

Evaluation of the Leeds Dependence Questionnaire (LDQ) for New Zealand

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EXECUTIVE SUMMARY

The aim of this research project has been to evaluate the Leeds Dependence Questionnaire (LDQ) for use in New Zealand. In essence, the central question was “How well does the LDQ measure dependence in New Zealand populations?”. In summary, the answer is that the LDQ performs very well. There is strong statistical evidence that a high LDQ score actually represents a high level of dependence and a low score represents a low level of dependence. Furthermore, the LDQ performs well for each of the three ethnic populations studied and for both male and female clients. In other words, the LDQ has been validated for use with English-speaking New Zealand European/Pakeha, New Zealand Maori, and Pacific Nation clients in mainstream services.

This finding is not enough in itself, however, to ensure sustained clinical use of the LDQ. The question must also be asked, “How useful is the LDQ in a practical treatment setting?” This research project attempted to answer this question and the overall conclusion reached was positive. When used appropriately, the LDQ is likely to be of practical use in a mainstream treatment setting. The LDQ is brief and easy to understand. If used for alcohol dependence¹, with standard clinical interpretations of the scores, and in conjunction with other measures of alcohol and drug problems, the LDQ has the potential to be very useful.

Two further issues were explored in the research. The first concerned the potential sensitivity of the LDQ to change. Although this issue was not intensively studied, the range and variability of the scores obtained from the RADS study populations supported the LDQ on this count. The second issue concerned the instrument’s potential value for outcome measurement. Once again, the finding was positive.

These findings have implications for the specialist alcohol and drug treatment field in New Zealand. The LDQ can now be used with confidence for preliminary client triage screening²; client assessment more generally and treatment goal selection; outcome measurement, both for research and for rational health purchasing; and for various other research purposes.

¹ This does not indicate that the LDQ is an inappropriate tool for use with other drugs - merely that the published evidence to date does not permit anything more than a conservative approach at this stage.

² The AUDIT, LDQ, and SDS are already in use at RADS for the purposes of triage screening.

THE VALUE OF MEASURING DEPENDENCE

Defining Dependence

Elements of the concept of alcohol dependence were first advanced by the World Health Organisation in the 1950s (Polich et al 1981, p.6) and in the mid-1970s the notion of an alcohol dependence *syndrome* was formally presented (Raistrick et al 1994, p.563). Since this time the notion of alcohol dependence has attracted considerable interest and debate (Edwards 1986).

These concepts have migrated across into the study of substances other than alcohol and several instruments have been produced which attempt to measure dependence across a range of substances. These include the LDQ and the Severity of Dependence Scale (SDS) (Gossop et al 1995). In addition, empirical support for the generalisation of the dependence syndrome across substances (with the exception of hallucinogens) has recently been provided (Morgenstern et al 1994). Substance dependence can be viewed in either psychobiological terms or in a purely psychological sense. The designers of the Leeds Dependence Questionnaire have adopted a purely psychological view of dependence - at the same time, however, they have used the psychological phenomena as a way of tapping into physiological phenomena such as withdrawal and tolerance (Raistrick et al 1994, p.564).

The LDQ evaluates 10 markers of dependence: pre-occupation with the substance, the primacy of activities associated with the substance over other activities, the perceived compulsion to continue using the substance, the way in which the user's day is planned around procuring and using the substance, attempts to maximise the effect of the substance, the narrowing of the substance use repertoire, the perceived need to continue using the substance in order to maintain effect, the primacy of the pharmacological effect of the substance over any of its other attributes, the maintenance of the substance induced state, and the belief that the substance has become essential to the user's existence. These markers are all measured in such a way that the total ratings of dependence can range across a continuum from 0 to 30, where 0 represents the absence of dependence and 30 represents extreme dependence (Raistrick et al 1994, p.565). Dependence is widely conceived of as analytically distinct from both consumption levels and the social, legal and health problems typically associated with consumption (Gossop et al 1995, pp.607-608). Although these phenomena covary at a general level, they must be disaggregated for the analysis of individuals or subgroups.

Using Measures of Dependence

Measures of dependence are useful in a variety of ways and can be used for:

- ◆ preliminary client triage screening
- ◆ client assessment and treatment goal selection (Allen & Mattson 1993)
- ◆ outcome measurement for the purposes of research and rational health purchasing (Andrews et al 1994, p.20)
- ◆ the interpretation of outcomes (Committee of the Institute of Medicine 1990, p.321) and research on alcohol and drug treatment more generally.

Preliminary Client Triage Screening

The LDQ is short enough to be useful as part of a brief screening package for triage purposes. Trials have already begun at Regional Alcohol & Drug Services to use a package comprising the AUDIT, LDQ, and Severity of Dependence Questionnaire (SDS), in combination with clinical judgement, to initially assign clients to more or less intensive treatment streams. It is expected that a full evaluation will be published later.

Selecting Treatment Goals

Objective measures of dependence can play an important role in identifying suitable treatment goals (Allen & Mattson 1993). Where alcohol is the substance used, moderate drinking or controlled drinking might be appropriate goals for low dependence clients and abstinence the most prudent goal for heavily dependent clients (See Mattick et al 1993, p.91). There are indications, for example, that the SADQ may be useful for this purpose (Stockwell et al 1983, p.147). This is not to say that LDQ scores should be used to force clients into adopting particular treatment goals (Mattick et al 1993, p.91). Even when there is a clear medical reason for adopting complete abstinence there are clinical reasons for allowing client choice. Sobriety sampling, tapering down, and trial moderation may all represent more effective strategies for attaining abstinence than enforced "cold turkey" (Miller & Page 1991). Nor is to say that a diagnosis of severe dependence precludes successful adoption of a controlled drinking pattern (Booth 1990). Dependence must be seen as one of many factors influencing treatment outcome (Moore 1993; Mattick et al 1993, p.91).

Measuring the outcomes of treatment

Standardised instruments such as the LDQ are necessary for the aggregation of outcome measures across an agency and to allow comparisons between data collected at different agencies and at different points in time. Clinical judgements are too unreliable for this task (Andrews et al 1994, p.20).

Interpreting the outcomes of different treatment programmes

Assessment information is critical to the interpretation of treatment outcomes, whether for research or health purchasing purposes. Information on the level of dependency may be particularly salient (Edwards 1986, p.179). An agency specialising in mildly dependent clients, for example, which attains a 60% success rate may be less effective than an agency which attracts heavily dependent clients but only attains a 45% success rate (Committee of the Institute of Medicine 1990, p.321). For comparisons of this sort to be made the relevant agencies must use the same assessment and outcome instruments (Howard 1993, p.667; Frawley 1991). This is where the LDQ could prove to be particularly valuable.

Determining the extent of generalisability

The pattern of client characteristics in a studied population needs to be mapped so that the bounds of generalisability can be identified. The definition of an "adequate" description of clients is always being revised as new information is discovered (Longabaugh & Lewis 1988, p.170) but it is clear that dependency levels can play an important role. The LDQ might prove useful for the purposes of describing client populations. In this report, for example, it has proved useful to be able to compare LDQ scores between the Leeds Addiction Unit and Auckland Regional Alcohol & Drug Services.

THE BENEFITS OF VALIDATING THE LDQ FOR NEW ZEALAND POPULATIONS

The Leeds Dependence Questionnaire (LDQ) has been studied in the United Kingdom and has good psychometric properties with a range of populations including students, general practice patients, and the clients of specialist alcohol and drug treatment clinics (Raistrick et al 1994). There is still a need for New Zealand research, however - not least of all to assess its properties when used with New Zealand Maori and Pacific Nations clients.

At present, there is nothing available to the field which has been validated for New Zealand Māori and Pacific populations. This research will potentially fill this gap.

Having validated the LDQ for (English-speaking) New Zealand Maori and Pacific Nation populations, it is even possible that it could be used in studies testing the validity of other tools which have yet to be tested for these populations.

RESEARCH AIMS

In their 1994 research report *Development of the Leeds Dependence Questionnaire (LDQ): a questionnaire to measure alcohol and opiate dependence in the context of a treatment evaluation package* the researchers and clinicians who designed the LDQ indicated that they would value further research on the following aspects of the LDQ:

- ◆ its validity in **different cultural settings**
- ◆ its use as an **assessment tool**
- ◆ its utility for evaluating **treatment outcome**
- ◆ its validity for measuring dependence across a **wide range of substances**
- ◆ its **sensitivity to changes** in levels of dependency over time

To answer as many of these questions as possible (within available resources) in the New Zealand context the Alcohol Advisory Council of New Zealand requested a proposal from Regional Alcohol & Drug Services for carrying out this research.

The RADS proposal examined the first two questions in detail and received scientific approval from the Health Research Council. The treatment of the remaining questions has of necessity been exploratory due to resource constraints

The aims of the research were to:

- ◆ assess the validity of the Leeds Dependence Questionnaire (LDQ) for New Zealand European, New Zealand Māori, and Pacific Nations populations
- ◆ provide preliminary information on the practicalities of using the LDQ for assessment and treatment planning
- ◆ investigate in an exploratory manner the sensitivity of the LDQ to changes over time, its utility with substances other than alcohol, and its value as part of an evaluation of treatment outcome

MAIN FINDINGS

The LDQ is Valid for the Main New Zealand Populations

Introduction

A measurement is valid to the extent that it measures what it purports to measure (Carmines & Zeller 1979, pp.11-12). The LDQ is only valid, therefore, if it accurately measures dependence. High scores should represent high levels of dependence and low scores should represent low levels of dependence. Thus, even if the LDQ provides useful measures of consumption, or problems, but is still a poor tool for measuring dependence, it will have failed in its purpose. In this research the validity of the LDQ has been tested in three ways: through concurrent validation, convergent validation, and finally, through “cultural validation”. Each of these is discussed below. The New Zealand populations studied in this research were New Zealand European/Pakeha, New Zealand Maori, and Pacific Nations. Each validity test was applied to the data supplied from within each population.

Concurrent Validation

Introduction

Concurrent validation examines the correlation between a test and other similar tests on one occasion (Kline 1979, p.11). For this research, the LDQ scores have been compared with scores obtained at the same time using the Severity of Alcohol Dependence Questionnaire (SADQ). Although the SADQ measures a psychobiological variant of dependence, and is thus not measuring exactly the same construct as the LDQ, it is considered close enough to be useful for this purpose. The SADQ has good psychometric credentials and is very widely used (Stockwell et al 1983; Meehan et al 1985).

This raises the obvious question, why use the LDQ when the SADQ is valid enough to act as a “gold standard”? As Kline notes, if other tests exist, then the new test must have some special worthwhile features (Kline 1979, p.11). The first response is that the LDQ is half the size of the SADQ which makes it easier to incorporate into briefer assessments and also makes it conceivable to use it as an outcome followup tool. A second response is that, unlike the SADQ, the LDQ includes alcohol dependence syndrome components such as salience of substance use, compulsion to start, compulsion to continue, and narrowing of using repertoire. A final response is that it may be possible to use the LDQ for measuring dependence upon a variety of substances.

In any case, the success of the LDQ in this test is determined by how closely it correlates to the SADQ score. In general terms, the higher the better, although it should be noted that the LDQ measures dependence over the previous week whereas the SADQ focuses on the previous 6 months. As mentioned earlier, there is also a difference in the specific construct of dependence used.

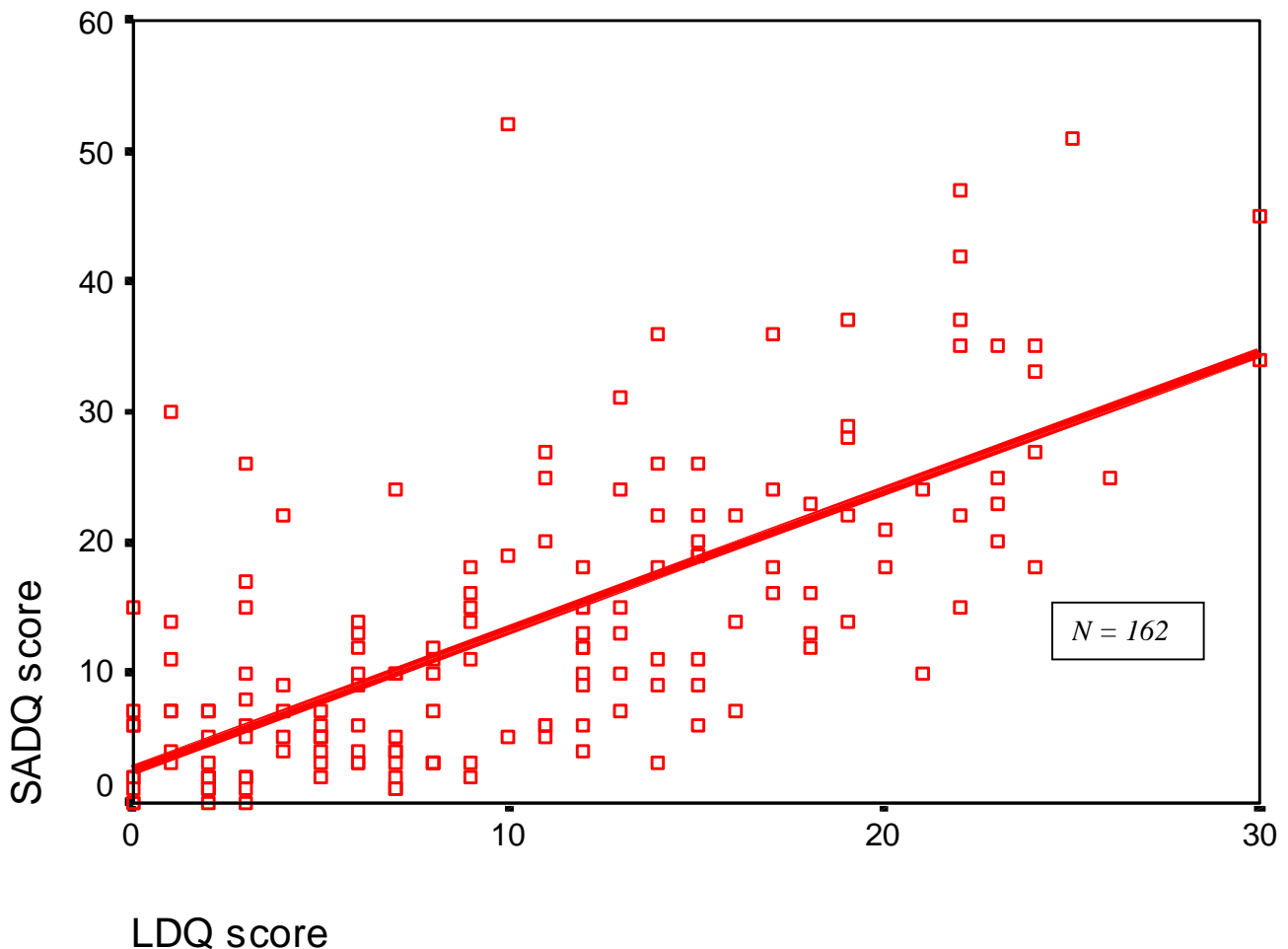
Overall Picture

The LDQ performs well for the concurrent validation test as compared against the SADQ for the three New Zealand populations combined. In general terms, when the SADQ identified a person as having a high level of dependence, the LDQ similarly produced a high score. Conversely, when the SADQ identified a person as having a low level of dependence, the LDQ also identified them as having a low level of dependence.

In statistical terms, a Spearman's correlation coefficient of 0.69 ($n=162$) was obtained. It was significant at the 0.001 level, 2 tailed. This is the same as was obtained by the Leeds Addiction Unit with their total sample of alcohol users ($n=125$).

As mentioned earlier, the LDQ focuses on the previous week while the SADQ focuses on the previous 6 months. This raised the possibility that the correlation would be lower than average for clients with low levels of consumption over the previous month before assessment and higher for the rest. This was indeed the case. Clients who consumed less than 20 standard drinks in the 4 weeks prior to assessment had a Spearman's correlation for their LDQ and SADQ scores of only 0.49 ($n=37$) whereas the remaining clients had a correlation of 0.75 ($n=123$). This finding suggests that the LDQ would have gained an even higher degree of support for its concurrent validity if it had been possible to test it against a tool with a similar time focus.

LDQ vs SADQ scores



make up the majority of clients seen in such settings.

Table 1 - Spearman correlation coefficients for LDQ and SF-36 subscales

<i>Subscale</i>	<i>Definition</i>	<i>Total sample</i>	<i>NZE</i>	<i>Maori</i>	<i>Pacific</i>	<i>Male</i>	<i>Female</i>
Vitality	Feeling energetic and full of pep versus feeling tired and worn out.	-0.60***	-0.52***	-0.45**	-0.67***	-0.63***	-0.52***
Social Functioning	Extent to which physical health or emotional problems interfere with normal social activities.	-0.59***	-0.51***	-0.60***	-0.57***	-0.66***	-0.44***
Mental Health	General mental health, including depression, anxiety, behavioural-emotional control, general positive effect.	-0.58***	-0.57***	-0.45**	-0.58***	-0.61***	-0.52***
Role Functioning - Physical	Extent to which physical health interferes with work or other daily activities, including accomplishing less than wanted, limitations in the kind of activities, or difficulty in performing activities.	-0.48***	-0.55***	-0.39*	-0.47**	-0.43***	-0.55***
General Health	Personal evaluation of health, including current health, health outlook, and resistance to illness.	-0.48***	-0.41***	-0.45**	-0.50**	-0.45***	-0.53***
Role Functioning - Emotional	Extent to which emotional problems interfere with work or other daily activities, including decreased time spent on activities, accomplishing less, and not working as carefully as usual.	-0.47***	-0.56***	-0.25NS	-0.48**	-0.46***	-0.47***
Bodily Pain	Intensity of pain and effect of pain on normal work, both inside and outside the home.	-0.43***	-0.40***	-0.43**	-0.33NS ³	-0.45***	-0.34*
Physical Functioning	Extent to which health limits physical activities such as self-care, walking, climbing stairs, bending, lifting, and moderate and vigorous exercises.	-0.12 NS	-0.33**	0.00NS	0.07NS	-0.04NS	-0.31*

*** p < 0.001 ** p < 0.01 * p < 0.05

³ p=0.0502033829689 exactly, i.e. very unlikely to be due to random variability even if it (marginally) fails the arbitrary cutoff point of 0.05.

Table 2 - Spearman correlation coefficients for LDQ vs SPQ, and two measures of intake

Measure	Total sample	Leeds Addiction Unit	NZE	Maori	Pacific	Male	Female
Social Problems Questionnaire	0.38***	0.42***	0.28**	0.47**	0.33*	0.44***	0.23NS
Intake - grams alcohol in previous using week	0.39***	0.68***	0.35**	0.29NS	0.49**	0.42***	0.36**
Intake - weekly average drinks (standard)	0.55***	-	0.43***	0.51***	0.65***	0.60***	0.47***

*** p < 0.001 ** p < 0.01 * p < 0.05

Interestingly, the SADQ produced better correlations than the LDQ against intake measured during the last using week. The correlation coefficient for the SADQ vs intake was 0.47 (n=159) as opposed to 0.39 (n= 159) for the LDQ vs intake - both significant at the 0.001 level, 2 tailed. The situation was largely reversed, however, when looking at intake over the previous week (whether or not alcohol was consumed during that week). The LDQ coefficient was 0.33 whereas the SADQ coefficient was only 0.15. The former was significant at the 0.001 level, 2 tailed; the latter was not statistically significant. The greater level of correlation obtained by the LDQ is perhaps what one might expect given that it focuses on dependence in the previous week only.

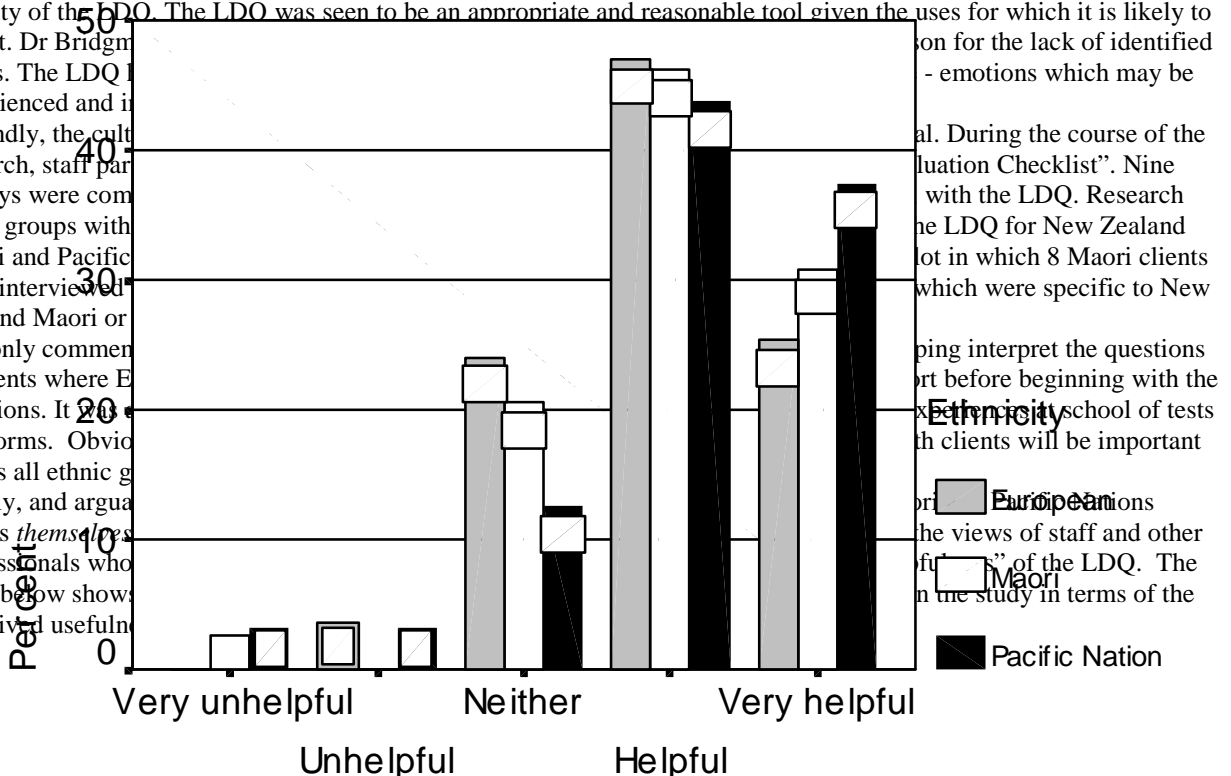
Once again, the data produces weak support for the convergent validation of the LDQ - both at a general level and for the three ethnic and two gender subpopulations. But should one expect strong correlations between dependence and other variables of this sort? After all, dependence should be conceived of as analytically distinct from both consumption levels and the social, health and other problems typically associated with consumption (Gossop et al 1995, pp.607-608). Admittedly, this is not to deny the presence of an empirical association (Gossop et al 1995, p.613) but perhaps one should only expect a modest degree of covariance. At the very least, the data presented here supports the disaggregation of these variables for clinical and research purposes.

Cultural Validation

The overriding finding of the research in this area is that the LDQ raises no significant cultural issues. There was no evidence that New Zealand European/Pakeha, New Zealand Maori, or Pacific Nations clients completed the

Client-rated helpfulness of LDQ

empirical phase of the research, a 2-hour meeting was held with Dr Geoff Bridgman specifically to discuss the cultural validity of the LDQ. The LDQ was seen to be an appropriate and reasonable tool given the uses for which it is likely to be put. Dr Bridgman experienced and discussed cultural issues. The LDQ was not experienced and discussed cultural issues. Secondly, the cultural research, staff participated in focus groups with Maori and Pacific clients themselves. The only comment was that the questions were too long and forms. Obviously, the LDQ was helpful across all ethnic groups. Finally, and arguably most importantly, the views of staff and other professionals who perceived the usefulness of the LDQ. The chart below shows the perceived usefulness of the LDQ by ethnicity.



Clients were also invited in an open ended question to make “any further comments” on the LDQ. An analysis of these open-ended questions showed that all ethnic groups and genders found the tool to be equally acceptable. In fact, many comments demonstrated that the LDQ was well received. For example:

“It is a great indication in helping myself identify my personal problems and the extent in which they affect myself and other people”

Male Maori client

“Yes, I think it is helpful”

Female Maori client

“It is a good way of assessing people's alcohol level. It is very important for them to know and understand about how alcohol is affecting them in every way in life. I give the LDQ my full support and appreciate their concern in helping the community.”

Male Pacific Nations client

“I found filling out this form was very good because of finding out for myself how well things are and also getting the chance to open up by writing it all down.”

Female Pacific Nations client

Conclusion

The LDQ receives nearly as much support for its validity in this research as was received in the Leeds Addiction Unit’s own research. Most importantly, the LDQ passed the concurrent validation test against the SADQ. The results were also similar to those obtained by the Leeds Addiction Unit in terms of convergent validation with the notable exception of intake measured in grams of alcohol in the last using week. The strong results for intake produced by the Leeds Addiction Unit were not replicated in this research. This finding supports the disaggregation of alcohol dependence, intake, social problems, and health for both clinical and research purposes. More specifically, the LDQ has been validated for use with English-speaking New Zealand European/Pakeha, New Zealand Maori, and Pacific Nation clients in mainstream services. This is not to say, of course, that there is any reason to question the value of the LDQ with other New Zealand populations - only that this research has not settled the matter.

The LDQ Is Of Practical Use in a Clinical Setting When Used Appropriately

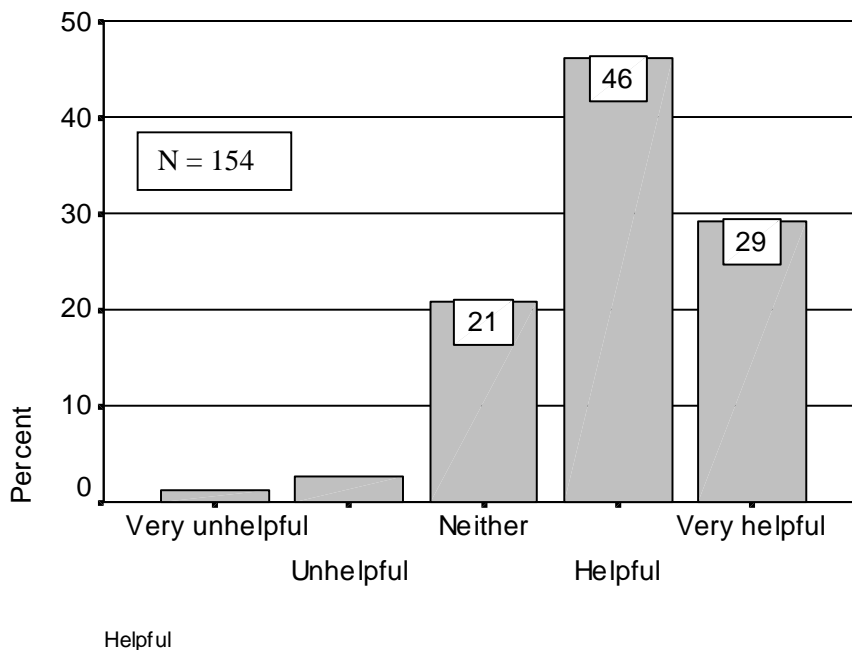
The LDQ is Brief and Simple to Use

The LDQ contains just 10 brief items and takes only a few minutes to complete. On the face of it, therefore, the LDQ would seem a practical means of measuring dependence in a clinical setting. The simplicity of the LDQ was tested in the research by seeking feedback from both staff and clients.

Staff feedback was elicited in two ways. Firstly, through the “Counsellor’s LDQ Evaluation Checklist”. The following questions were included in this survey: “Did any of the questions seem to make the client uncomfortable?”; “Did you have to repeat any questions?”; “Did the client misinterpret any questions?”; “Did any of the questions contain words or concepts that were not easily or consistently understood by clients?”; “Which questions were the most difficult or awkward for you to read? Have you come to dislike any questions? Why?”; “Did any of the questions seem to drag?”; “Were any of the answers given by the client contradicted elsewhere or at some later point?” None of the feedback received from counsellors through this survey (n=9) noted any problems with the application of the LDQ. Secondly, staff feedback was elicited through the 2 focus group interviews. Once again, there was little indication that clients had any difficulty with the LDQ.

Client feedback was sought through an open-ended question on the LDQ and through a rating of its perceived usefulness. None of the responses received by clients indicated any difficulties with the LDQ even though critical comments were sometimes made about other tools. In general, clients gave very good ratings for the helpfulness of the LDQ. Although the rating of helpfulness is not a direct test of its ease of use it supports the other evidence.

Client-rated helpfulness of LDQ



The LDQ is Best Used in Conjunction with Other Measures of Alcohol & Drug Problems

One finding, which came through strongly in the focus group interviews with staff, was that dependence should not be measured in isolation from other measures or assessments of alcohol problems. This is especially true in the case of the LDQ, which focuses on the previous week only. In one of the surveys completed by counsellors, a case was described where a client had ceased drinking a month prior to assessment. The LDQ gave a score of just 1 when answered (as required) with reference to the 1 week window but 22 when answered again with reference to a longer time span which incorporated the drinking period.

The main concern was that clients wishing to minimise their problems would embrace low dependence scores as if they represented a clean bill of health - even while there were still other important issues or problems.

“Just about all my clients were really low on the LDQ and I think it made me wary that it was minimising the consequences of their use by giving them a low score ... I would have liked to see that they were abstinent for a number of reasons but the LDQ scoring low didn’t give me backup to justify that”

Staff feedback in focus group interview

It was partially in response to this concern that the RADS Research Unit included both the AUDIT and the LDQ in the Regional Alcohol & Drug Services triage screening package⁴. The AUDIT includes an assessment of risk and problems as well as dependence.

LDQ Scores Need Standard Interpretations for Clinical Purposes

One of the main themes which emerged in the focus group interviews conducted about the LDQ concerned the need for a guide to interpretation.

“I think people found it quite useful on its own (the LDQ) to just go through it, I think they were quite interested at that stage At the end it doesn't make it very clear what it means for the client so it was difficult to use that to full potential really ... Something out of 30, what does that mean?”

Staff feedback in focus group interview (emphasis added)

At present, the Leeds Addiction Unit has not yet established norms for the LDQ, even though it is planning to do so in the future (personal communication with Gillian Tober 27/1/99). In the meantime, the Leeds Addiction Unit's recommendation is simply to split the LDQ scores into 4 main groupings as follows:

⁴ The LDQ is only completed if the client either indicates an alcohol problem or scores over a certain level in the AUDIT (e.g. 8).

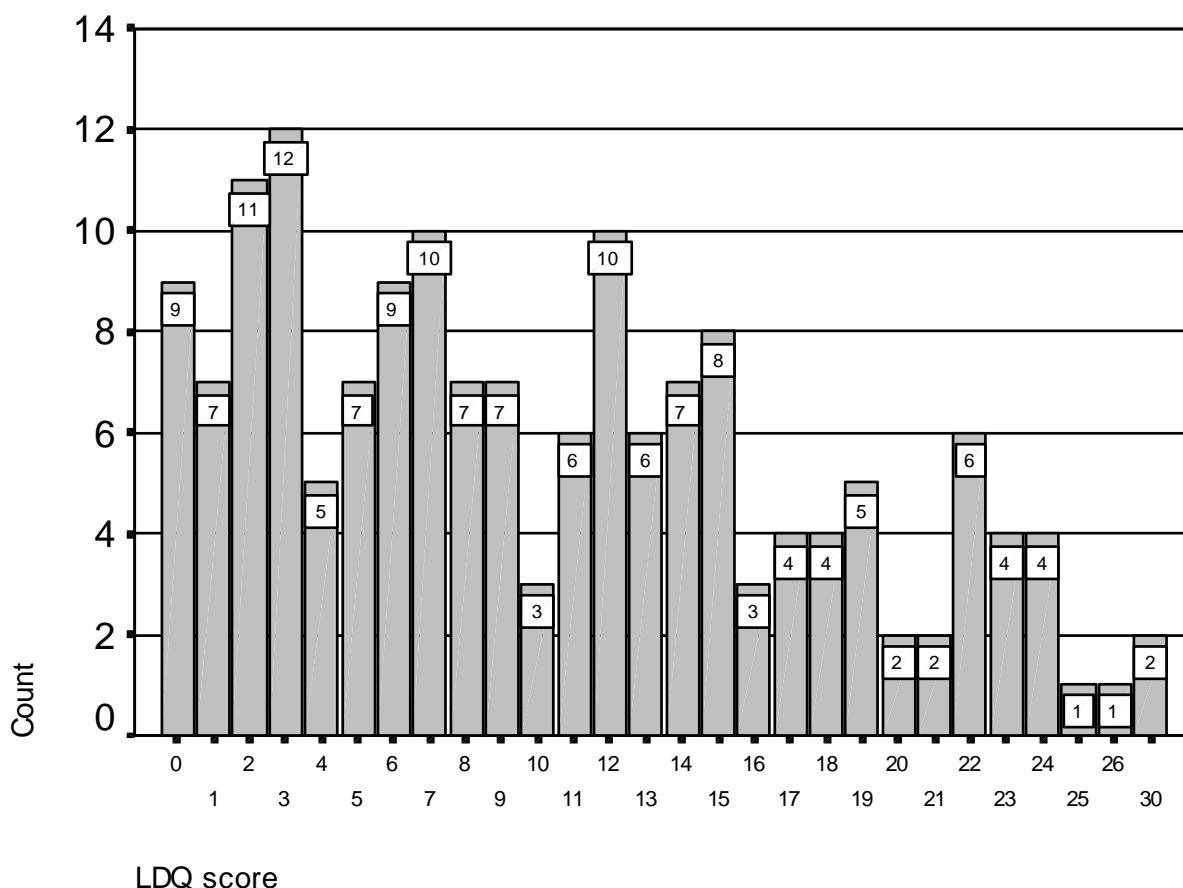
<i>LDQ Scores</i>	<i>Interpretations (preliminary)</i>
0	No dependence
1-10	Low to moderate dependence
11-20	Moderate to high dependence
21-30	High dependence

The LDQ is Likely to be Sensitive to Change

It was never intended in the design of this research project to intensively study the sensitivity of the LDQ to change over time. Ideally, such research would involve multiple measures over time - something which was not attempted in the design employed by the RADS Research Unit. Nevertheless, the cross-sectional data collected does support the use of the LDQ for the measurement of change. As was the case with the data collected by the Leeds Addiction Unit (Raistrick et al 1994, p.567), there was a considerable spread of scores obtained by the tool.

Further support for the ability of the LDQ to detect change came from both client and staff feedback. In several instances it was noted that significantly different scores would have been obtained if the survey had been asked at, or with reference to, an earlier period of time.

LDQ scores



LDQ score
“If these questions applied to 3 months ago I would probably have scored 30. Since I’ve been exercising the answers to the questions have changed, due to the survey being from last week”
Client feedback

The LDQ is Likely to be Useful for Outcome Measurement

Outcome measurement usually involves measurement at several points in time. For the most useful results, one of these measurements should ideally be taken some time after treatment concludes so that it is possible to identify lasting effects. Outside of the context of specialist research projects this can be difficult to achieve. Generally speaking, it is only possible to collect data from clients at a followup point by telephone or by using postal surveys. Either way, for such activities to be successful it is critical that the tools used are brief and easily understood by clients. Being just 10 items long the LDQ is highly suited to the task of measuring the dependence component of outcome.

Other tools or questions are probably necessary, however, to assess other aspects of outcome. Although part of the rationale for designing the LDQ was to “circumvent the need to estimate intake for the purpose of evaluating outcome” (Raistrick et al 1994, pp.569-570) the correlations between various measures of alcohol intake and the LDQ score in this study have all been rather moderate. As has already been reported, the correlation between the LDQ and alcohol intake measured in grams for the previous using week was just 0.39. For New Zealand Maori clients the correlation was even lower at 0.29 and for the New Zealand European/Pakeha majority it was just 0.35. The correlation coefficients for the other measure of alcohol intake used, average weekly drinks, was higher at 0.55 but still fell below the level achieved by the Leeds Addiction Unit for the LDQ vs intake measured in grams of alcohol in the last using week. Once again, the New Zealand European/Pakeha majority scored lower than the total population with a correlation coefficient of just 0.43. The evidence to date, therefore, does not support using the LDQ as a surrogate measure of intake. Other aspects of outcome beyond dependence and intake presumably also require separate assessment, even if it is only in the form of brief but unvalidated open-ended or closed-response questions.

One further point in the favour of using the LDQ for outcome measurement is its fine-grained nature as discussed earlier. Sensitivity to change is critical for an outcome measurement tool comparing scores at two points of time. It would be impossible to conclude anything useful about an intervention if the tools used to evaluate it were inherently incapable of identifying changes of the magnitude one was interested in.

In conclusion, therefore, the results of this study support the use of the LDQ *as part of* an assessment and post-treatment outcome measurement package for routine use by specialist alcohol and drug treatment services.

The LDQ Provides Sound Measures of Alcohol Dependence

This research, together with the research conducted by the Leeds Addiction Unit, provides ample support for the use of the LDQ with alcohol. The LDQ provides a brief instrument for measuring dependence which can be delivered in a range of ways. But how good is the LDQ as a measure of dependence on other, or multiple drugs? This is an important question given that the Leeds Addiction Unit’s intention was to create a tool capable of measuring dependence on a variety of substances (Raistrick et al 1994, p.563).

A conservative verdict is that the LDQ’s credentials for measuring opiate dependence are less well established - at least in terms of the data published on the LDQ to date. The correlation between the LDQ and the Severity of Opiate Dependence Questionnaire (SODQ) was only 0.30 which provides rather limited support for the LDQ’s concurrent validity. The correlations with the GHQ, SPQ, and intake were just 0.33, 0.27, and 0.12 respectively, which provides very limited support for convergent validity as well (Raistrick et al 1994, p.569). In addition, the LDQ has not (yet) been validated for other illicit drugs.

This is not the same, however, as saying that the LDQ is inappropriate for use with other drugs or that it fails to measure dependence for other drugs accurately. It remains possible that the LDQ has excellent properties in this regard. The low correlation with the SODQ may reflect the limits of the SODQ as much as those of the LDQ. According to the Leeds Addiction Unit, the LDQ has content validity that the SODQ lacks. The LDQ is also claimed to have good construct validity because of the way in which it was developed (pers comm. Gillian Tober 3 May 1999).

This possible limitation of the LDQ need not be problematic, however, given the existence of the Severity of Dependence Scale (SDS). The SDS comprises just 5 items and is not intended as a competitor for measures of alcohol dependence (Gossop et al 1995, p.608). It should be possible therefore, given the brevity of both the LDQ and the SDS, to use both together to cover both alcohol and other drugs. Indeed, RADS has recently begun using a brief triage screening package which applies this formula.

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APPENDIX 1 - ITEM ANALYSIS OF THE LDQ

Cronbach's coefficient alpha was calculated for the total population, and for each of the main subpopulations (see table below). The overall result was very similar to that of the Leeds Addiction Unit (LAU) (0.92 for this data vs 0.94 for the LAU)⁵. When looking for the "weakest" questions, however, the results were different. The Leeds Addiction Unit identified questions 5 and 8 as being the weakest with correlations of 0.66 and 0.69 respectively. In contrast, question 8 performed very well in this research, with a correlation of 0.76. Additionally, question 6 stood out as being the weakest with correlations as low as 0.40 and 0.48 for Maori and Females respectively.

Table 3 - Cronbach's coefficient alpha and weakest questions for each population

⁵ 49 opiate users were included with the alcohol users in the Leeds Addiction Unit calculation of internal consistency (Raistrick et al 1994, p.568).

	<i>Total sample</i>	<i>Leeds Addiction Unit</i>	<i>NZE</i>	<i>Maori</i>	<i>Pacific</i>	<i>Male</i>	<i>Female</i>
Cronbach's coefficient alpha	0.92	0.94	0.91	0.91	0.93	0.92	0.90
Questions with low correlations with total LDQ score	Q6 (0.59)	Q5 (0.66)	Q5 (0.55)	Q6 (0.40)	Q3 (0.61)	Q6 (0.64)	Q6 (0.48)
Item-total correlation - Q5	0.65	0.66	0.55	0.73	0.79	0.64	0.68
Item-total correlation - Q8	0.76	0.69	0.75	0.74	0.78	0.77	0.72

APPENDIX 2 - CHARACTERISTICS & REPRESENTATIVENESS OF THE STUDY POPULATION

Table 4 - Characteristics of different populations

	Auckland Regional Alcohol & Drug Services - Study Population (n = 162)	Auckland Regional Alcohol & Drug Services - Client Population	Leeds Addiction Unit ⁶ - Study Population - TOTAL Sample (n=125)	Leeds Addiction Unit - Study Population - Clinic Sample (n=47)	Leeds Addiction Unit - Study Population - Student Sample (n=64)	Leeds Addiction Unit - Study Population - GP Sample (n=14)
Age ± SD	31.5 ± 11.9	34.8 ± 11.9	29.2	38.6 ± 12.7	22.8 ± 3.4	26.9 ± 8.1
Gender - % male	67%	57%	56%	61%	56%	43%
Ethnicity - % New Zealand European/Pakeha	53%	66%	-	-	-	-
Ethnicity - % New Zealand Maori	25%	24%	-	-	-	-
Ethnicity - % Pacific Nations	22%	5% ⁷	-	-	-	-
LDQ ± SD	10.3 ± 7.4	-	10.1	16.3 ± 8.9	7.0 ± 4.4	3.1 ± 3.2
SADQ ± SD	13.5 ± 11.4	-	14.2	29 ± 16.7	5.9 ± 6.1	2.6 ± 4.5
SPQ ± SD	2.6 ± 2.2	-	4.6	7.1 ± 4.9	3.5 ± 3.6	1.4 ± 1.9
Intake (g alcohol) ± SD	422 ± 516	-	510.6	983 ± 1007	251 ± 189	111 ± 90

⁶ All data for the Leeds Addiction Unit is derived from Raistrick et al 1994. Even though the Leeds Addiction Unit only reported this data for separate subpopulations, it was possible to calculate the mean for the total population given the data provided about the separate means and the separate sample sizes.

⁷ The remaining 5% is distributed amongst other ethnic groups.

Table 5 - SF-36 Health Survey Scores of the Study Population

	<i>Auckland Regional Alcohol & Drug Services - Study Population (n = 162)</i>
SF-36 - Physical Functioning \pm SD	79 \pm 28
SF-36 - Role Functioning - Physical \pm SD	63 \pm 40
SF-36 - Bodily Pain \pm SD	73 \pm 28
SF-36 - General Health \pm SD	64 \pm 24
SF-36 - Vitality \pm SD	52 \pm 24
SF-36 - Social Functioning \pm SD	61 \pm 30
SF-36 - Role Functioning - Emotional \pm SD	48 \pm 41
SF-36 - Mental Health \pm SD	56 \pm 22

In terms of age and gender, the study population closely resembles the total population of clients served by Regional Alcohol & Drug Services. The proportion of New Zealand Maori and New Zealand European/Pakeha is also broadly representative. The main difference is the proportion of Pacific Nation clients. This group was deliberately overrepresented for the purposes of statistical power but still only represents 22% of the total sample.

It is recognised that the clients studied are not representative of all potential clients. Many potential clients do not access services as they are currently provided. It must be noted, however, that this research has provided valuable information on the validity of the LDQ for those members of the populations studied currently accessing services - an important group relevant to all "mainstream" providers. It is possible that it will be similarly useful for non-presenting people but this will have to be tested separately.

Another useful comparison is that between the Regional Alcohol & Drug Services and the Leeds Addiction Unit (LAU) study populations. Understanding the similarities and differences increases the ability to interpret the statistical results about the LDQ. Looking at the available demographic data, the populations are very close in terms of average age (31.5 for RADS, 29.2 for LAU) and comparable in terms of the proportion of males (67% for RADS, 57% for LAU) (Raistrick et al 1994, p.568).

Turning to the results of the various instruments used, the similarities are surprisingly strong, especially for the LDQ and SADQ measures of dependence. The greatest difference was in the level of social problems reported, with the Leeds Addiction Unit study population reporting a higher level of social problems (Raistrick et al 1994, p.568).

The results of the SF-36 Health Survey are included as a general contribution to national data on different populations. In addition to the National Health Survey, the RADS Research Unit has SF-36 data on over 250 methadone clients. As time progresses it will be possible to make a series of useful comparisons.

APPENDIX 3 - METHODOLOGY

Selecting and training participating staff

Instead of using special researchers to administer the assessment package (including the LDQ, SADQ, SF-36, SPQ, and TLF), it was decided to use our existing clinical staff. The main advantage of this approach is that validity can be assessed for the LDQ under realistic circumstances - i.e. with typical clients, typical staff, and in a typical context. This is appropriate given that we never validate a measuring instrument - merely the use to which it is put (Nunnally 1967, p.76).

An attempt was made to match clients to therapists by both ethnicity (in terms of the three broad categories used) and gender. This was considered very important for New Zealand Māori clients according to He Kamaka Oranga. On the grounds that the characteristics of the interviewer can have a marked impact on the validity of results their recommendation was to use New Zealand

Māori staff for New Zealand Māori clients. Dr Colin Tukuitonga, Senior Lecturer, Department of Māori & Pacific Health, made the same point about New Zealand Pacific clients.

Questions followed a basic sequence (Appendix 8). At the end, participant verification of any conclusions drawn about utilisation was sought (see Krueger 1994, p.128). Immediately after the sessions, debriefing occurred between the moderator and assistant moderator to capture first impressions (see Krueger 1994, p.128). As with the focus group discussions themselves, these debriefing sessions were taped and transcribed (see Krueger 1994, p.134).

APPENDIX 4 - PARTICIPANT INFORMATION SHEET

Evaluation of the Leeds Dependence Questionnaire (LDQ) (

Information on the Research

The Alcohol Advisory Council (ALAC) is looking at ways of **improving the quality of alcohol and drug treatment in New Zealand**. Encouraging the use of standard surveys asking clients about health, drug use, and so on is one way of achieving this.

Before introducing a survey it is important that it is tested in New Zealand. A survey which works for American clients may not work for New Zealanders. It is also important to check that a survey works for key subgroups within New Zealand such as New Zealand European, New Zealand Maori, and Pacific Island groups.

This research is being funded by ALAC to test the Leeds Dependence Questionnaire. Key issues will be validity - does the survey actually measure dependence - and usefulness for client assessment.

Three groups of clients are being invited to take part - New Zealand European, New Zealand Maori, and Pacific Island clients. To take part you must have experienced some problems with alcohol (not necessarily severe) and be able to read English.

This is your invitation to take part in this research. YOU DO NOT HAVE TO TAKE PART IN THIS RESEARCH IF YOU DO NOT WANT TO. If you do not take part this will not negatively affect your treatment or any other relations with the service. If you change your mind you can ask to take part later.

If you do want to take part all you have to do is fill in five surveys: the Leeds Dependence Questionnaire, a survey asking about alcohol dependence, a health survey, a survey about your life more generally, and a survey on drinking patterns. This should take around **45 minutes**. Your counsellor will then briefly discuss the results of the Leeds Dependence Questionnaire with you.

Your confidentiality is completely protected. The information you provide will be entered into a secure computer so that the usefulness of the Leeds Dependence Questionnaire can be analysed. After that, because the information you provide may be useful to you and your counsellor in the future, your interview material will be stored in your personal file which is stored strictly according to the Privacy Act 1993.

No one will be able to identify you, or your information when the research findings are produced. This is because the research report will be focusing on **group** results, **not on individuals**.

If you are interested in the results or wish to know more about the research, please phone Dr. Grant Paton-Simpson 3777-394. If you have any queries or concerns regarding your rights as a participant in this research you may contact the Health Advocates Trust, Auckland, phone 09-623-5799.

APPENDIX 5 - ASSESSMENT PACKAGE

Booklet 1 - Leeds Dependence Questionnaire Interview Booklet

Booklet 2 - LDQ Project Timeline Followback Interview Booklet

Client Name: _____

CONTENTS

Participant Consent Form
Leeds Dependence Questionnaire
Severity of Alcohol Dependence Questionnaire
SF-36 Health Survey
Social Problem Questionnaire

THANKS FOR YOUR INTEREST

Thank you for expressing interest in the Leeds Dependence Questionnaire. Included in this package is an information sheet describing the project for you to read first. If you still feel comfortable about being involved, please sign the consent form on the next page.

What is next?

In this booklet are four questionnaires which ask you about your alcohol use, your general health, and problems you may have experienced as part of your drinking. Simply follow the instructions for each questionnaire.

Most of the questions involve putting a circle around different answers to questions. Sometimes you may find that the options offered in the questions do not quite match your experience or seem to be for someone older or younger than you. In this case, just choose the answer that is most like your experience.

If you are unsure about any question, put a "X" beside it and discuss it with your counsellor when you meet.

What I do with the booklet when I have finished?

Bring the booklet in with you when you see your counsellor.

What if I want to fill it out with my counsellor?

If you do not want to fill this out by yourself, no problem. You can always fill it out at the beginning of your appointment with your counsellor if you like.

CONSENT FORM FOR RESEARCH

Title of project: Evaluation of the Leeds Dependence Questionnaire (LDQ)

Principal investigator: Dr Grant Paton-Simpson

Name of patient or subject: _____ Age: _____ (years)

- I have heard and understood an explanation of the research project I have been invited to take part in.
- I have been given and I have read, a written explanation of what is asked of me, and I have had an opportunity to ask questions and to have them answered.
- I understand that I may withdraw from the project at any time and that, if I do, my medical care will not be affected in any way.
- I understand that my consent to take part does not alter my legal rights.
- I consent to take part as a subject in this research.

Signed: _____ (subject)

In my opinion consent was given freely and with understanding.

Witness name (please print)

Witness signature

Date

Consent obtained by:

 Name Signature

LEEDS DEPENDENCE QUESTIONNAIRE - LDQ

In answering this questionnaire:

- think about the last week
- think about your use of ALCOHOL,
- circle the answer that's most appropriate to you.

	Never	Sometimes	Often	Nearly always
1) Do you find yourself thinking about when you will next be able to have another drink?	0	1	2	3
2) Is drinking more important than anything else you might do during the day?	0	1	2	3
3) Do you feel your need for drink is too strong to control?	0	1	2	3
4) Do you plan your days around getting drink and drinking?	0	1	2	3
5) Do you drink in a particular way in order to	0	1	2	3

increase the effect it gives you?				
6) Do you drink morning, afternoon and evening?	0	1	2	3
7) Do you feel you have to carry on drinking once you have started?	0	1	2	3
8) Is getting the effect you want more important than the particular drink you use?	0	1	2	3
9) Do you want to drink more when the effect starts to wear off?	0	1	2	3
10) Do you find it difficult to cope with life without drink?	0	1	2	3

SEVERITY OF ALCOHOL DEPENDENCE QUESTIONNAIRE SADQ

Have you drunk any alcohol in the past six months?

YES / NO

If YES, please answer all the following questions about your drinking by circling your most appropriate response.

Section A - ICQ

DURING THE PAST SIX MONTHS

	Never or Almost Never	Sometimes	Often	Nearly always
1) After having just two or three drinks I felt like having a few more.	0	1	2	3
2) After having two or three drinks I could stop drinking if I had other things to do.	3	2	1	0
3) When I started drinking alcohol I found it hard to stop until I was fairly drunk.	0	1	2	3
4) When I went drinking I planned to have at least six drinks.	0	1	2	3
5) When I went drinking I planned to have no more than two or three drinks.	3	2	1	0

Section B - SADQ - Form C

Please answer all the following questions about your drinking by circling your most appropriate response.

DURING THE PAST SIX MONTHS:

	Never or Almost Never	Sometimes	Often	Nearly always
1) The day after drinking alcohol, I woke up feeling sweaty.	0	1	2	3
2) The day after drinking alcohol, my hands shook first thing in the morning.	0	1	2	3
3) The day after drinking alcohol, my whole body shook violently first thing in the morning if I didn't have a drink.	0	1	2	3
4) The day after drinking alcohol, I woke up absolutely drenched in sweat.	0	1	2	3
5) The day after drinking alcohol, I dreaded waking up in the morning.	0	1	2	3
6) The day after drinking alcohol, I was frightened of meeting people first thing in the morning.	0	1	2	3
7) The day after drinking alcohol, I felt at the edge of despair when I awoke.	0	1	2	3
8) The day after drinking alcohol, I felt very frightened when I awoke.	0	1	2	3

DURING THE PAST SIX MONTHS:

	Never or Almost Never	Sometimes	Often	Nearly always
9) The day after drinking alcohol, I liked to have an alcoholic drink in the morning.	0	1	2	3
10) The day after drinking alcohol, in the morning I always gulped my first few alcoholic drinks down as quickly as possible.	0	1	2	3
11) The day after drinking alcohol, I drank more alcohol in the morning to get rid of the shakes.	0	1	2	3
12) The day after drinking alcohol, I had a very strong craving for an alcoholic drink when I awoke.	0	1	2	3
13) I drank more than a quarter of a bottle of spirits in a day (OR 1 bottle of wine OR 7 medium glasses of beer).	0	1	2	3
14) I drank more than half a bottle of spirits in a day (OR 2 bottles of wine OR 30 medium glasses of beer).	0	1	2	3
15) I drank more than one bottle of spirits in a day (OR 4 bottles of wine OR 30 medium glasses of beer).	0	1	2	3
16) I drank more than two bottles of spirits in a day (OR 8 bottles of wine OR 60 medium glasses of beer).	0	1	2	3

Section C

IMAGINE THE FOLLOWING SITUATION:

1. You have **HARDLY DRUNK ANY ALCOHOL FOR A FEW WEEKS.**
2. You then drink **VERY HEAVILY** for **TWO DAYS.**

HOW WOULD YOU FEEL THE MORNING AFTER THOSE TWO DAYS OF HEAVY DRINKING?

	Not at All	Slightly	Moderately	Quite a Lot
17) I would start to sweat.	0	1	2	3
18) My hands would shake.	0	1	2	3
19) My body would shake.	0	1	2	3
20) I would be craving for a drink.	0	1	2	3

SF-36 HEALTH SURVEY

INSTRUCTIONS: This questionnaire asks for your views about your health, how you feel and how well you are able to do your usual activities. Answer every question by marking the answer as indicated. If you are unsure about how to answer a question, please give the best answer you can.

1. In general, would you say your health is:

(circle one)

- | | |
|-----------------|---|
| Excellent | 1 |
| Very good | 2 |
| Good | 3 |
| Fair | 4 |
| Poor | 5 |

2. Compared to one year ago, how would you rate your health in general now?

(circle one)

- | | |
|---|---|
| Much better now than one year ago | 1 |
| Somewhat better now than one year ago | 2 |
| About the same as one year ago | 3 |
| Somewhat worse than one year ago | 4 |
| Much worse now than one year ago | 5 |

