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Current prevalence of dementia, depression and behavioural problems in the older adult care home sector: the South East London Care Home Survey

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Abstract

Background: a large and increasing number of older people in the UK are living in care homes. Dementia is a frequent reason underlying admission and determining care needs, but prevalence data are becoming increasingly outdated and reliant on brief screening instruments.

Objective: to describe the prevalence and severity of dementia, depression, behavioural problems and relevant medication use...
Prevalence of dementia, depression and behavioural problems in the older adult care home sector

in a representative sample of residential and nursing care home residents.

Design/settin g: a survey conducted in 15 randomly selected South East London care homes. Consensus clinical dementia diagnoses were made from multi-source information, and the Clinical Dementia Rating (CDR) Scale applied. Depression was ascertained using the Cornell Depression in Dementia Scale and psychological/behavioural problems using the Neuropsychiatric Inventory (NPI).

Participants: three hundred and one residents with a mean (SD) age of 83.5 (9.8) and 65.8% female were included.

Results: dementia (CDR 1–3) prevalence was 75.1% overall, 55.8% in residential homes, 91.0% in residential elderly mentally infirm care and 77.0% in nursing homes. Depression prevalences were 26.5, 22.0 and 29.6%, respectively, and mean (95% CI) NPI severity scores 3.99 (3.47–4.50), 6.34 (5.29–7.39) and 6.10 (5.50–6.70) with 87.3% of the sample exhibiting at least one NPI symptom. Antidepressants were prescribed in 25.6, 25.0 and 41.3%, respectively, and antipsychotics in 7.0, 34.1 and 19.1%.

Conclusion: dementia is substantially more common in care homes than recorded diagnoses would suggest, but studies using brief screening instruments may overestimate prevalence. High prevalences of depressive and/or behavioural symptoms and psychotropic use suggest significant unmet need.

Keywords: nursing homes, residential homes, older people, residential EMI, mental health

Introduction

It has been estimated that in England 376,250 older people reside in 10,331 care homes, costing approximately £16 billion in direct government funding alone [1, 2]. Over 30% of the 820,000 people with dementia in the UK are living in these settings with £9 billion annual care costs [3, 4]. However, a review of research in UK care homes concluded that information on dementia prevalence and impact was becoming increasingly outdated [5]. A recent report from the Alzheimer’s Society [6] concluded that over 80% of care home residents have dementia or significant memory problems, but of the three studies cited one was over 10 years old [7], one relied on recorded diagnoses and a brief screen [8] and one reported a sample of trial participants [9].

We surveyed dementia prevalence, severity and related mental health measures in a representative sample of care home residents within a geographic catchment using a formal diagnostic assessment. UK care homes are traditionally subdivided into residential and nursing subtypes, with ‘elderly mentally infirm’ (EMI) status indicating specific care for dementia and/or mental health. Dementia is prevalent regardless of a care home’s designation [10] so an additional objective was to compare morbidity between care home types.

Methods

Sampling

In four boroughs in South East London (Lambeth, Southwark, Lewisham and Croydon), 113 care homes registered as providing care for older people were identified from local authority databases. All residents were approached regardless of age. Homes were randomly sampled for contact, and all residents were approached in participating homes apart from the final recruited home where residents were randomly allocated to three subgroups, two of which were approached.

Participants and procedures

Apart from residence for at least 2 weeks, no inclusion/exclusion criteria were applied. Mental capacity to provide informed consent was assessed in all instances and, if capacity was judged to be lacking, personal or nominated consultant agreement was sought. The study was approved by the South East London Research Ethics Committee (reference 10/H0807/20). Two researchers collected data between July 2010 and March 2012. In addition to resident interviews, informant data were also collected from either a family member or next of kin where available and/or a staff member, as well as from care home records.

Measures

Age, sex, highest educational qualification and grade of principal occupation were recorded. The care home type was ascertained from each resident’s bed allocation where provision was mixed within a home. Dementia diagnosis was defined using DSM-IV criteria [11] and severity using the Clinical Dementia Rating Scale (CDR) [12]: 0/0.5 for those without dementia and 1–3 for those with dementia. The research assistants compiled relevant CDR subscale codes with additional longhand contextual information from participants/informants/records and the following instruments: revised Addenbrooke’s Cognitive Examination [13] Functional Assessment Staging Test [14], instrumented Activities of Daily Living [15] and Barthel Index scales [16]. Additional contextual information was also collected on other relevant disorders. A panel of four senior old age psychiatrists (R.S., H.P., V.F. and A.S.) reviewed the above information and applied independent diagnoses and CDR ratings, with regular consensus panel meetings. Depression was ascertained using the Cornell Scale for Depression in
Dementia (CSDD) [17]: as a primary outcome, a score of 8+ was used to define probable depression; however, a secondary 9+ definition was also generated for comparative purposes. Behavioural problems were assessed using the 12-item Neuropsychiatric Inventory (NPI) [18], completed with a staff member. Prescribed medication was ascertained from records review, with dementia medication (acetyl cholinesterase inhibitor agents or memantine), anti-depressants and anti-psychotic agents considered here.

Statistical analyses

Stata version 11 was used with appropriate adjustments for clustering effects within homes. Characteristics of residents in each care home type were described and compared, including prevalences of dementia, depression, behavioural symptoms and medication use. Following a graphical plot of residuals, NPI severity scores were judged to be normally distributed and mean scores were described, with one-way ANOVA performed to assess differences by care home type. Because of high numbers of zero scores, NPI carer impact scores were re-categorised as binary present/absent outcomes; associations were also investigated using multinomial logistic regression models.

Results

Of the 113 care homes in the catchment, a random 25 were approached. Of these, 15 (60.0%) participated, 8 declined and 2 had closed. There were no significant differences between the 15 participating homes and the 8 that refused, or with the total 113 homes, by care home type (Fisher's exact test $P = 0.58$, $P = 0.16$, respectively), number of beds (Mann–Whitney $U$ test $P = 0.29$, $P = 0.92$) or borough (Fisher's exact test $P = 0.14$, $P = 0.30$). Of the 15 participating homes, 4 were nursing homes, 5 were residential homes, 5 were residential with EMI and 1 was dual registered (nursing, residential EMI). Of 492 identified residents, 406 fulfilled inclusion criteria. Of these, 17 (3.7%) had died and 27 (5.9%) had moved away before consent could be established. Of the remainder, consent was obtained for 301 (72.4%): 86 (28.6%) in residential homes, 89 (29.6%) in residential homes with EMI and 126 (41.9%) in nursing homes.

The sample mean (SD) age was 83.5 (9.8) years and 65.8% were female. With the exception of gender, all demographic factors varied significantly by care home type (Table 1). The sample CDR distribution was as follows: 39 (13.0%) no dementia, 36 (12.0%) questionable dementia, 30 (10.0%) mild dementia, 74 (24.6%) moderate dementia and 122 (40.5%) severe dementia. A CDR 0.5 or greater was present in 87.0% and dementia (CDR 1–3) in 75.1% (95% CI: 62.8–87.4), with prevalences lowest in residential and highest in residential EMI care (Table 2). Dementia medication use did not vary significantly by care home type, although only 28 participants (9.3%) were receiving this.

Of 281 participants with sufficient data, 26.3% (19.8–33.0) had depression according to a CSDD 8+ cut-off and 22.8% according to a 9+ cut-off. Anti-depressant medication use

Table 1. Sample characteristics by care home setting

<table>
<thead>
<tr>
<th></th>
<th>Residential ($n = 86$)</th>
<th>Residential EMI ($n = 89$)</th>
<th>Nursing ($n = 126$)</th>
<th>$^a$Wald $\chi^2$ ($P$-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age $#$ (%)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>&lt;80</td>
<td>8 (9.3)</td>
<td>28 (31.5)</td>
<td>55 (43.7)</td>
<td>22.1 (0.0002)</td>
</tr>
<tr>
<td>80–90</td>
<td>39 (45.4)</td>
<td>32 (36.0)</td>
<td>46 (36.5)</td>
<td></td>
</tr>
<tr>
<td>90&gt;</td>
<td>39 (45.4)</td>
<td>29 (32.6)</td>
<td>25 (19.8)</td>
<td></td>
</tr>
<tr>
<td>Gender $#$ (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>58 (67.4)</td>
<td>75 (59.5)</td>
<td>65 (73.0)</td>
<td>2.88 (0.237)</td>
</tr>
<tr>
<td>Ethnicity $#$ (%)</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Non-white</td>
<td>4 (4.7)</td>
<td>12 (13.5)</td>
<td>23 (18.2)</td>
<td>7.80 (0.020)</td>
</tr>
<tr>
<td>Marital status $#$ (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>5 (6.0)</td>
<td>10 (11.4)</td>
<td>16 (13.0)</td>
<td>25.12 (0.0003)</td>
</tr>
<tr>
<td>Single</td>
<td>24 (29.0)</td>
<td>17 (19.3)</td>
<td>27 (22.0)</td>
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<tr>
<td>Widowed</td>
<td>51 (61.5)</td>
<td>51 (58.0)</td>
<td>62 (50.4)</td>
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<tr>
<td>Divorced/separated</td>
<td>3 (3.6)</td>
<td>10 (11.4)</td>
<td>18 (14.6)</td>
<td></td>
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<tr>
<td>Qualifications $#$ (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>32 (40.5)</td>
<td>46 (58.6)</td>
<td>68 (61.3)</td>
<td>480.27 (&lt;0.001)</td>
</tr>
<tr>
<td>School certificate/matriculation</td>
<td>29 (36.7)</td>
<td>19 (23.5)</td>
<td>20 (18.0)</td>
<td></td>
</tr>
<tr>
<td>O/A level/other</td>
<td>3 (3.8)</td>
<td>7 (8.6)</td>
<td>18 (16.2)</td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>15 (19.0)</td>
<td>9 (11.1)</td>
<td>5 (4.5)</td>
<td></td>
</tr>
<tr>
<td>Past occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>20 (24.4)</td>
<td>10 (12.7)</td>
<td>11 (9.4)</td>
<td>74.20 (&lt;0.001)</td>
</tr>
<tr>
<td>Managerial</td>
<td>21 (25.6)</td>
<td>24 (30.4)</td>
<td>31 (26.5)</td>
<td></td>
</tr>
<tr>
<td>Skilled non-manual</td>
<td>19 (23.2)</td>
<td>13 (16.5)</td>
<td>19 (33.3)</td>
<td></td>
</tr>
<tr>
<td>Skilled manual</td>
<td>15 (18.3)</td>
<td>13 (16.5)</td>
<td>39 (33.3)</td>
<td></td>
</tr>
<tr>
<td>Semi-skilled</td>
<td>5 (6.10)</td>
<td>11 (13.9)</td>
<td>11 (9.4)</td>
<td></td>
</tr>
<tr>
<td>Unskilled</td>
<td>2 (2.4)</td>
<td>8 (10.1)</td>
<td>6 (5.13)</td>
<td></td>
</tr>
</tbody>
</table>

$^a$Cluster-adjusted multinomial logistic regression models.
Prevalence of dementia, depression and behavioural problems in the older adult care home sector

Table 2. Mental health outcomes and medication use by care home setting

<table>
<thead>
<tr>
<th></th>
<th>Residential (n = 86)</th>
<th>Residential EMI (n = 89)</th>
<th>Nursing (n = 126)</th>
<th>(^*)Wald Chi² (P-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia (CDR 1–3) n (%)</td>
<td>48 (55.8)</td>
<td>81 (91.0)</td>
<td>97 (77.0)</td>
<td>15.56 (&lt;0.001)</td>
</tr>
<tr>
<td>CDR 0.5–3 n (%)</td>
<td>66 (72.7)</td>
<td>84 (94.4)</td>
<td>112 (88.9)</td>
<td>5.38 (0.068)</td>
</tr>
<tr>
<td>Dementia severity n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No dementia (CDR 0)</td>
<td>20 (23.3)</td>
<td>5 (5.6)</td>
<td>14 (11.1)</td>
<td>82.76 (&lt;0.001)</td>
</tr>
<tr>
<td>Questionable (CDR 0.5)</td>
<td>18 (20.9)</td>
<td>3 (3.4)</td>
<td>15 (11.9)</td>
<td></td>
</tr>
<tr>
<td>Mild (CDR 1)</td>
<td>14 (16.3)</td>
<td>6 (6.7)</td>
<td>10 (7.9)</td>
<td></td>
</tr>
<tr>
<td>Moderate (CDR 2)</td>
<td>17 (19.8)</td>
<td>29 (32.6)</td>
<td>28 (22.2)</td>
<td></td>
</tr>
<tr>
<td>Severe (CDR 3)</td>
<td>17 (19.8)</td>
<td>46 (51.7)</td>
<td>59 (46.8)</td>
<td></td>
</tr>
<tr>
<td>Depression (CSDD 8+) n (%)</td>
<td>22 (26.5)</td>
<td>18 (22.0)</td>
<td>34 (29.6)</td>
<td>0.82 (0.665)</td>
</tr>
<tr>
<td>CSDD 9+ n (%)</td>
<td>21 (25.3)</td>
<td>15 (18.3)</td>
<td>28 (24.1)</td>
<td>0.97 (0.615)</td>
</tr>
<tr>
<td>NPI carer impact (binary) n (%)</td>
<td>41 (47.7)</td>
<td>46 (52.3)</td>
<td>65 (52.0)</td>
<td>0.34 (0.845)</td>
</tr>
<tr>
<td>Medication use n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia treatment</td>
<td>10 (11.6)</td>
<td>10 (11.4)</td>
<td>8 (6.4)</td>
<td>6.60 (0.100)</td>
</tr>
<tr>
<td>Anti-depressant</td>
<td>22 (25.6)</td>
<td>22 (25.0)</td>
<td>52 (41.3)</td>
<td>19.32 (&lt;0.001)</td>
</tr>
<tr>
<td>Anti-psychotic</td>
<td>6 (7.0)</td>
<td>30 (34.1)</td>
<td>24 (19.1)</td>
<td>8.37 (0.033)</td>
</tr>
<tr>
<td>(excluding PRN-only)</td>
<td>6 (7.0)</td>
<td>27 (30.3)</td>
<td>21 (16.7)</td>
<td>7.44 (0.026)</td>
</tr>
</tbody>
</table>

\(^*\)Cluster-adjusted multinomial logistic regression models.

was prescribed in 32.0% of the total sample and 47.3% of those with depression (CSDD 8+). There was no significant variation in depression prevalence between care home types; however, anti-depressant medication had highest prevalence in nursing homes.

Of 299 residents with sufficient NPI data, one or more symptom was reported in 87.3%, with mean severity 5.57 (95% CI 4.69–6.45) overall and 3.99 (3.47–4.50), 6.34 (5.29–7.39) and 6.10 (5.50–6.70) in residential, residential EMI and nursing homes, respectively (one-way ANOVA \(F = 7.25, P = <0.009\)). Anti-psychotic medication was prescribed for 19.7% with highest prevalences in residential EMI settings. Individual NPI carer impact did not significantly differ between care home types, and no significant association was found between CDR score and anti-psychotic medication use (see Supplementary data available in Age and Ageing online, Appendix S1).

Discussion

In a catchment area care home survey, we sought to provide up-to-date prevalence estimates for dementia, depression and behavioural problems. Prevalence of dementia was 75.1% overall, 24.6% for moderate and 40.5% for severe dementia, although varied substantially by care home type: highest in residential EMI care and lowest in other residential care. Of dementia cases in our survey, 33% were moderate and 54% severe by CDR (22 and 47% in nursing homes and 35% each in non-EMI residential homes). Depression prevalence was 26% and did not vary significantly between care home types.

Prevalence and severity estimates from comparable research are reviewed in Supplementary data available in Age and Ageing online, Appendix S2. In summary, our findings indicate a higher overall dementia prevalence than was being estimated over 10 years ago or than would be inferred from recorded diagnoses; however, they suggest that brief screens such as the mini mental state examination (MMSE) might moderately overestimate cases, probably because of false positives with milder impairment. Considering stage of dementia, our findings in the non-EMI sector suggest a higher predominance of severe dementia than might be expected, the numbers in non-EMI residential care being an important concern. Depression is an important predictor of adverse outcomes in care homes [19], and its prevalence here was broadly comparable with other reports.

Few studies have investigated behavioural symptoms in care home residents as a whole, focusing instead on those with dementia. Reported prevalences of at least one symptom include 58% in non-EMI nursing home residents [20] and 66% in care home residents [21], both lower than the 87% in our sample. Reported anti-psychotic prescription prevalence has risen over the years from 15% [20] to 20 [22] and 21% [23]. Our finding of 20% is thus consistent with the more recent findings. Despite similar mean NPI severity between nursing and residential EMI homes, anti-psychotic prescriptions were substantially higher in the latter which require further clarification.

Basic data on dementia and mental disorders in care homes have become increasingly outdated, and recent estimates have relied on flawed case ascertainment approaches. Study strengths include its representative sampling, reasonable participation and diagnostic assessments. Limitations include a relatively small sample compared with national studies and restriction to a single mixed urban and suburban catchment. As well as attempting to provide a more accurate picture of dementia prevalence and severity in care homes, the study highlights potential areas of unmet need, including high levels of morbidity in residential EMI care, appreciable prevalence of severe dementia in non-EMI residential care, comparable levels of...
behavioural symptoms in non-EMI and EMI care and relatively common anti-psychotic use in EMI residential care.

Key points

• Given the size of the care home population and importance of dementia in determining admission and care needs, basic data on prevalence and severity are remarkably lacking. Consensus prevalence estimates rely extensively on information that is either out of date or derived from recorded diagnoses and/or brief screening instruments.
• Dementia prevalence is substantially underestimated in recorded diagnoses but is most likely moderately overestimated by brief screening instruments. It is present in the majority of care home residents regardless of setting, including appreciable prevalence in non-EMI residential homes. Depression and behavioural problems are also common in all settings.
• Residential homes with EMI status have the highest prevalences of dementia, highest proportions with severe dementia and behavioural problems and the highest level of anti-psychotic prescribing. These levels of morbidity suggest that they should be a particular focus for research to investigate unmet need.

Acknowledgements

We thank all the care home managers, staff and residents for their participation.

Conflicts of interest

None declared.

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Supplementary data

Supplementary data mentioned in the text are available to subscribers in Age and Ageing online.

References

Rapid increase in fall-induced cervical spine injuries among older Finnish adults between 1970 and 2011

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Abstract

Background: fall-related injuries in older adults are a major public health challenge.
Methods: we determined the current trends in the number and age-adjusted incidence of fall-induced severe cervical spine injuries among older adults in Finland by taking into account all persons in 50 years of age or older who were admitted to Finnish hospitals for primary treatment of these injuries between 1970 and 2011. Similar patients aged 20–49 years served as a reference group.
Results: the number of fall-induced cervical spine injuries among older Finns rose six-fold from 59 in 1970 to 372 in 2011. The age-adjusted incidence of injury (per 100 000 persons) was higher in men than in women throughout this period and showed a clear increase from 1970 to 2011: from 8.5 to 20.3 in men, and from 2.8 to 11.7 in women. In both sexes, the increase was most prominent in the oldest age group, persons aged 70 years or older. In the reference group, the injury incidence did not rise by time.
Conclusions: the number and incidence of fall-induced severe cervical spine injuries among older Finns increased considerably between 1970 and 2011. An increase in the average risk of serious falls may partly explain the phenomenon. Wide-scale fall and injury prevention measures are urgently needed, because further ageing of the population is likely to worsen the problem in the near future.

Keywords: cervical spine, fall-induced injury, epidemiology, older people

Introduction

Falls and fall-related injuries in older adults are a serious public health concern in contemporary societies with ageing populations [1, 2]. In older patients, cervical spine injury commonly occurs after a relatively minor trauma [3, 4] and majority of these injuries are caused by falls [5–7]. Of all fall-induced injuries, a spinal cord injury or fracture to the cervical spine (alone or in combination) is a relatively rare event [8] but one of the most severe and disabling condition for the victims with high mortality [6, 9].

Previously, we reported that the number and age-adjusted incidence of fall-induced severe cervical spine injuries showed an alarming rise among Finns 50 years or older between 1970