Dependency in older people recently admitted to care homes

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Abstract

Objective: to investigate dependency and general health status of a cohort of older people admitted to residential or nursing homes for long-term care.

Method: we assessed 308 people aged over 65 years within 2 weeks of admission for long-term care to one of 30 nursing or residential homes in north-west England. Dependency was assessed using the Barthel activities of daily living index and the Crichton Royal Behaviour Rating Scale. We collected information from the homes’ records on diagnosed conditions and current medication.

Results: 50% of the cohort were in a ‘low dependency’ band (Barthel score 13–20): 31% of those in nursing homes and 71% of those in residential homes. In nursing homes, low-dependency residents were more likely to be self-funding than those with higher dependency. Of a number of broad diagnostic groupings, only a diagnosis of dementia was associated with nursing- rather than residential-home admission. Of 47 residents who scored 9 or less on the Mini-Mental State Examination (indicating severe cognitive impairment), 85% had no diagnosis of dementia, neurological disorder or other psychiatric disorder.

Discussion: the high proportion of new admissions of subjects with low dependency needs raises questions about the effective targeting of resources and about management of the boundary between home-based and institutional care. The existence of an important group of self-funded, low-dependency new admissions to nursing homes suggests a need to provide better assessment and placement services for those who are financially independent of local authorities. Many new admissions had conditions which might benefit from rehabilitation but there were almost no therapy staff in the studied homes. In some cases where severe cognitive impairment was evident, there was no evidence that the result of any formal pre-admission psychiatric evaluation had been communicated to nursing or care staff.

Keywords: admission, dependency, nursing homes, residential homes

Introduction

Since the 1970 UK census [1] there has been continuing interest in dependency of residents in institutional care, particularly in whether the trend is toward increasing dependency levels. Several studies have shown evidence of such an increase [2, 3]. Others have considered dependency only in the context of psychiatric morbidity [4, 5]. Very little work on dependency has been published since implementation of Community Care policy made prior assessment mandatory for those entering publicly funded care. In England, the Personal Social Services Research Unit survey [6] provides the best information on the subject. A recent study in Northern Ireland indicated that dependency levels have increased in nursing homes but decreased in residential homes [7].

This paper is based on data collected for the first phase of an outcome study of older people in nursing and residential homes. The study’s large cohort of consecutive new admissions is a particularly useful sample because it provides a more accurate picture of current home admissions than is available from cross-sectional studies, in which residents’ condition on entry is disguised by the subsequent effects of care home life.

Method

Between 1st September 1996 and 31st December 1997, 308 older people were interviewed within 2 weeks of admission for long-term care to one of 30 homes in north-west England. We obtained approval from the
three ethics committees covering the South Manchester, South Cheshire and Blackpool Wyre and Fylde areas. All homes in those areas with at least 25 beds were invited to participate in the study. Thirty-six were recruited in this way; the final number dropped to 30 because some homes had very few admissions during the recruitment period.

While the sample was not statistically representative, there were sufficient homes in varied geographical areas to ensure reasonable generalizability. This large cohort of new admissions was, therefore, probably not untypical of new admissions to homes during this period. As Table 1 illustrates, the study included many private homes and thus reflects this sector's recently expanded role more fully than does previous comparable work in the UK.

About 15% of admissions to the study homes were excluded because they were referred too late for inclusion, or because they had died or moved out before the end of the 2-week interview period. A further 19% refused to participate. Most did so directly; a few were excluded at the request of relatives or staff. It would have been unethical to collect from homes with significant information about refusers, but they did not differ significantly from cohort members in age or type of home. There are no reasons to believe that there was systematic bias in terms of disability. Refusers included people who were too ill to take part and people who were active and said they had better things to do.

In relation to the cohort of residents we performed several health assessments and collected data on demographic characteristics and family or social supports. All interviewing and data collection was undertaken by members of the project team with qualifications in nursing, social work, medicine or psychology who had research experience. Direct interviews with residents included the Mini-Mental State Examination (MMSE) [8]. Informant interviews including the Barthel activities of daily living index [9] and the Crichton Royal Behaviour Rating Scale [10] were conducted with a member of staff, if possible the 'key worker'. Details of diagnosed medical conditions and medication were obtained from home records.

A simple social classification was carried out for residents sufficiently free from cognitive impairment to supply the necessary information, using the National Readership Survey [11] method with occupational groups A/B/C1 and C2/D collapsed to produce two broad groups (manual and non-manual).

Before recruitment of study participants, homes provided a brief dependency profile for each current resident. From this, we calculated the percentage of the home's total population requiring assistance with specified self-care activities. We collected these data primarily as one measure of the social environment. We classified four self-care activities in a sufficiently similar manner to be comparable with individual items of the Barthel score and Crichton Royal Behaviour Rating Scale. They are used here to facilitate dependency comparisons between the new intake of residents and the existing population.

We asked home managers to supply information about staffing and about whether residents paid for their care privately or received full or partial support from public funds. We obtained information about frequency of visiting and distance travelled by relatives by means of a questionnaire.

Results

Of the 308 cohort members, 52% were nursing-home residents. Sixty-nine percent were women and all but two were white. The mean age was 83 (SD 7.6, range 65–101); 25% were aged 90 or over. Forty-four percent had been admitted to the home directly from hospital—34.5% of those admitted to residential homes and 52.8% of those admitted to nursing homes.

For the whole cohort the mean Barthel score was 11.4 (SD 5.5). Applying cut-points used in other studies [12, 13], this places the group within the range of low to medium dependency. Individually, 15% \( (n = 45) \) were 'high dependency' (score 0–4), 17% \( (n = 52) \) 'medium dependency' (score 5–8), 18% \( (n = 56) \) 'low/medium dependency' (score 9–12) and 50% \( (n = 155) \) 'low dependency' (score 13–20).

Table 2 shows the proportion of cohort residents with specific dependency needs, using the bathing item from the Crichton Royal Behaviour Rating Scale rather than the Barthel because it records greater detail about the assistance required. For each activity of daily living, many of these newly admitted residents needed considerable help from others. For the four activities

<table>
<thead>
<tr>
<th>Table 1. The 30 sample homes compared with all homes in the three study areas with at least 25 beds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No. of beds, by home size</strong></td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>27</td>
</tr>
<tr>
<td>Maximum</td>
</tr>
<tr>
<td>125</td>
</tr>
<tr>
<td>Median</td>
</tr>
<tr>
<td>39</td>
</tr>
<tr>
<td><strong>No. of homes, by sector</strong></td>
</tr>
<tr>
<td>Private</td>
</tr>
<tr>
<td>12 (40%)</td>
</tr>
<tr>
<td>Voluntary</td>
</tr>
<tr>
<td>12 (40%)</td>
</tr>
<tr>
<td>Local authority</td>
</tr>
<tr>
<td>6 (20%)</td>
</tr>
<tr>
<td><strong>No. of homes, by type of care</strong></td>
</tr>
<tr>
<td>Nursing beds only</td>
</tr>
<tr>
<td>11 (36.7%)</td>
</tr>
<tr>
<td>Residential beds only</td>
</tr>
<tr>
<td>18 (60%)</td>
</tr>
<tr>
<td>Joint registered homes</td>
</tr>
<tr>
<td>1 (3.3%)</td>
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</tbody>
</table>

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Table 2. Specific dependency needs (Barthel unless otherwise stated) of cohort members and, where data were available, the whole population of the 30 study homes

<table>
<thead>
<tr>
<th>Dependency Need</th>
<th>Cohort ((n = 308))</th>
<th>Whole population ((n = 1057))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incontinent of faeces (regularly)</td>
<td>23%</td>
<td>-</td>
</tr>
<tr>
<td>Incontinent of urine (regularly)</td>
<td>30%</td>
<td>36%</td>
</tr>
<tr>
<td>Need help to wash face/shave/brush hair/clean teeth (more help than provision of implements)</td>
<td>55%</td>
<td>42%</td>
</tr>
<tr>
<td>Need at least some help to use toilet (help on/off; wiping)</td>
<td>55%</td>
<td>39%</td>
</tr>
<tr>
<td>Need at least some help with feeding (at least food cutting/butter spreading etc.)</td>
<td>29%</td>
<td>-</td>
</tr>
<tr>
<td>Need help of two people to transfer bed/chair</td>
<td>33%</td>
<td>-</td>
</tr>
<tr>
<td>Have no mobility (cannot walk even with aids or help of one person; not independent using wheelchair)</td>
<td>24%</td>
<td>-</td>
</tr>
<tr>
<td>Need at least some help to walk or wheel indoors</td>
<td>58%</td>
<td>44%</td>
</tr>
<tr>
<td>Need to be dressed (unable to do at least half the task unaided)</td>
<td>35%</td>
<td>-</td>
</tr>
<tr>
<td>Unable to manage stairs*a</td>
<td>83%</td>
<td>-</td>
</tr>
<tr>
<td>Need major help with bathing (able, at best, to wash own hands and face with supervision)b</td>
<td>45%</td>
<td>-</td>
</tr>
</tbody>
</table>

*aResponses to this item are affected by home policy and building design.  
bCrichton Royal Behaviour Rating Scale.

for which comparable data were collected from home managers, the dependency needs of the whole population of these homes are shown. Although these figures included longer-term residents who might be expected to have experienced deterioration, for three of the four activities the new admission cohort contained a higher proportion of dependent people.

There was a statistically significant difference in the Barthel score between nursing- and residential-home residents, with medians of 8.7 and 14.3 respectively (Mann–Whitney U test, \(P < 0.001\)), nursing-home residents being more dependent. Similarly, the MMSE score showed greater impairment in nursing-home residents, with medians of 12 (nursing) and 16 (residential); Mann–Whitney U test, \(P < 0.001\). This last figure is based on a valid \(n\) of 294, omitting 14 residents incapacitated in ways which made MMSE assessment impossible.

In Table 3, residents in the two types of home are divided into dependency groups using the Barthel cut-points. Very few residents of residential homes had high dependency needs on admission, with 92% in the two lower dependency groups. In the cohort as a whole, Barthel and MMSE scores were significantly correlated \((r = 0.340, P < 0.001)\), making it unlikely that admission of many of the lower-dependency residents was due to severe cognitive impairment. Among the 105 residential-home admissions in the lowest dependency group the mean MMSE was 16 (SD 6.9).

Although there were more high-dependency residents in nursing homes, 31% were in the low-dependency group. The mean Barthel score for the 49 subjects admitted to nursing homes in the low-dependency group was 15.3 (SD 1.9) and the mean MMSE score was 15.2 (SD 8). Of these 49 residents, 44 were independently mobile, 38 were fully continent and 36 used the toilet independently.

Possible reasons for admission to the nursing homes of these low-dependency people were investigated. Potential explanatory variables were identified and, using \(\chi^2\), \(t\) and Mann–Whitney U tests as appropriate, the low-dependency group was compared with a group comprising all other nursing-home residents. There were no statistically significant differences between these two groups in:

1. Age or the length of time taken by visiting relatives to get to the home (\(t\) test);

2. Gender, social class, whether or not they were currently married, whether or not they had children, whether or not they had been admitted from hospital, whether they were in homes in South Manchester, South Cheshire or Blackpool Wyre and Fylde, whether relatives visited more or less often than weekly, whether or not they had been diagnosed with a cardiovascular disorder, whether or not they had been diagnosed with cancer (any kind), whether or not they had been diagnosed with a rheumatological disorder, whether or not they had been diagnosed with
dementia, whether or not they had been diagnosed with a psychiatric disorder other than dementia, whether or not they had been diagnosed with a respiratory disorder, whether or not they had been diagnosed with diabetes or in whether or not they had been diagnosed with a neurological disorder ($\chi^2$ test); or

3. Number of diagnosed disorders (one counted for each of the above groupings) or in depression, measured by the 15-item Geriatric Depression Screening Scale [14] (Mann–Whitney U test).

The two groups differed significantly in MMSE scores, with the low-dependency group, as might be expected, being less cognitively impaired [$t = -3.361$ ($d.f. 144), P = 0.001$]. The only statistically significant difference which offered a possible explanation for the admission of low-dependency subjects to nursing homes was in whether or not residents were self-funding.

Information about payment was available for 120 of the 159 nursing-home admissions, missing data resulting from the fact that some homes did not have this information and others refused to divulge it. To check for systematic bias, we compared Barthel scores for the two groups. There was no statistically significant difference between the group for which data were available (mean score 8.7) and the group for which data were unavailable (8.4). Data for the 120 residents for whom information about payment was available showed that in nursing homes low dependency was significantly associated with paying for care exclusively from private resources [$\chi^2 = 9.002$ ($d.f. 1), P = 0.003$]. For the 46 self-funding residents, mean Barthel and MMSE scores were 11.4 (SD 4.9) and 15.9 (SD 7.3) respectively. Of those known to have paid in full for their nursing-home care, 67% (31/46) were in the low-dependency (Barthel 13–20) group. This situation was not observed in the residential homes.

### Diagnoses and medication

Based on information supplied to the home on admission, residents’ diagnoses were grouped into diagnostic groups. Groups including 10 or more residents were: cardiovascular (not cerebrovascular), cancer (all), rheumatological, dementia, respiratory, gastro-intestinal, diabetic, neurological, psychiatric (not dementia) and stroke.

The most common diagnosis was of non-stroke cardiovascular disorder (94 out of the 308 subjects), followed by rheumatological diseases (62/308), dementia (58/308), stroke (57/308) and neurological disorders (39/308). With only one exception, there was no statistically significant association between type of home and any of the grouped diagnoses. The exception was that residents with a diagnosis of dementia were more likely to be in nursing care [$\chi^2 = 8.605$ ($d.f. 1), P = 0.003$].

Residents with a diagnosis of dementia had significantly lower MMSE scores (mean 8.5) than those with no such diagnosis (mean 15; $t = 6.595$ ($d.f. 292), P < 0.001$) but most of those with low or very low MMSE scores had no diagnosis of dementia. When three diagnostic groupings of dementia, neurological disorder and ‘other psychiatric’ were aggregated, to include all likely explanations of cognitive impairment, there was still no significant association between MMSE score and diagnosis. Of 47 residents with a MMSE score of 9 or less, indicating severe cognitive impairment, 40 (85%) had no diagnosis in this aggregated category.

A number of residents had conditions which might be thought likely to have potential for active rehabilitation—for example 35% suffered from rheumatological diseases and/or had had strokes. Although the extent to which any individual resident might have benefited from rehabilitation is not known, therapy or activity staff, qualified or unqualified, were rare in these 30 homes. Eighty percent of the homes provided less than 6 min of ‘activity staff’ time per occupied bed per day; 14 homes had none. No trained occupational therapists were employed. One home provided ‘on site’ physiotherapy services.

Figure 1 shows residents’ prescribed medication, broken down according to British National Formulary classification. Central nervous system medication was the most common category, prescribed for 67% of residents, followed by cardiovascular and gastro-intestinal drugs, prescribed for 59% and 48% respectively. The mean number of drugs per person was 4.05 (SD 2.75, range 0–13), with 52% of residents on four or more drugs, the level at which adverse reactions are more common [12, 13].

### Discussion

For many years a key feature of government policy has been to target residential resources upon the most dependent individuals, with emphasis on home-based care for those with lower dependency needs. It is,
therefore, surprising to note that 71% of new admissions to residential homes and 31% of new admissions to nursing homes had low dependency needs. The only evidence of effective targeting appears to be the fact that there were hardly any high-dependency new admissions to residential homes.

That this study found many new admissions with low dependency needs is relevant to the question of whether greater diversion to home-based care is feasible. At present, a ‘residential care allowance’ of £50 per week is paid by the Department of Social Security to support publicly funded residents in private and voluntary homes. It has been proposed in a White Paper [15] that this be removed and the funding allocated to Social Services. This would be equivalent to raising the unit cost of residential or nursing-home care by the amount of the residential care allowance. Such a relative price effect strengthens the case for home-based care of people who are at the margin of needing institutional provision—since the opportunity cost of this allowance approximates 6 h of home care per week.

Nearly one-third of the new admissions to nursing-home care had low dependency needs, and these people were more likely to be self-funding. A study of admissions to nursing homes in Aberdeen found selection in favour of privately funded residents with lower dependence [16]. One explanation may be that those who are able to pay view nursing-home care, with its medical associations, as carrying less stigma than residential care (which may be seen as designed for those needing accommodation). These residents with lower care requirements are attractive customers to nursing-home operators faced with the challenge of low occupancy. It is also possible that relatives opt for nursing-home care before it becomes necessary to avoid the distress of subsequent relocation.

It may appear that a choice of nursing-home care taken by someone who is paying the full cost should not be a matter of concern for public policy. However, over a period private resources may be exhausted, leaving public authorities with a choice between moving the resident to a lower level of care elsewhere or continuing payment at the higher rate. Moreover, when low-dependency people with financial resources opt for nursing-home care they may make a poor decision, inadequately informed by professional advice. They pay a higher price for a level of care which they do not need, and may find themselves with fewer social opportunities because their fellow residents are more severely disabled, mentally and physically. For these reasons, the presence of large numbers of low-dependency residents in nursing homes suggests a need to provide better assessment and placement services for those who are financially independent of local authorities.

One of the key tenets of recent policy guidance in the care of older people has been a greater focus upon rehabilitation [17]. This study is not unique in suggesting that there may be inadequate provision of activity and therapy services for care-home residents who might benefit from them.

The need for appropriate assessment of older people before long-term care admission has been discussed in the literature for many years [17–25]. Because in this study we obtained MMSE scores for the cohort members, it is possible to examine practice in this particular area. Of those with MMSE scores of 9 or less, indicative of severe cognitive impairment, 85% had no diagnosis of neurological disorder, dementia or any other psychiatric phenomenon. Undoubtedly staff in the homes would have described most of these people as cognitively impaired but they had been given no diagnosis. Some residential-home staff commented that they were not given medical information as a matter of policy. Similarly, the number of residents taking four or more drugs raises similar questions about procedures for pre-admission medication review. The effects of polypharmacy, particularly on balance, alertness or concentration, can be such as to increase dependency. Unless this is taken into account before admission, inappropriate placement decisions may be made which are subsequently difficult to reverse.

**Key points**

- Many new admissions to both residential and nursing homes have low dependency needs.
- Older people who are financially independent should be offered pre-admission assessment and advice similar to that provided for publicly funded applicants.
- The study provides evidence of inadequate pre-admission diagnosis and assessment.
- Important diagnostic information and pre-admission assessment details are not always communicated to nursing homes and care staff.

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**Figure 1.** Percentage of cohort on prescribed medication (British National Formulary classification); \( n = 308 \) (residents can be counted in more than one category).
References


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