

# Assessment of elderly people in general practice.

## 4. Depression, functional ability and contact with services

STEVE ILIFFE                      EVA GOLDENBERG  
 SHARON SEE TAI                PAULA MORGAN  
 ANDREW HAINES                STEPHEN GALLIVAN  
 ANGELA BOOROFF

**SUMMARY.** *The aim of this study was to look at the inter-relationship between depression, physical disability and contact with services. In a random sample of 239 people aged 75 years and over from nine general practices in north London, depression (as measured by a shortened version of the comprehensive assessment and referral evaluation schedule) was found to be significantly associated with being a woman, and inability to perform a number of activities of daily living. Consumption of three or more prescribed medicines, a home visit by the general practitioner in the previous three months and contact with health visitors and home helps were all significantly more likely among depressed patients. There were also significant associations between loss of functional abilities, measured using items from an activities of daily living scale, and use of certain services: general practitioner home visits and reduced mobility indoors and both home help and district nurse visits to those with difficulty in bathing. Multiple logistic regression analysis suggested that contact with services was principally associated with loss of mobility, although contact with home helps was independently associated with depression, when adjustment was made for functional impairment.*

**Keywords:** *geriatric assessment; depression; functional status; health service utilization.*

### Introduction

THE new contract for general practitioners requires them to offer patients aged 75 years and over an annual domiciliary assessment, including an assessment of mental condition.<sup>1</sup> The commonest psychiatric disorder of old age is depression, with a prevalence of between 10% and 20%.<sup>2-4</sup> There is evidence from other studies that depression in old age is associated with physical disability,<sup>5</sup> and that depressed elderly patients are heavy users of medical services compared with those who are not depressed.<sup>6</sup>

A study was undertaken to look at the inter-relationship between depression, physical disability and contact with services to determine whether there is evidence in a general practice pop-

ulation of increased use of services by depressed elderly people, and whether this may be associated with underlying physical disabilities. The results of such an analysis may have implications for the planning of services for elderly people.

### Method

In 1988-89, patients aged 75 years and over in nine practices in the London boroughs of Brent and Islington were asked by their general practitioners to take part in a study of the mental and physical health of elderly people, and their use of medical and social services.<sup>7,8</sup> All those who agreed to participate (1160 patients, response rate 90.1%) were interviewed by trained non-medical field workers using standard schedules.

All participants had a brief interview which included the minimal state examination<sup>9</sup> and the collection of basic demographic data. A random one in five sample of the study population (241 patients) were given a fuller interview which included a depression scale derived from the comprehensive assessment and referral evaluation (CARE) schedule — a standard interview used in the cross national project of elderly people which has been validated for use in United Kingdom populations.<sup>10</sup> The depression scale was shortened to give a maximum score of 27, and a score of eight or above indicated depression. Depression scores were incomplete for two subjects, thus data are presented for 239 subjects.

The full interview used in the random sample also contained questions about level of education, previous occupation, house ownership and social class. Participants were asked if they received state and/or private pensions.

Subjective perception of health was investigated by asking if respondents rated their health as better, the same or worse than that of others of their age, and they were asked if they had suffered an accident, injury or chronic disease that had affected their daily life during the previous year. Physical pain in the previous month was noted.

Prescribed medication (if any) was seen and recorded, and patients were asked which medicines they were actually taking. All were asked if they had seen their general practitioner in the previous three months, either at the surgery or at home. Outpatient attendance or hospital admission during the previous year was noted, together with current receipt of services from district nurses, health visitors, home helps and social workers.

Ability to perform personal care tasks was noted using a validated activities of daily living schedule.<sup>11</sup> Participants' self-reported ability to go up and down stairs and mobility outdoors and indoors were recorded.

Medical records of all participants were examined by a nurse research worker who noted all clinically significant current diagnoses.

### Analysis

Results were coded and entered on an SAS database and analysed using *Minitab* and *SPSS-PC*. Chi square analysis, Fisher's exact test, the Mann Whitney *U* test and logistic regression analysis were used, as appropriate. Because of incomplete data collection for some individuals, some results are presented for less than 239 participants.

S Iliffe, MRCGP, senior clinical lecturer; S See Tai, MSc, operational research analyst; A Haines, MD, professor; A Booroff, research worker; E Goldenberg, RGN, research coordinator; and P Morgan, RGN, research worker, Department of Primary Health Care, University College and Middlesex School of Medicine, London. S Gallivan, PhD, senior research fellow, Clinical Operational Research Unit, Department of Statistics, University College, London.

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## Results

### Characteristics of respondents

Twenty three participants (9.6%) had depression scores of 12 and over, indicating moderate to severe depression, while 29 (12.1%) had scores of 8–11 indicating mild depression; these two groups were aggregated, giving a prevalence of 21.8%.

Of the 239 participants, 83 were men (34.7%) and 156 (65.3%) were women. The median depression score for women was 5.0 compared with 3.0 for men (Mann Whitney *U* test,  $P < 0.001$ ). Of the 52 people with depression, 11 were men (13.3% of all men) and 41 were women (26.3%) ( $\chi^2 = 5.42$ , 1 degree of freedom,  $P < 0.05$ ). Among those aged 75–79 years, seven men (12.1% of men in that age group) and 12 women (20.7% of women in that age group) had depression; among those aged 80–84 years, one man (7.1%) and 21 women (29.6%) had depression; and among those aged 85 years and over, three men (30.0%) and eight women (32.0%) had depression. There were no statistically significant differences in the proportions of cases between the age bands nor was there a significant difference in median depression scores with advancing age, for either sex.

Of the 238 respondents to the question on marital status, 10.9% were single, 31.1% were married, 51.7% were widowed and 6.3% were divorced or separated. Widows and widowers were no more likely to have scores in the range indicating depression than were single, married or divorced/separated people of the same sex.

Social class was calculated for 227 participants. Five (2.2%) were from social class 1, 10.1% from 2, 12.3% from 3N, 48.9% from 3M, 15.9% from 4 and 10.6% from social class 5. Of 235 respondents, 51.5% were living in rented council or private accommodation and 33.2% were owner occupiers.

Fifty eight men (72.5%) and 117 women (77.0%) had had up to nine years of education; 22 men (27.5%) and 35 women (23.0%) had had 10 or more years of education. Forty four men (53.7%) and 32 women (21.3%) had income from private pensions, while 38 men (45.8%) and 117 women (75.0%) relied on the state pension alone.

There were no significant differences in median depression scores between social classes within each sex, and no significant differences in the prevalence of caseness in different classes, between occupants of different housing types, between those with less or more than 10 years of education, or between those with or without private pensions in addition to the state pension.

### Health of respondents

There was a significant association between presence of depression and perceived poor health, perceived impairment of daily life through illness or injury, and experience of pain (Table 1). These significant associations were found among both men and women, except for perceived poor health, when two depressed men (18.2%) thought their health was worse than others compared with six men who were not depressed (8.6%). Individuals with two or more current diagnoses were no more likely to be depressed than those with fewer diagnoses, but there was a significant association between depression and three or more prescribed medicines (as far as could be ascertained at interview, almost all of these prescribed medicines were actually being taken).

Contact with general practitioners at the surgery did not distinguish those with depression from those without, but a home visit from the doctor was significantly associated with scores in the depression range. This significant difference was attributable to women who were depressed, 12 of whom (41.4%) were seen at home compared with 13 women without depression (19.4%).

**Table 1.** Health status and use of services among elderly people who were and who were not depressed.

	% of people reporting health status who were	
	Depressed	Not depressed
Subjective health worse than others ( $n = 52/184$ )	26.9	8.7 ***
Life impaired owing to accident/chronic disease ( $n = 52/183$ ) <sup>a</sup>	59.6	33.9 **
Pain ( $n = 52/183$ ) <sup>b</sup>	76.9	53.6 **
No. of diagnoses ( $n = 52/181$ ) <sup>c</sup>		
0	15.4	22.1
1	36.5	44.2
2+	48.1	33.7
Three or more prescribed medicines ( $n = 50/177$ ) <sup>c</sup>	46.0	26.0 ***
Visit to GP surgery ( $n = 51/180$ ) <sup>d</sup>	72.5	61.1
GP home visit ( $n = 37/108$ ) <sup>d</sup>	40.5	16.7 ***
Hospital outpatient ( $n = 52/180$ ) <sup>a</sup>	59.6	51.7
Hospital inpatient ( $n = 52/180$ ) <sup>a</sup>	26.9	23.3
Contact with: ( $n = 52/182$ ) <sup>c</sup>		
District nurse	19.2	9.9
Health visitor	11.5	3.3 *
Home help	51.9	19.9 ***
Social worker	9.6	6.0

$n$  = number of respondents who were depressed/not depressed. Chi square test: \* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ . <sup>a</sup>During previous year. <sup>b</sup>During previous month. <sup>c</sup>Currently. <sup>d</sup>During previous three months.

Neither outpatient nor inpatient care was significantly associated with depression.

### Activities of daily living

Median depression scores for those needing and not needing help with personal care tasks were investigated (Table 2). There was a consistent tendency for those who required help with tasks to score higher on the depression scale, except for feeding oneself, where only one individual required help. Thirteen people had depression associated with loss of function, particularly loss of mobility outdoors or loss of control over personal hygiene.

**Table 2.** Median depression scores among those needing and not needing help with activities of daily living.

Activity	Median depression score for those <sup>a</sup>	
	Needing help	Not needing help
Making tea/coffee ( $n = 11/193$ )	8.0	4.0 *
Making snack ( $n = 17/186$ )	6.0	4.0
Making main meal ( $n = 36/158$ )	5.0	4.0
Getting in/out of bed ( $n = 7/229$ )	7.0	4.0 *
Using lavatory ( $n = 2/234$ )	8.0	4.0
Dressing ( $n = 6/229$ )	10.0	4.0 **
Washing self ( $n = 14/222$ )	7.5	4.0 *
Bathing ( $n = 50/185$ )	6.5	3.0 ***
Cleaning teeth/dentures ( $n = 3/226$ )	5.0	4.0
Brushing hair ( $n = 3/232$ )	5.0	4.0
Feeding self ( $n = 1/233$ )	4.0	4.0
Going upstairs ( $n = 28/207$ )	6.0	4.0 *
Going downstairs ( $n = 27/208$ )	6.0	4.0 *
Mobility indoors ( $n = 5/231$ )	5.0	4.0
Mobility outdoors ( $n = 43/193$ )	7.0	4.0 ***

$n$  = number of patients needing help/not needing help with activities. <sup>a</sup>Score of 8+ indicates depression. Mann Whitney *U* test: \* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

**Table 3.** Logistic regression analysis using four independent variables for factors associated with use of services.

	Odds ratio (95% CI) associated with visits from:		
	General practitioner	Home help	District nurse
Difficulties with:			
Bathing	6.3 (2.0 to 19.9) **	3.2 (1.5 to 6.8) **	5.8 (1.9 to 17.2) **
Going up/down stairs	12.2 (2.6 to 56.8) **	1.8 (0.7 to 4.2)	3.3 (0.9 to 12.7)
Outdoor mobility	1.7 (0.5 to 6.2)	1.6 (0.7 to 3.9)	1.2 (0.3 to 4.4)
Depression	0.9 (0.8 to 1.0)	1.1 (1.0 to 1.2) *	1.0 (0.9 to 1.1)

CI = confidence interval.

Since home visiting may be a consequence of the individual's reduced mobility rather than depression, logistic regression analysis was performed using both variables. Using depression score as the independent variable and use of services as the dependent variable, the odds ratios (and 95% confidence intervals) for contact with services with respect to depression scores for individuals, before taking mobility into account were: for general practitioner home visits, 1.1 (1.0 to 1.2,  $P < 0.05$ ); for home helps, 1.2 (1.1 to 1.3,  $P < 0.001$ ); and for district nurses, 1.1 (1.0 to 1.2, not significant). Further logistic regression analysis was performed using four independent variables simultaneously: difficulties in bathing; difficulties in going up or down stairs; difficulties with outdoor mobility; and depression score. The three activities of daily living variables were chosen because they were found in 10% or more of the sample. The odds ratios are shown in Table 3.

#### Depression and dementia

Of the 239 individuals surveyed, 12 scored between 0 and 19 on the mini-mental state examination, indicating definite dementia. Since the questionnaire replies for such individuals might be considered suspect, data were reanalysed excluding these cases. This had only minor effects on the outcome of the analysis and the conclusions remain unchanged.

#### Discussion

The prevalence of depression in elderly people as measured by the shortened comprehensive assessment and referral evaluation schedule is similar to prevalence rates found by other community researchers, some of whom used other instruments. Kay and colleagues found major or minor affective disorder in about 20%.<sup>12</sup> Copeland and colleagues found 11% with psychotic or neurotic depression, and 22% with at least mild depression.<sup>3</sup> However, some studies have shown a somewhat lower prevalence.<sup>13-15</sup>

This study among elderly people confirms the relationship between women and depression, found by Copeland and colleagues in Liverpool<sup>3</sup> and in London,<sup>4</sup> by Vetter and colleagues in Wales<sup>16</sup> and by other large community studies in the United States of America<sup>15</sup> and Australia.<sup>13</sup> A female to male ratio of 2:1 seems common, both in other community studies and in diagnosed and treated cases,<sup>17</sup> and our results are compatible with this. The difference between the sexes in prevalence of caseness disappeared in our study at ages of 85 years and over, a finding also reported by Blazer<sup>18</sup> but there was not the reversal of the sex difference found by Gurland and Cross,<sup>19</sup> possibly because of the small number of patients in this age band.

Some studies have shown that, like dementia, depression increases in prevalence with advancing age.<sup>19,20</sup> Our results support the more usual finding<sup>3,4,14</sup> that prevalence of depression does not increase with advancing age, although this study did not permit distinction between cohort, survival and ageing effects, and the small numbers in each age band make a type 2 error possible.

The broad agreement between our findings and results from other studies suggest that the comprehensive assessment and referral evaluation schedule is a robust instrument and that shortening has little if any impact on its performance, although this cannot be proven in the absence of a gold standard measure.

Epidemiological studies have shown that depression, particularly in its milder forms, is associated with deteriorating function and chronic physical illness.<sup>12,13,21</sup> Our findings support these observations. The schedule identified 13 individuals (5% of the total sample, 25% of depressed individuals) whose depression was associated with loss of function, particularly the loss of mobility outside the home or loss of control over personal hygiene. This finding corresponds with 7% of the Durham county study population with depressive symptoms associated with impaired physical health,<sup>15</sup> but differs from Copeland's finding that depression was more likely to be associated with restrictions on moving about the home than with leaving it.<sup>17</sup> Loss of function has been implicated in the development of depression,<sup>21</sup> and the mechanism may be by reducing autonomy<sup>22</sup> or by provoking grief at the loss of health.<sup>15</sup>

While depressed elderly people appear to have more contact with services, much of this appears to be a result of underlying physical disability, supporting Gurland and colleagues' findings from New York.<sup>6</sup> Cross-sectional studies do not reveal how depression and functional loss are associated, although longitudinal studies suggest that depression follows functional impairment.<sup>19,21</sup> However, it is possible that depression contributes to or even causes functional loss in some individuals by reducing self-care capacity in the absence of major physical ill health.<sup>15</sup> Further longitudinal studies are required to clarify the relationship between functional loss and depression.

If decreasing functional ability leads to depression, even if only in vulnerable individuals, provision of services designed to minimize functional loss may be an effective method of preventing or treating some forms of depression in elderly people, and some trials have indicated that exercise programmes can improve mental health among elderly people.<sup>23</sup> The introduction of annual screening of the mental condition of those aged 75 years and over<sup>1</sup> may make testing this hypothesis in general practice easier, particularly if appropriate support services are made available.

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**Address for correspondence**

Dr S Iliffe, Department of Primary Health Care, University College and Middlesex School of Medicine, Whittington Hospital, Archway Site, Highgate Hill, London N19 5NF.

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