Prevalence of late-life depression at a primary care clinic in Christchurch

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ABSTRACT

The aim of this study was to measure the prevalence of depressive symptoms in elderly patients attending general practitioner (GP) appointments at a primary care clinic in urban Christchurch. Alternate eligible patients aged 65 years and above attending GP appointments were interviewed after their appointments. The interviewer collected sociodemographic information and administered the 15-item Geriatric Depression Scale (GDS-15) followed by the Folstein Mini-Mental State Examination (MMSE). Participants were also asked for consent for their GP to be asked about their current mood status. The response rate was 80.8% (80/99). The prevalence of significant depressive symptoms on the GDS-15 (using a cut-off of 5/15) was 10.0% (95% CI 4.4%-18.8%). GDS-15 scores did not differ according to any of the sociodemographic characteristics recorded. Those reported as currently depressed by their GP had significantly higher GDS-15 scores than those reported as not depressed (mean GDS-15 score 3.90 compared to 1.38, p<0.01).

Key Words

Depression, elderly

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Unipolar major depression is predicted to make up 5.7% of the total projected disability adjusted life years for 2020.[1] By 2051, those aged 65 years and over may constitute one quarter of all New Zealanders.[2] International community-based studies indicate about 2% of elderly may meet criteria for DSM-IV major depression at any given time, with the prevalence of minor depression up to five times higher.[3] There is evidence for the broad impact of late life depression of any severity. A group of primary care studies in the United States has demonstrated significantly higher health care costs for those with either a DSM-IV diagnosis of depression or sub-threshold depressive symptoms.[4,5] Prospective studies have shown depressive symptoms to be associated with a subsequent decline in physical functioning.[6] In addition, psychological autopsy studies indicate a striking association between late-life suicide and DSM depressive disorder.[7] Studies of late-life depression commonly report that the majority of participants are not treated, and this, together with evidence for the treatability of the condition,[8] makes a strong case for improved recognition and management in older people.

The elderly are over-represented among attenders of primary care appointments.[9] To date, a series of New Zealand studies has provided information on the levels of reported and observed psychological morbidity in primary care, including some elderly-specific data. A 2002 study in a South Auckland practice[10] reported a prevalence of caseness on the Beck Depression Inventory (defined by a cut-off score of 17 or above) of 13.8% (95% CI 9.6%-18.5%) among adult (16 years and above) attenders of GP appointments. The MaGPIe study[11] provided the first primary care prevalence data for depression in the 65 years and over age group, with a 12-month prevalence of any DSM-IV depressive disorder for women of 4.8% (SE 1.6) and for men of 2.1% (SE 1.4).

The present study sought to complement the existing evidence on the prevalence of depressive symptoms and depressive disorders in the primary care setting in New Zealand. Because of the focus on the elderly, a scale particularly designed for use with this age group was chosen. The 15-item Geriatric Depression Scale[12] is a self-rating scale designed for use with the elderly both in terms of content and its dichotomous yes/no response format. Comparison with gold standard diagnoses indicates that the GDS-15 is effective at discriminating depressive disorders, in particular DSM major depression, but also dysthymia and depression not otherwise specified (NOS).[13,14] The GDS-15 has been used extensively in the international literature.[13]

Methods

The study was undertaken in a medical centre in Christchurch city with five-and-a-half full-time equivalent GPs. To gain as representative as possible a picture of the elderly patients attending the practice, patients were sampled from each shift on the GP roster over a nine-week period (February to April 2004). A list of eligible patients was prepared at the beginning of each session and, in order to accommodate the pace of the interviews, every second patient on the list was selected for inclusion in the study. Proposed participants were given the study information sheet by reception staff on arrival for their appointment. General practitioners were not informed when their sessions were being sampled from, although this was often apparent. All interviews were carried out in a separate room following the GP appointment.

Inclusion in the study was on the basis of being aged 65 years and over, attending an appointment with the selected GP during a given session, and being selected by the method of sampling alternate eligible patients. Patients were excluded on the basis of having a need or a preference to complete the interview in a language other than English, being seen on domiciliary visits, and/or having been previously selected for the study.

The researcher obtained written consent and administered socio-demographic questions, the 15-item Geriatric Depression Scale (GDS-15)12 and the Folstein Mini-Mental State Examination (MMSE).[15] While the GDS-15 can be self-administered, in this study it was administered by the interviewer to enhance consistency. The rationale for the inclusion of the MMSE was the reduced ability of the GDS-15 to detect depression in those with cognitive impairment.[16]

Participants were also asked for consent for the GP they had seen to be asked to complete a brief questionnaire. This consisted of two questions: whether the GP considered that person to be currently depressed and, if 'yes', to what degree of severity (mild, moderate or severe).

Ethics approval for the study was obtained from the Southern Health and Disability Ethics Committee. Data entry and analysis were carried out using Epi-Info 2000 (Version 1.1.2). Unanswered GDS-15 questions were scored as positive for depression – rather than weighting upwards as if all questions had been answered. This was to avoid the problem of scoring zero positives, which would never score more than zero under a proportional weighting scheme.

Comparisons between groups on GDS scores used the Smirnov test[17] because of the very skewed distribution of scores. The Confidence Interval Analysis software[18] was used to calculate 95% confidence intervals for other studies.

Based on a prevalence of 13% from overseas studies,[19,20] a range of plus or minus 5% (i.e. 8% to 18%) and a confidence level of 95%, the required sample size was estimated to be 128. The rate of acquisition of patients was slower than expected and at the end of the time available to complete the study a sample size of eighty had been obtained. This meant that the estimate of prevalence was less precise than anticipated.

Results

Eighty out of 99 eligible patients (80.8% response rate) completed the study interview. The GP questionnaire was completed for all participants.

The non-responders (n=19) did not differ from the responders with regard to gender (15 female, four male compared with 52 female, 28 male, Yates corrected Chi square=0.80, p=0.37) or mean age (76.1 years, SD 7.11 versus 76.2 years, SD 7.63, t=0.05, df=97, p=0.96).

The age of participants ranged from 65 to 93 years, with a mean of 76.2 years (SD 7.6 years, median 74.5 years). Fifty per cent (n=40) of participants were aged between 65 and 74 years, 35% (n=28) aged between 75 and 84 years and 15% (n=12) aged 85 years or greater. When compared with the age-sex register for the practice, the youngest age group was over-represented and the oldest age group was under-represented in the study sample. This may be explained by exclusion of those seen on domiciliary visits.

Almost all of the sample (n=76, 95.0%) identified as being of solely New Zealand European ethnicity.

The mean GDS-15 score was 2.0 (SD 2.5), with a range of 0 to 12 out of 15. The distribution of scores was skewed, with 90.0% of all participants scoring between zero and four out of 15.

A cut-off score of five or above out of 15 was chosen, on the basis of its use in the literature,[19] to designate caseness for depression. Using this cut-off, eight participants were designated as depressed, giving a prevalence of depression of 10.0% (95% confidence interval 4.4%–18.8%). The scoring of unanswered questions as positive for depression neither affected the prevalence of caseness at the 4/5 cut-off nor substantively altered the mean score on the GDS-15 (mean score with unanswered questions scored as positive 2.0, SD 2.5, versus mean GDS score with proportional weighting of scores 1.86, SD 2.5).

The sensitivity of GP diagnosis (compared with caseness on the GDS15) was 62.5% (30.6%–86.3%) and the specificity was 79.2% (68.4%–87.0%). All participants scored 24 or more out of 30 on the MMSE, with a mean score of 28.6 (SD 1.5). There was a weak correlation

between MMSE score and age ($r = -0.24$, $p<0.05$) and no correlation between MMSE score and GDS-15 score ($r = -0.08$, $p=0.29$).

To investigate the relationship between sociodemographic and clinical variables and GDS-15 scores, groups defined by a sociodemographic or clinical variable were compared, as shown in Table 1. Using the Smirnov test,[17] the distribution of GDS-15 scores did not differ ($p>0.10$) according to gender, age group, marital status or living situation. There was a significant difference in the distribution of GDS-15 scores for those reported as currently depressed compared with those reported as currently not depressed by their GP (n=20, mean GDS-15 score 3.90, SD 3.61, versus n=60, mean GDS-15 score 1.38, SD 1.60, $p<0.01$).

Discussion

This study found a 10% (95% CI 4.4%-18.8%) point prevalence of 'depression' (defined as a score of five or more out of 15 on the GDS-15) among elderly primary care attenders. In spite of extensive use of the GDS-15 in the international literature, only a few studies[13,19,20] are comparable in terms of the primary care setting, 65-and-over age criterion, and reporting of prevalence of depression based on a chosen cut-off score on the GDS-15. Table 2 shows results from these studies and the present study, for various cut-offs. Comparison is, however, limited by both the small sample size of the present study and methodological variations across studies, including self-administration of the GDS-15[20] and lack of assessment of cognitive function.[19,20] The lower prevalence of depression in the present study compared to the overseas studies may be due to any combination of methodological differences, differences in primary care systems, and differences in the prevalence of depression.

In terms of methodology, the most comparable New Zealand study is that of Arroll et al.[10] which reported a similar prevalence of depression (13.8%, 95% CI 9.6%-18.5%), according to a symptom scale, among GP attenders of all ages.

The MaGPIe study[11] provided important age-specific data in the New Zealand primary care setting using the CIDI (Version 2.1) to determine a gold standard diagnosis of DSM-IV depressive disorder. However, numerous methodological differences - including the use of a 12-month prevalence rather than a point prevalence – limit comparison of these figures to the results of the present study.

Caution is required when interpreting the sensitivity and specificity of GP diagnosis compared with caseness on the GDS-15, as the latter is not a gold standard diagnosis. The significantly higher GDS-15 scores for those reported as currently depressed by their GPs indicate agreement between GP impression and depressive symptomatology as measured by the scale.

Strengths of this study included the sampling method, high response rate, use of an elderly-specific scale, assessment of cognitive function, and consistency of administration of the GDS-15. Generalisability was clearly limited by the use of only one practice.

While the addition of another depression scale and/or a gold standard diagnostic interview would increase validity and comparability, these would necessitate a longer

Table 1. GDS-15 score distributions and mean values according to sociodemographic and clinical characteristics

Characteristic	Mean GDS-15 Score (SD)	p value for difference between distributions*
Gender		
Male (n=28)	2.14 (2.72)	>0.10
Female (n=52)	1.94 (2.40)	
Age		
65–74 years (n=40)	1.50 (1.52)	>0.10
75-84 years (n=28)	2.89 (3.57)	
85+ years (n=12)	1.67 (1.50)	
Marital status		
Single (never married, divorced, separated, n=13)	2.46 (2.40)	>0.10
Married (n=33)	1.88 (2.20)	
Widowed (n=34)	1.97 (2.83)	
GP report on patient's current mental state		
'Depressed' (n=20)	3.90 (3.61)	<0.01
'Not depressed' (n=60)	1.38 (1.60)	

*p value calculated using Smirnov Test[17] to compare distribution of scores between groups, all pairwise combinations of predictor levels compared

Table 2. Prevalence of depression in elderly primary care attenders, as defined as per cent scoring above cut-off (95% confidence interval)

	Prevalence			
GDS-15 cut-off	**Present Study 65+ Age Group n=80**	**Whooley et al. (2000) 65+ Age Group n=2,346**	**Van Marwijk et al. (1995) 65+ Age Group n=586**	**D'Ath et al. (1994) 65+ Age Group n=194**
5/6	8.8% (3.6% to 17.2%)	14% (12.7% to 15.5%)*	—	—
4/5	10% (4.4% to 18.8%)	—	—	34% (27.8% to 41.2%)*
3/4	13.8% (7.1% to 23.3%)	—	30% (26.3% to 33.7%)*	—
2/3	27.5% (18.1% to 38.6%)	—	49% (45.0% to 53.0%)*	—

*95% confidence intervals estimated using prevalence and sample size[18]

study interview and a separate phase II interview, respectively, and either could decrease response rates.

Late life depression – even as defined by elevated scores on a symptom scale, as in this study – is associated with increased use of health services of all kinds.[4,5] The impact of late life depression at a personal and health systems level, and the potential for improvement with both pharmacological and psychological treatment, point to the importance of identifying and addressing this issue.

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Competing interests

None declared.

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