Cost of community care for older people

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Background There has been no published study that considers actual costs in a representative sample of people aged ⩾65 years. The present study describes the financial cost of formal community services for elderly people with dementia, depression, anxiety disorders or physical disability.

Method Psychiatric morbidity, physical disability and services received were assessed by standardised questionnaire in randomly selected Islington enumeration districts. Subjects were interviewed at home (n=700).

Results Dementia was the most expensive disorder per sufferer in terms of formal services. Those with depression were also high users of health services. Despite presenting to health services, 90% were not treated with appropriate drugs. In contrast, social services were received by people who were activity-limited or with dementia. The highest service cost for the population as a whole was for the physically disabled. In multivariate analysis the significant predictors of high service costs were living alone, being physically ill, depression, dementia and increasing age.

Conclusions Failure to detect and treat depression and the anxiety disorders in older people, despite their presentation to medical services, may have major economic consequences as well as contributing to individual suffering.

Government policy promotes psychiatric care at home wherever possible, yet there have been few reports on the costs of community care for older people with psychiatric illnesses. Most available data concern the cost of dementia care (Keen, 1993; Kavanagh *et al*, 1993). The first systematic attempt to study the cost of caring for people with Alzheimer's disease in the community concluded that the cost in England in 1990/91 was £1039 million (Gray & Fenn, 1993). Other approaches include estimating the costs of *theoretical* packages for those requiring varying levels of care (Spoar, 1988) and considering factors predicting receipt of care (Livingston *et al*, 1990; Cullen *et al*, 1993). The latter studies found that dementia predicted contact with the social services, and depression with the health services. Finally, Philp *et al* (1995) found that the use of statutory services was significantly increased in a group of supporters of people with dementia, compared with a control group.

There have been no published studies of costs of care in a representative sample of people aged 65 years and over. The present study reports on the financial cost of domiciliary care for people with dementia, depression, the anxiety disorders and physical disability, and considers whether psychiatric disorder is independently associated with high care costs. Finally, we examined whether other factors were associated with high care costs.

METHOD

Sample selection

The survey was conducted in Islington, a borough in inner London. The Jarman Underprivileged Area Score is 49, the sixth most deprived score in England and Wales (Jarman, 1983).

Enumeration districts in Islington were selected randomly to provide a sampling frame, and an introductory letter delivered to every address, explaining that a doctor interested in the health and services received by elderly people would visit. The interviewer then visited each house to ask whether or not an older person was present and to arrange an interview. If no one was in, she called again until the subject was located.

Diagnoses were reached using a hierarchical and mutually exclusive system (Foulds, 1976). Dementia was at the apex, followed by depression and then, at the base, physical disability defined in terms of activity limitation in the absence of psychiatric morbidity.

The interview

All subjects were interviewed by a trained, medically qualified interviewer (M. M.). The interview schedules were as follows:

(a) The shortened version of the Comprehensive Assessment and Referral Evaluation (short-CARE; Gurland *et al*, 1984). This is a valid and reliable questionnaire with diagnostic scales for depression and dementia and a scale for activity limitation (designed to identify those who need help with day-to-day living).

(b) An anxiety disorder scale survey (Lindesay *et al*, 1989) which generates diagnoses of generalised anxiety and phobic anxiety. Further details are given in an earlier paper (Manela *et al*, 1996).

(c) Service usage was measured from subjects, and where applicable from carer's reports of the previous four weeks, using an instrument which has previously been applied in a similar setting (Livingston *et al*, 1990). It comprised: (i) the number of times a week services were received from each of a list of statutory community services (social workers, meals on wheels, day centres, home help, community nurses); (ii) attendance at a general practitioner (GP) and hospital out-patient visit over the month before the interview (recorded only according to whether or not there was a consultation).

(d) Medication taken was recorded by subject's report, in conjunction with direct examination by the interviewer of current supplies.

Data analysis

The known costs of domiciliary services (home help, £5.92/h; a social worker, £13.80/h; meals on wheels, £4.30 per meal; a community nurse, £15.40/h; day

https://doi.org/10.1192/bjp.171.1.56 Published online by Cambridge University Press

centre, £24.08/day (Meltzer *et al*, 1995); GP consultation, £17; out-patient appointment, £36.86 (Netten, 1994)) were used to convert service usage into costs. Data were analysed using SPSS–PC+ (Norusis, 1991). Initial univariate analyses were carried out using chi-squared or Fisher's exact test as appropriate. The confidence intervals (CI) were calculated using Cornfield's or Fisher's exact test where appropriate. Backwards stepwise logistic regression was subsequently employed to explore the predictors of high or low cost (defined by dividing the cost data at the median point). The Kruskal–Wallis nonparametric analysis of variance was used to explore differences in patterns of services for each condition. To generate independent groups, the hierarchical model was extended for these latter analyses only, so that the anxiety disorders were added, placed below depression and above limitation of activity.

RESULTS

Demographic

A total of 782 subjects aged ⩾65 years were approached; 700 (90%) were interviewed. Of the subjects who agreed to an interview, 447 (64%) were female. Ages ranged from 65 to 100 (mean 75.7 years); 338 (48%) lived alone.

Morbidity

The proportions of subjects with specific psychiatric diagnoses or activity limitation are summarised in Table 1. Activity limitation occurred in about a third of subjects. The prevalence of dementia was 5.6%; depression and anxiety were about equally common (approximately one in seven). Only 10 (9.7%) depressed subjects and four (12%) of those with anxiety disorders were taking antidepressants, although total psychotropic use was high in both groups (see Table 2).

Costs of community care

The costs of individual services, total costs per month, and the percentage using each service for the different psychiatric morbidities, the physically ill and for those who were well, are shown in Table 3. The mean cost per subject for services in each diagnostic group is shown in Table 4. Individual dementia subjects were most expensive in terms of formal care (£194.7/month). Those who had activity limitation in the absence of psychiatric illness received fewer services in terms of total costs (£116.11/month). Costs for people who were 'well' were only £32.52 per month.

When the configuration of services for people with dementia, depression, the anxiety disorders and physical disability were compared, the services provided by the local authority (social services) were more likely to be delivered to those with dementia (meals on wheels and home help both $P<0.0001$) or activity limitation (meals on wheels $P<0.05$ and home help $P<0.0001$), although a visit by a social worker was only associated with being activity-limited ($P<0.0005$). In contrast, going to a day centre was associated with suffering from an anxiety disorder ($P<0.05$) or dementia ($P<0.0001$).

Medical services in the form of out-patient visits were associated with patients being physically disabled ($P<0.05$) or depressed ($P<0.05$). Contact with a GP was not associated with any of the conditions studied.

Receipt of different forms of nursing support were associated with specific diagnoses. Psychiatric illnesses (depression $P<0.01$, dementia $P<0.05$) were associated with health visitor contact. People with physical disability ($P<0.0001$) or dementia ($P<0.001$) were more likely to receive visits from the district nurse.

High costs of care

High costs of care were significantly associated in univariate analysis with activity limitation ($P<0.0001$; odds ratio (OR) 4.5; CI=2.98–6.70), living alone ($P<0.0001$; OR 3.3; CI=2.39–4.58), depression ($P<0.005$; OR 2.0; CI=1.26–3.17), increasing age ($P<0.0001$; OR 2.5; CI=1.85–3.50), dementia ($P<0.05$; OR 1.9; CI=0.95–3.98) and female gender ($P<0.05$; OR 1.4; CI=1.01–1.95).

In backwards logistic regression analysis where the hierarchical models are retained, activity limitation ($P<0.0001$; OR 5.1), living alone ($P<0.00001$; OR 2.6), depression ($P<0.00001$; OR 3.2), increasing age ($P<0.005$; OR 1.0) and dementia ($P<0.005$; OR 2.9) remained significantly associated with high cost. The anxiety disorders remained a predictor ($P<0.08$; OR 1.7), although no longer reaching statistical significance. In the presence of the above variables, gender did not predict cost.

If the same analysis was performed without the hierarchical model, activity limitation ($P<0.0001$; OR 4.4), living alone ($P<0.00001$; OR 2.9), depression ($P<0.05$; OR 1.6) and increasing age ($P<0.01$; OR 1.0) were retained in the model. In the presence of the above variables, gender, dementia and the anxiety disorders did not predict cost.

DISCUSSION

The present study had a high response rate in a community sample. The instruments used to measure the psychiatric disorders have been shown to have satisfactory validity and reliability, so the numbers generated can be accepted with some confidence. The results may thus be taken to have implications for other similar populations. We have found that the psychiatric disorders are significantly associated with high costs of community care, even when sociodemographic factors of increasing age, living alone, and physical disability in the absence of psychiatric illness are taken into account. In addition, we have

Table 1 Pathology in the sample as a whole

	n	%	95% CI
Dementia	39	5.6	3.9–7.3
Depression	104	14.9	12.2–17.5
Activity limitation	235	33.6	30.1–37.1
Generalised anxiety	33	4.7	3.1–6.3
Phobic disorder	84	12.0	9.6–14.4
Any anxiety disorder	105	15.0	12.4–17.7

Table 2 Psychotropic drug usage

	Total population (%)	Generalised anxiety subjects (%)	Phobic subjects (%)	Depressed subjects (%)
Number	694	33	83	103
Missing	6	0	1	1
Hypnotics/anxiolytics	41 (5.9)	11 (33.3)	7 (8.4)	15 (14.6)
Antipsychotics	10 (1.4)	2 (6.1)	1 (1.2)	5 (4.9)
Antidepressants	17 (2.4)	4 (12.1)	5 (6.0)	10 (9.7)
Total	68 (9.8)	17 (51.5)	13 (15.7)	30 (29.1)

https://doi.org/10.1192/bjp.171.1.56 Published online by Cambridge University Press

Table 3 Total cost of services in £ per month (% use of services)

	Dementia $n=39$	Depression $n=96$	Anxiety $n=64$	Activity limitation $n=159$	Well $n=360$
Out-patient	221.16 (15.4%)	995.23 (28.1%)	516.04 (21.9%)	1584.98 (27.0%)	2027.30 (15.3%)
General practitioner	221.00 (33.3%)	782.00 (47.9%)	527.00 (48.4%)	1207.00 (44.7%)	2176.00 (35.6%)
District nurse	1016.40 (20.5%)	877.80 (6.3%)	508.20 (6.3%)	2448.60 (15.7%)	231.00 (1.1%)
Psychiatric nurse	105.12 (2.6%)	52.56 (1.0%)	–	105.12 (0.6%)	105.12 (0.3%)
Health visitor	138.08 (5.1%)	69.04 (4.2%)	–	51.78 (1.9%)	–
Social worker	–	110.40 (2.1%)	55.20 (1.6%)	441.60 (5.0%)	110.40 (0.6%)
Home help	2249.60 (43.6%)	1835.20 (19.8%)	1361.60 (21.9%)	6630.40 (45.3%)	1776.00 (5.8%)
Meals on wheels	963.39 (35.9%)	545.92 (6.3%)	610.14 (12.5%)	2215.78 (17.0%)	369.30 (1.1%)
Day centre	2782.08 (25.6%)	2980.80 (17.7%)	1987.20 (14.1%)	3775.68 (14.5%)	5067.36 (9.7%)
Total	7593.26	8248.94	5565.38	18 460.94	1673.88

shown that different morbidities are associated with distinct patterns of service use.

Limitations of the study

The population is representative of urban elderly populations, as shown by the close similarity between the prevalence of dementia and depression in our sample and those reported in other inner-city populations with similar age profiles (e.g. Lindesay *et al*, 1989). It has, however, a higher mean age and lower social class than the total elderly population in the UK (Office of Population Censuses and Surveys, 1987).

Our data are limited to costs of community care, and take into account neither the costs of accommodation, nor residential or in-patient care, nor of carers' time. The latter has been estimated to be worth £20 billion per annum in the UK, although 'free' to the state (Court, 1995). Accommodation may account for the greatest proportion of cost in the severely demented (Kavanagh *et al*, 1993). In addition, we measured services received and did not measure unmet needs, and so cannot discuss these from the user perspective, although we discuss further (below) the unmet need for medical treatment. There will be variation among services provided and the costs of these services in different parts of the UK, which are not considered in the estimates we have used (London-weighted figures derived by Netten (1994) and Melzer *et al* (1995) using national data). Despite these limitations the data give the most detailed picture yet of the cost of community care, and this can be used to give an idea of the financial costs and implications of different morbidities in the UK.

Cost of care for people with dementia

Dementia is the most expensive disorder per sufferer in terms of formal services (5.6% of people consume 15.6% of resources). Even taking increasing age and activity limitation into account, dementia remains a highly significant independent predictor of high cost, using a hierarchical model in which dementia is given precedence. It is worth noting that the lack of a significant association between dementia and cost in the non-hierarchical analysis reflects the fact that all subjects with dementia also have activity limitation as part of their dementia. The cost of dementia is associated with particularly high use of nursing and social services. Extrapolating from these figures for all of Islington, patients in the community with dementia cost £3 336 397 per year. If the same costs applied throughout the UK, this is equivalent to about £1000 million per year for community care alone. This is close to the previously estimated costs for total care (Gray & Fenn, 1993), although a true cost would allow for inflation and indirect costs. As community care implementation progresses and the number of the very old (those more than 80 years old) increases, these figures indicate the scale of resources that this group will utilise.

The cost for individuals who were disabled but were not psychiatrically ill can be extrapolated as £8 070 308 per year in Islington, or within the UK as a whole, around £2400 million. This total reflects the high prevalence of disability in this age group.

Table 4 Mean cost of services in £ per month

	Dementia $n=39$	Depression $n=96$	Anxiety $n=64$	Activity limitation $n=159$	Well $n=360$
Out-patient	5.67	10.37	8.06	9.97	5.67
General practitioner	5.67	8.15	8.23	7.59	5.67
District nurse	26.06	9.14	7.94	15.40	0.64
Community psychiatric nurse	2.70	0.55	–	0.66	0.29
Health visitor	3.54	0.72	–	0.33	–
Social worker	–	1.15	0.86	2.78	0.31
Home help	57.68	19.12	21.28	41.70	4.93
Meals on Wheels	24.70	5.69	9.53	13.94	1.03
Day centre	71.34	31.05	31.05	23.75	14.08
Cost per patient	194.70	85.93	86.96	116.11	32.52

https://doi.org/10.1192/bjp.171.1.56 Published online by Cambridge University Press

Cost of care for people with functional psychiatric disorders

The cost of care for people with functional psychiatric illnesses is also high. Those with depression are high users of out-patient and nursing services. Perhaps surprisingly, people with an anxiety disorder incur similar costs. They are the highest users of GP services (together with depressed subjects), despite the decline in GP recording of consultations for anxiety disorders in older age groups (Office of Population Censuses and Surveys, 1986). The total estimated UK cost from our figures is £1000 million (depression) and £750 million (anxiety disorders).

Most subjects with depression or anxiety are not receiving appropriate pharmacotherapy. One can only speculate on the implications of higher treatment rates on total care costs, and in particular on health costs, as we have confirmed the observation that those who are depressed are in contact mainly with health services (Cullen *et al*, 1993).

CONCLUSIONS

The lack of detection and treatment of depression and the anxiety disorders in older people, despite presentation to medical services, has major economic consequences, as well as contributing to individual suffering. The potential financial saving is high, as recovery from depression is a predictive factor for decreased service usage by older people (Cullen *et al*, 1993). Further research into treating depression and anxiety disorders in older people in the community is underway.

ACKNOWLEDGEMENTS

We thank the residents of Islington for their help, Glaxo Pharmaceuticals for funding M. M., and Bob Blizard for statistical advice.

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CLINICAL IMPLICATIONS

- Older people with anxiety and depression frequently present to medical services.
- Older people with depression or anxiety seldom receive pharmacological treatment.
- Both functional psychiatric disorders in old age and dementia are associated with high service costs.

LIMITATIONS

- Our data are limited to costs of community care only.
- We have not measured unmet need.
- Our study took place in an inner London borough, and does not take into account national variability in care costs.

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(First received 30 July 1996, final revision 18 November 1996, accepted 20 November 1996)

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