions. In research it is desirable to reduce the length of assessment as much as possible and, in the case of brief interventions, to ensure at least that the assessment does not exceed the intervention itself. While it may not be

possible entirely to avoid assessment reactivity effects (Kypri et al., 2007; McCambridge and Day, 2008), reducing assessment to a minimum may limit their impact. In clinical practice, giving the patient a full questionnaire to complete during a consultation may be thought inappropriate but a simple and quick method of assessing how likely a patient is to reduce drinking has obvious relevance to the approach that is taken. The Readiness Ruler could be used as a basis for discussion with the patient about motivational issues and repeated at subsequent contacts to assess changes in the patient's readiness to change drinking behaviour.

5. ACKNOWLEDGEMENTS

6. REFERENCES

Babor, T., Higgins-Biddle, J. C., Saunders, J. B., Monteiro, M., 2001. *AUDIT: The Alcohol Use Disorders Identification Test; Guidelines for Use in Primary Care* (2nd ed.). Geneva, Switzerland, World Health Organization.

Bradley, K., Boyd-Wickizer, J., Powell, S. H., Burman, M. L., 1998. Alcohol screening questionnaires in women. JAMA. *280*, 166-171.

Budd, R., Rollnick, S., 1996. The structure of the Readiness to Change Questionnaire: a test of Prochaska and DiClemente's transtheoretical model. Br J Health Psychol. 1, 365-376.

Carey, K. B., Purnine, D. M., Maisto, S. A., Carey, M. P., 1999. Assessing readiness to change substance abuse: a critical review of instruments. Clin Psychol: Science and Practice, 6, 245-266.

DiClemente, C.C., Prochaska, J.O., 1998. The Transtheoretical Model of change. In: Miller, W.R., Heather, N. (Eds.), *Treating Addictive Behaviours* (2nd edition). New York, Plenum; 1998, p. 3-24.

DiClemente, C., Schlundt, D., Gemmell, L., 2004. Readiness and stages of change in addiction treatment. Am J Addict. 13, 103-119.

Epler, A., Kivlahan, D., Bush, K., Dobie, D., Bradley, K., 2005. A brief readiness to change drinking algorithm: concurrent validity in female VA primary care patients Addict Behav. 30, 389-395.

Greenfield, T., Midanik, L., Rogers, J., 2000. Effects of telephone versus face-to-face interview modes on reports of alcohol consumption. Addiction. 95, 277-284.

Heather, N., Rollnick, S., Bell, A., 1993. Predictive validity of the Readiness to Change Questionnaire. Addiction. 88, 1667-1677.

Heather, N., Rollnick, S., Bell, A., Richmond, R., 1996. Effectiveness of brief counselling among male heavy drinkers identified on general hospital wards. Drug Alcohol Rev. 15, 29-38.

Kypri, K., Langley, J., Saunders, J., Cashell-Smith, M., 2007. Assessment may conceal therapeutic benefit: findings from a randomised controlled trial for hazardous drinking. Addiction. 102, 62-70.

LaBrie, J., Quinlan, T., Schiffman, J., Earleywine, M., 2005. Performance of alcohol and safer sex change rulers comparied with readiness to change questionnaires. Psychol Addict Behav. 19, 112-115.

McCambridge, J., Day, M., 2008. Randomized controlled trial of the effects of completing the Alcohol Use Disorders Identification Test questionnaire on self-reported hazardous drinking. Addiction. 103, 241-248.

Miller, W. R., Rollnick, S., 2002. Motivational Interviewing: Preparing People for Change (2nd ed.). Guilford, New York.

Oppenheim, A. (1998). Questionnaire Design, Interviewing and Attitude Measurement (2nd ed.). Continuum International Publishing, New York.

Prime Minister's Strategy Unit, 2003. Interim Analytical Report. Strategy Unit Alcohol Harm Reduction Project, Cabinet Office, London, UK.

Prochaska, J., DiClemente, C. C., 1986. Towards a comprehensive model of change. In: Miller, W.R., Heather, N. (Eds.), Treating Addictive Behaviours: Processes of Change. Plenum Press, New York, pp. 3-27.

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. Br J Addict. 87, 743-754.

Rollnick, S., Mason, P., Butler, C., 1999. Health Behavior Change: A Guide for Practitioners. Churchill Livingstone, Edinburgh, UK.

Samet, J. H., O'Connor, P., 1998. Alcohol abusers in primary care: readiness to change behaviour. Am J Med. 105, 302-306.

Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., Grant, M., 1993. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption--II. Addiction. 88, 791-804.

Williams, E., Horton, N., Samet, J. H., Saitz, R., 2007. Do brief measures of readiness to change predict alcohol consumption and consequences in primary care patients with unhealthy alcohol use? Alcohol Clin Exp Res. 31, 428-435.

TABLE 1

Sociodemographic characteristics of the sample at baseline

Male	60 (83.3%)
"White" ethnicity	72 (100%)
Mean age in years (SD)	45.8 (14.2)
Single	23 (31.9%)
Married/ living with partner	37 (51.4%)
Separated/ divorced/widowed	12 (16.7%)
Left education at 16	67 (93.1%)
Educated to degree level	1 (1.4%)

TABLE 2

AUDIT total scores for men, women and all patients

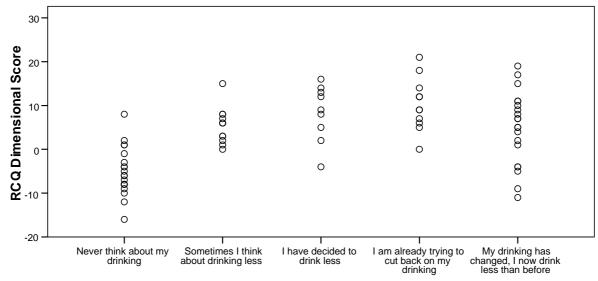|	MEN (N=57)	WOMEN (N=12)	ALL PATIENTS (N=69)
Mean	15.0	13.5	14.8
SD	7.6	9.6	8.0
Median	13.0	8.5	13.0
Max	37	28	37
Min	5	4	4
% > cut-point (♂=8+; ♀=7+)	84.2	66.7	81.2
% > dependence cut-point (20+)	26.3	33.3	27.5

TABLE 3

Relationship between stage of change allocation by the RCQ and responses to the Readiness Ruler

	Never think about my drinking	Sometimes I think about drinking less	I have decided to drink less	I am already trying to cut back on my drinking	My drinking has changed, I now drink less than before	Total
Precontemplation	13	0	1	0	2	16
(%)	(81.3)	(0.0)	(6.3)	(0.0)	(12.5)	(100)
Contemplation	4	8	5	7	5	29
(%)	(13.8)	(27.6)	(17.2)	(24.1)	(17.2)	(100)
Action	3	4	3	4	13	27
(%)	(11.1)	(14.8)	(11.1)	(14.8)	(48.1)	(100)
Total	20	12	9	11	20	72
(%)	(27.8)	(16.7)	(12.5)	(15.3)	(27.8)	(100)

FIGURE 1

Scatterplot of relationship between Readiness Ruler response points and dimensional scores on the Readiness to Change Questionnaire