Some Normative and Psychometric Data for the Geriatric Depression Scale and the Cognitive Failures Questionnaire from a Sample of Healthy Older Persons

Robert G. Knight
Department of Psychology
Jennifer McMahon, Timothy J. Green, & C. Murray Skeaff
Department of Human Nutrition
University of Otago

As part of a study of the effect of lowering homocysteine concentrations on the cognition of the elderly, the Geriatric Depression Scale (GDS) and Cognitive Failures Questionnaire (CFQ) were administered to a sample of persons over the age of 65. Normative data from 272 healthy study volunteers, screened for the presence of major medical, neurological, and psychiatric conditions are presented for both the long and short (GDS-15) versions of the GDS, and the CFQ. Scores on the GDS were correlated with age, but not premorbid IQ as measured by the National Adult Reading Test, highest educational attainment, or gender. Percentile values are presented for comparing obtained raw scores with the normative data for the GDS, GDS-15, and CFQ. In addition, a regression equation is presented for determining age-based predicted scores on the GDS, together with percentiles for evaluating the discrepancies between obtained and predicted scores. CFQ scores were not correlated with any relevant demographic factors, including age, but were associated with scores on the depression scales. Both the GDS and CFQ were found have acceptable internal consistency and retest reliability, and to be comprised of items with good face validity.

Depression is a common accompaniment of old age. Estimates of the prevalence of depression in older persons vary widely, depending on the diagnostic criteria and measures used, and the population tested, however, prevalence rates of between 10% and 19.5% for persons over the age of 75 have been reported in the UK (Osborn et al., 2002) and are likely to be similar in New Zealand. Depression is a treatable condition that often goes unrecognised (Rabins, 1996), causing burden in families and increased use of medical services. The identification of depressive syndromes in the elderly is a major health priority, particularly as the population ages. In addition to screening for depression, assessment of the elderly in the clinical setting often involves administration of neuropsychological tests and self-report measures of general cognitive or memory failure. The self-report scales are often used to assess the difficulties clients with neurological damage may be experiencing in everyday life and to provide an insight into their awareness of any clinically significant cognitive changes.

Because of the prevalence of cognitive failure and depression in the elderly, the availability of valid and reliable measures of these factors, together with appropriate norms, is of importance in clinical practice. Accordingly, the present research aimed to collect normative data and examine the psychometric credentials of two self-report measures commonly used to assess older persons in New Zealand, the Geriatric Depression Scale (GDS) and the Cognitive Failures Questionnaire (CFQ). The GDS is a self-report inventory, constructed to assess depression and general well-being in the elderly (Yesavage, Brink, Rose, Lum, Huang, Adey, & Leirer, 1983). The GDS has been widely accepted by clinicians because of its ease of use (Dunn & Sacco, 1989; Olin, Schneider, Eaton, Zemansky, & Pollock, 1992), and the absence of items assessing somatic and vegetative symptoms makes it more appropriate for administration to the frail elderly than other symptom-based scales (Hyer & Blount, 1984), such as the Beck Depression Inventory (BDI). To facilitate the use of the GDS as a rapid screen for a clinically significant levels of depression in the elderly, shorter versions of the scale have been published (Almeida & Almeida, 1999), the most widely used being a 15-item version (GDS-15) constructed by Sheikh and Yesavage (1986). The items selected for this scale (Table 3) have content that is primarily focused on symptoms consistent with a clinical diagnosis of depression, whereas the full scale includes a broader range of items and is more sensitive to mild to moderate changes in mood. A correlation between the GDS and GDS-15 of .89 has been reported (Lesher & Berryhill, 1994).

With aging comes a change in cognitive abilities that is reflected in a general decline in scores on

neuropsychological tests. Although neuropsychological tests provide an accurate measure of performance under standardised conditions, they often lack ecological validity. Self-report questionnaires, focusing on real-life cognitive performance, were designed as one means of screening for changes in the ability to complete the routines of everyday life. One such scale that has been widely used to examine the minor slips and errors of everyday life is the Cognitive Failures Questionnaire (CFQ; Broadbent, Cooper, Fitzgerald, & Parkes, 1982) This measure has been employed to evaluate changes in aging (e.g., Kramer, Humphrey, Larish, Logan, & Strayer, 1994) and to examine the effects of stress and anxiety on cognitive errors (e.g., Houston, 1989; Mahoney, Dalby, & King, 1998; Mathews & Wells, 1989; Mathews, Coyle, & Craig, 1990). The CFQ is typically used as a unitary scale, and support for this comes from Broadbent et al. (1982), who conducted a number of factor analytic studies and concluded that there was good evidence for a general factor and that the multifactor structure was unstable. Although other researchers have preferred a more complex factor structure, the number of factors identified has been inconsistent, ranging from 2 to 7 (e.g., Larson, Alderton, Neideffer, & Underhill, 1997; Pollina, Greene, Tunick, & Puckett, 1992; Wallace, Kass, & Stanney, 2002).

The effect of age on self-assessment of cognitive abilities has been examined using the CFQ in several studies, with some interesting findings. For example, Rabbitt and Abson (1990) in a study of persons aged between 50 and 79 found that persons in their 50s reported more cognitive lapses than persons over the age of 60. A similar result was reported by Kramer et al. (1994), who administered the CFQ to two groups of 32 young and 30 older persons in study of age and inhibition. There were no differences between the two groups on total CFQ scores, although one item ("Daydreaming when you should be listening") was endorsed more frequently by younger than older participants, and another ("Can't quite remember something") was endorsed more often by the older group. As Rabbitt and Abson (1991) observed, there are number of explanations for the paradoxical finding that although age brings demonstrable changes in performance on tests of cognition, self-reports of cognitive lapses remain unaffected. One possibility is that people adapt to the changes in their abilities as they age by selecting less complex environments in which to function, thereby maintaining a constant balance between their abilities and the challenges they accept. Another possibility is that self-assessment of cognitive ability is determined to a considerable extent by mood and personality factors, which are largely independent of age.

The main purpose of this article is to present some normative data for the GDS and CFQ from a sample of mentally and physically healthy older persons. Although self-report questionnaires are often used to screen for abnormal mood or changes in cognition in the elderly, the normative data available for their interpretation are often limited and may not generalise well to New Zealand. For example, by virtue of residing in this country, older persons have been exposed to different cultural and life experiences, and health care, political, and social welfare systems to persons in other countries.

The data came from a selected sample that did not include persons suffering from significant medical, neurological, or psychiatric disorders that might compromise cognitive abilities or mood levels through the presence of symptoms or their treatment. The research participants were a group of healthy community volunteers taking part in a large Dunedin-based trial of the effect of lowering homocysteine levels, using vitamin supplements, on cognition in the elderly. Elevated levels of homocysteine have been associated with poorer performance on neuropsychological tests and an increased risk of vascular or degenerative dementias (e.g., Garcia & Zanibbi, 2004; McCaddon, Hudson, Davies, Hughes, Williams, & Wilkinson, 2001). Although an unselected sample has the advantage of providing epidemiological information about the prevalence of symptoms and disorders in the community, this can come at the expense of difficulties disentangling the effects of a variety of possible health-related factors on test scores. This is a particular problem where relatively small samples are tested. In this case, the elderly sample was unambiguously healthy and provided a baseline against which the impact of other factors, such as changes in health status, can be evaluated.

Method

Participants

The data analysed in the present report came from the screening and baseline assessment phases of a study assessing the effects of lowering homocysteine concentration by the administration of folic acid, vitamin B12, and B6, on the cognitive function of old people. In the *screening* phase, a total of 465 community volunteers over the age of 65 from Dunedin and surrounding communities, recruited by the Department of Human Nutrition through a process of newspaper advertisement, distribution of leaflets, and contact with community groups, were evaluated for their suitability to take part in the trial. This group attended an early morning clinic at a convenient community hall, following an overnight fast, for an initial screening session to identify healthy participants with elevated homocysteine levels. At this time, they completed the GDS and the Center for Epidemiologic Studies-Depression scale (CESD), together with a self-report questionnaire that asked about details of their alcohol and tobacco use, and their educational, medical, and occupational history. They then provided a sample of blood, were weighed, and their height measured.

Following the screening session, participants were excluded from further participation in the trial if they had any evidence of disease where the disorder, or its treatment, might affect homocysteine levels, for example, renal disease, diabetes, Alzheimer's disease, stroke or transient ischemic attacks, major depression, and cancer. Persons with a plasma concentration of homocysteine greater than 13mmol/L were then identified and invited to take part in the randomised double-blind trial, the first phase of which was a *baseline* assessment of pre-treatment functioning. A total of 276 persons agreed to take part and data were

available from 272 persons tested during the baseline phase. Except where otherwise specified, all the data described in the present report came from this highly selected healthy sample and were collected at the baseline testing session, which took place 4 months after the screening. The sample comprised a total of 122 males and 150 females with an average age of 73.65 (*SD* = 5.75; range = 65-90). All but 1% of the baseline sample described their ethnic origin as European. Participants were asked about their highest educational attainment. In all, 9% had no high school education, 27% had less than 3 years high school education, 12% had more than 3 years high school education, 38% had attained vocational qualifications (e.g., in trades or nursing), and 14% had attended university. Their average National Adult Reading Test (NART) correct score was 35.86 (*SD* = 7.08), which equates to a predicted Full Scale Wechsler IQ score of 115.

Measures

Geriatric Depression Rating Scale: The GDS is a 30-item measure of depressed mood and well-being widely used for the screening of depression in later life. The reliability of the scale has been found to be high, averaging .84 over a range of studies (Keiffer & Reese, 2002). In a large study of 806 predominantly Jewish people at a large residential facility, Parmelee, Lawton, and Katz (1989) reported that both the internal consistency of the scale (α = .91) and the test-retest reliability over one month (r = .85) were high. The GDS has been found to have high concurrent validity against other self-report measures, such as the Hamilton Depression Rating Scale (Feher, Larrabee, & Crook, 1993; Yesavage et al., 1983) and the BDI-II (Jefferson, Powers, & Pope, 2002; Olin et al., 1992). Although the GDS has been shown to have satisfactory sensitivity and specificity in the detection of depression in elderly persons both with (Stiles & McGarrahan, 1998) and without (Burke, Nitcher, Roccaforte, and Wengel, 1992) concurrent signs of dementia, it is best used with persons who have Mini Mental State Examination (MMSE; Folstein, Folstein, & McHugh, 1975) scores greater than 15 (McGivney, Mulvihill, & Taylor, 1994). Most studies investigating the diagnostic validity of the scale (e.g., Pamalee et al., 1989) have employed the cut off scores of 11 to 16 inclusive for minor depression and 17 or more as indicative of major depression, recommended by Yesavage et al. (1983).

Scores for the GDS-15, the most widely administered short form of the scale were also computed in the present study. Almeida and Almeida (1994) gave the GDS to a sample of 64 depressed outpatients and reported that the GDS-15 had good reliability, and high rates of specificity and sensitivity in the detection of clinical depression. Recently, Osborn et al. (2002) reported the outcome of administering the GDS-15 to a cluster-randomised sample of 14 545 people over the age of 75 in the UK. The median score on the scale was 2, with 22% scoring 4 or more, and 5% scoring 7 or more.

Cognitive Failures Questionnaire: The CFQ (Broadbent et al., 1982) is a 25-item self-report inventory focusing on a perception, memory, and motor function in the past 6 months. Each item is a negatively phrased question ("Do you drop things?") rated on a 5-point frequency scale (0 = never to 4 = very often), giving a maximum score of 100. Internal consistency (Broadbent et al., 1982) and retest reliabilities have been found to be high (Vom Hofe, Mainemarre, & Varnier, 1998) have been found to be high and there is good evidence for the scales concurrent validity (Wallace et al., 2002). The CFQ was administered using the standard instructions (Broadbent et al., 1982), with a 6-month time frame.

In addition to the CFQ and GDS, the CESD (Radloff, 1977), the Mini Mental State Examination (MMSE; Folstein et al., 1975) and the NART (Nelson & Willison, 1991) were also administered as part of the comprehensive psychological testing battery designed to assess the effectiveness of the vitamin supplements in improving the cognition. The NART is a measure comprising 50 words of irregular pronunciation, which participants are asked to read aloud to provide an estimate IQ unaffected by changes resulting from aging. The MMSE is widely used as a brief (5-10 minutes) screen for dementia and comprises items measuring a range of cognitive skills (orientation, memory, attention, language, and calculation). The CESD was included as a measure of the concurrent validity of the GDS. The CESD is a 20-item scale constructed for quantifying depression in adults in community samples, and uses a time frame of the "last week" (Knight, Williams, McGee, & Olaman, 1997). One CESD item was inadvertently altered from negative to positive (Item 15 read "People were friendly"); the scoring of the scale was adjusted accordingly. All measures were administered using standard instructions.

Procedure

An appointment was made for a first 90-minute baseline testing session for each participant at a nearby community hall at a convenient time on a Monday to Thursday. At this session, participants were individually administered the MMSE and NART, and a number of other neuropsychological tests, as part of the outcome measures for the clinical trial, and blood pressure was measured. All testing was conducted by a trained health professional (JM) individually. In a second session, conducted on Fridays, fasting blood samples were taken from all those who had completed the tests of cognition that week. At this time, participants completed a general questionnaire, which provided demographic details and information about their current medication and activity levels, and their tobacco, alcohol, and other beverage use. They then completed several self-report inventories assessing mood and functional skills, the GDS, CESD, and CFQ; the treatment protocol was then explained.

Results

To assess the possible effect of level serum homocysteine on questionnaire scores, the correlations between homocysteine concentrations and GDS scores for both the unselected screening sample (n = 465) and the selected baseline group (n = 272) were examined. There were no correlations between homocysteine levels and the

Table 1: Geriatric Depression Scale (GDS) data, grouped by Age, NART errors, Gender, and Education categories

	N	*M*	*SD*	Median	*F*	*Eta*
Age (Years)						
65-74	160	3.31	4.00	1.94	12.47**	.21
75+	108	5.06	4.00	4.40		
NART Correct						
<30	57	4.49	4.48	2.80	<1	.07
30-34	68	3.90	4.83	2.14		
35-38	43	3.65	3.85	2.62		
39-42	45	3.98	3.67	3.00		
>43	55	3.96	2.98	3.86		
Gender						
Male	120	3.85	3.93	2.62	<1	.04
Female	148	4.14	4.17	2.83		
Education						
No High school	24	4.93	4.38	3.40	<1	.12
High school <3	71	4.61	4.40	3.12		
High school >3	32	4.38	4.40	3.20		
Other tertiary	102	3.52	3.96	2.36		
University	38	3.42	2.94	3.00		
Total GDS	268	4.01	4.06	2.73		
GDS – 15						
Age 65-74	160	1.04	1.76	.61	7.71**	.17
Age 75+	108	1.64	1.70	1.35		
Total	268	1.28	1.76	.84		

** $p < .01$
Note: NART = National Adult Reading Test.

GDS, r (463) = -.02 in the screening sample. In the baseline sample, the correlations between homocysteine concentration and the GDS, r (266) = .08, and CFQ, r (268) = .01, were not significant. On the MMSE, 123 participants (45%) scored 30, the maximum possible, 94 (45%) scored 29, 37 (14%) 28, and 18 (3%) scored 27 or below at the baseline testing. In what follows, the findings for the GDS and CFQ have been presented separately to facilitate the use of the results for normative comparisons.

Geriatric Depression Rating Scale: A total of 272 persons completed the GDS at baseline, of whom 4 left more than one item unanswered and were excluded from further analysis. The internal consistency of the GDS was high for this sample (α = .84) and the 4-month test-retest reliability, that is, the correlation between scores obtained at the screening (M = 5.17, SD = 4.44) and baseline (M = 4.19, SD = 4.11) sessions, was .74. Evidence for the concurrent validity of the scale was provided by the correlation of .68 between the GDS and CESD total scores. In Table 1, mean scores for the GDS, broken down by Age, NART correct score, gender, and education are presented, to facilitate the use of the findings for normative comparisons. This table also contains the between category F-tests for each variable, which were significant only in the case of age, where participants in the age range 65-74 had lower scores than the older group, for both the GDS and GDS-15. In Table 2, values for raw scores on the total GDS are presented for the 10th, 5th, and 1st percentiles, for two age categories, 65 to 75 (n = 160) and over 75 (n = 108), and also the total sample (n = 268). With reference to Table 2, a person aged 80 obtaining 15 on the full GDS would have a score that obtained by less than 1% of the people in the sample.

An alternative to the conventional presentation of normative data in tabular form is the use of regression equations. This method is widely employed in neuropsychology (Crawford & Howell, 1998) to estimate test scores such as IQ scores, on the basis of other test scores (e.g., NART errors) or demographic factors (e.g., age and years of education). The procedure for doing this involves computing correlations between the test scores and relevant predictors and submitting these to a regression analysis. The resulting regression equation can be used to determine the standardised difference between the predicted score and the obtained score for an individual client, and thereby to provide an estimate of the abnormality of a test score. As is apparent in Table 1, age was the only significant predictor of GDS scores, and this was the only variable retained for the regression analysis. A regression

Table 2: Percentiles for Raw Scores on the GDS and CFQ, and for the Discrepancies between obtained and Age-Predicted Scores on the GDS

	Percentiles		
	10%	5%	1%
Raw Scores			
GDS Age 65-75	8.42	9.86	12.62
GDS Age 75+	10.11	11.53	14.25
GDS Total	9.21	10.67	13.48
GDS-15 Total	3.62	4.17	5.38
CFQ Total	45.74	49.57	56.93
Obtained-predicted differences			
GDS	5.12	6.72	9.32

Note: GDS = Geriatric Depression Scale; CFQ = Cognitive Failures Questionnaire.

equation was computed for the total sample (n = 268), and as expected age proved to be a significant predictor of GDS. The linear regression equation was:

Estimated GDS score = -5.40 + .13 x

In the above equation, x is the person's age in years. The Standard Error of the estimate (SEest) was 4.00.

The general procedure for calculating and interpreting a discrepancy between estimated and obtained scores will be familiar to those clinicians who use regression equations to compute, for example, NART-based IQ scores. To illustrate the use of the regression equation with the GDS, consider the situation where a 66-year-old man obtains a score of 13. To interpret this score using the regression equation, the first step is to determine the score you would you expect a man aged 66 to obtain. Substituting $x = 66$ into the regression equation, the estimated GDS score for this man is equal to -5.40 + .13 (66), giving an estimated score of 3.18. So if his obtained score were 13, the obtained minus estimated discrepancy would be 9.82. The magnitudes of the discrepancies at the 10th, 5th, and 1st percentiles are given in Table 2. The discrepancy in this case is 9.82, which exceeds the score at the 1st percentile, given in Table 2 as 9.32. Being beyond the first percentile, such a discrepancy would clearly be abnormal. If you wanted know exactly how abnormal, dividing the discrepancy of 9.82 by the SEest (4.00) reveals that the discrepancy lies 2.45 standard deviations beyond the mean, providing good evidence for a clinically significant level of depression.

In order to identify items that best reflect dysphoria in old age, the percentages of the sample endorsing each item on the dichotomous response scale were calculated and presented in Table 3. In this table the positive item content has been translated into a negative form to aid comparison between items. In general, more than 20% of the sample endorsed items consistent with disengagement (e.g., "Prefer to stay and home"), reduced energy, and diminished cognitive ability ("Is your mind as clear as it used to be?"). Items central to depressive syndromes (e.g., measuring worthlessness, hopelessness, unhappiness) were endorsed by only a small percentage of the sample. Most of the corrected item-total correlations ranged from .25 to .51, with exceptions being Item 7 (In good spirits; $r = .22$), Item 14 (more memory problems than most people; $r = .17$), and Item 23 (Feeling most people are better off; $r = .14$).

The 15 items included in the shortened GDS-15 scale are denoted with an asterisk in Table 3. These items were generally endorsed by a small percentage of the sample, in the latter range, suggesting that the short form is closely aligned with depressive symptomatology of clinical significance. Raw scores on the GDS-15 and raw score percentiles are given in Tables 1 and 2, respectively. The GDS-15 internal consistency was satisfactory ($\alpha = .71$) and the long and short forms were found to be highly correlated, r (266) = .86.

Cognitive Failures Questionnaire: Data from two participants were excluded because more than one item was left unanswered, leaving 270 completed questionnaires. In Table 4, means and standard deviations for the total scores, broken down by age, NART correct, gender, and educational category are presented. There were no significant differences between groups on any of these factors, and no significant correlations between CFQ scores and age or NART correct. Accordingly percentiles were calculated for the total CFQ raw scores only and presented in Table 2. There were also significant positive correlations between the CFQ scores and both the CESD, r (265) = .34, $p <$ .001 and the GDS, r (264) = .49, $p <$ .001. When the sample was divided into four groups on the basis of their MMSE scores (Total MMSE 30, 29, 28, and 27 or less) there were no significant differences in total CFQ scores, F (3, 266) = 1.73, ns.

Examination of percentages of the sample who reported frequent failure on each of the items, revealed that the most common minor mistakes made by participants were forgetting

Table 3: Percentage of Participants (n=268) Endorsing Items Indicating Low Mood on the Geriatric Depression Scale

	Item Content	%		Item Content	%
30.	Mind less clear	43	14.	Memory problems*	8
21.	Not full of energy*	34	15.	Not wonderful to be alive*	7
19.	Life not very exciting	33	18.	Worry about past	6
20.	Hard to start new projects	28	16.	Downhearted and blue	5
12.	Prefer to stay home*	28	10.	Feel helpless*	5
13.	Frequently worried	26	4.	Often bored*	5
29.	Not easy making decisions	23	25.	Often feel like crying	4
28.	Avoid social gatherings	22	3.	Life empty*	4
26.	Trouble concentrating	21	23.	Others better off*	4
27.	Not enjoy getting up	18	17.	Worthless*	4
11.	Restless and fidgety	15	8.	Afraid*	4
6.	Bothered by ruminations	14	1.	Not satisfied*	3
2.	Dropped activities*	13	22.	Situation hopeless*	2
24.	Frequently upset	12	9.	Not happy*	2
5.	Not hopeful	9	7.	Not in good spirits*	2

* Items included in GDS-15

Table 4. Cognitive Failures Questionnaire Data, Grouped by Age, NART Correct, Gender, and Education Categories.

	N	*M*	*SD*	*Median*	*F*	*Eta*
Age (Years)						
65-74	161	31.20	11.17	30.89	2.84	.10
75+	109	33.42	9.75	32.57		
NART Correct						
<30	57	33.77	11.96	33.60	<1	.11
30-34	69	32.46	12.61	30.73		
35-38	44	30.18	9.88	30.80		
39-42	45	32.11	9.20	31.37		
>43	55	31.47	8.78	32.00		
Gender						
Male	122	32.06	10.97	31.59	<1	.00
Female	148	32.13	10.43	31.56		
Education						
No high school	24	34.17	8.26	32.60	1.0	.12
High school <3	71	32.11	11.43	31.50		
High school >3	31	30.10	12.36	30.00		
Other tertiary	104	32.91	11.12	32.22		
University	39	30.07	7.34	30.17		
Total	270	32.10	10.66	31.58		

peoples' names, not quite being able to remember something although it is on the 'tip of the tongue', and failing to listen to names when meeting strangers (all more than 30%). Minor lapses of memory, such as often forgetting the reason for going from part of the house to the other or forgetting where things are left, were also reported by 10-15% of the sample. The difference between the two groups (65-75, 75+ years) on each of the 25 items were assessed with a series of *t*-tests, to determine if there were changes in the number of people reporting a specific cognitive failure with increased age. With alpha set at .01 to guard against Type I errors, there were three items where the older group reported more errors than the younger. These were Item 7 (Fail to listen), $t\ (270) = 3.39, p < .001$, Item 20 (Forget names), $t\ (269) = 2.68, p < .008$, and Item 22 (On tip-of-tongue), $t\ (270) = 3.79, p < .0001$. The reliability of the scale was high ($\alpha = .89$) and the corrected item-total correlations ranged from .32 to .57, suggesting the scale is relatively homogeneous.

Discussion

The primary purpose of the present report is to provide some New Zealand normative data for the GDS and CFQ, two self-report measures widely used in the assessment of older persons. At the outset it must be acknowledged that the findings come from a group of urban, predominantly European, well-educated volunteers. There was no evidence that the scores on either scale, however, were influenced by anything other than age, although there were too few Polynesian or Asian participants to conduct a meaningful examination of the effects of ethnicity. The sample was comprised of 272 persons, who at the time of testing had no evidence of major systemic, neurological, or psychiatric conditions. Because they were participants in a therapy trial, it was necessary that they had no disease process or ongoing treatment that might interfere with the effects of the vitamin supplements.

Although participants had raised homocysteine levels, there were no significant correlations between homocysteine concentrations and the questionnaire scores in either the screening or baseline samples. In addition, members of the sample were well-motivated volunteers, prepared to take part in a study scheduled to extend over two years. Thus the normative data can be used to predict how a healthy person over the age of 65 would respond to the questionnaires. Since poor health, neurological disease, and psychiatric disorders are all likely to affect both self-reported mood and cognitive status, basing norms on an unselected sample of older persons introduces biases that are difficult to interpret. This means that the reference group data in this study cannot be used to answer normative questions such as whether a particular score is abnormal for a person who has, for example, a debilitating physical illness.

Generally both the long and short forms of the GDS were found to be reliable. The GDS-15 was significantly correlated with the GDS; however, the GDS-15 is almost exclusively comprised of items with content that is central to the clinical diagnosis of depression. The modal score on the GDS-15 was 0 and the median 1, so that in any screening situation, a client scoring 3 or more on this scale raises the question of depression in an otherwise healthy person. Few items on the GDS were left unanswered, suggesting that the content of the scale is relevant and acceptable to old people. The only factor that significantly affected scores was age and therefore norms for evaluating the difference between age predicted and obtained scores are presented in Table 2. The effects of excluding persons under treatment for depression can be seen in the numbers of persons in the sample identified as depressed on the basis of the questionnaire scores. On the total GDS, 6% of the sample (n = 16) fell in the range indicative of minor depression (11 to 16 inclusive; Yesavage et al., 1983), and 1.5% (n = 4) for major depression. Whereas Osborn et al. (2002) found that 21.8% of their large UK sample had scores greater than 3 on the GDS 15, the figure for the present sample was 8.9%. On the CESD where the commonly used cut off for depression is a score greater that 16, 6.7% of the sample were identified as depressed, considerably less than the

14.3% of women in midlife who scored in the depressed range in a previous New Zealand study (Knight et al., 1997).

Scores on the CFQ were found to be reliable and largely unaffected by age, NART correct scores, gender, and highest education level attained. The finding that age does not influence reports of minor cognitive lapses is consistent with results from other studies, including those comparing a young (mean age 21) and older (mean age 68) samples (Kramer et al., 1994). An analysis of the items revealed just three questions that distinguished the 75+ group from those aged 65 to 74 years. The question that best distinguished the two groups was "Do you find you can't quite remember something although it is on the 'tip of your tongue'?" This was the only item in the Kramer et al. (1994) study where older people reported more problems than the younger group. Not being able to call mind information that you know is available, is perhaps the most noticeable sensation of cognitive failure that comes with age. Studies of cognition in middle-aged and older samples have shown that effortful memory search is compromised by age (Titov & Knight, 1997).

Various explanations for the absence of an association between age and CFQ have been advanced previously (e.g., Rabbitt & Abson, 1990, 1991). One of the initial reasons for constructing the CFQ was to study the effect of stress on errors in the workplace (Broadbent et al., 1982) on the assumption that people living and working in busy environments would be more error prone. In everyday life, however, and this is particularly true of older persons, most people balance their lives so that they are able function efficiently. Cognitive lapses like forgetting appointments or unintentional distractibility are indicators of stress and over-commitment that most people can recognise, and adjust accordingly. Thus the nature of the environment equalises the opportunity for cognitive failure, and older people can moderate their performance expectations as effectively as younger. Another factor that perhaps plays a greater part in determining the magnitude of the scores on the CFQ is the way those cognitive failures that do occur are interpreted by the individual. In this regard, it is possible that persons with lower self-esteem, perhaps engendered by depressive feelings, may attribute more negative meaning to cognitive lapses than others. For this reason the high positive correlations between the CFQ, and the CESD and GDS are of significance. Mood state may be a more important determinant than age of how we view our own abilities than age.

In summary, the data presented in the present study provide a basis for interpreting scores from elderly persons assessed with the GDS and CFQ, relative to a group of predominantly white, healthy volunteers taking part in a study of the effects of reducing homocysteine levels. The research confirmed the usefulness and acceptability of these measures in New Zealand. During the course of this research it became apparent how few normative data are available to psychologists for the clinical evaluation of the test scores of older persons in New Zealand. With the predicted increase in the numbers of persons over the age of 65 in the general population in the next decades, the construction of norm-based procedures for detecting clinical depression and the onset of dementia are a significant priority.

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Address for correspondence:
Robert G Knight
Department of Psychology
University of Otago
Box 56
Dunedin.
FAX: (03) 479 8335
Email: rknight@psy.otago.ac.nz