



Impact of neurodegenerative conditions on social care: a rapid review

Interim Report



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Contents

Summary	3
Introduction	4
Methods	5
Results: Motor neurone disease (MND) and amyotrophic lateral sclerosis (ALS)	7
Results: Parkinson’s disease (PD).....	10
Results: Alzheimer’s Disease and other dementias	12
Conclusion	15
References	16
Supplementary Material.....	22
Acknowledgements	23

Summary

The challenge

Neurodegenerative conditions significantly impact individuals, families, and the health and care system. These conditions place emotional, physical, and financial burdens on unpaid carers and contribute to rising public and private social care costs, exacerbated by an ageing population. Reducing incidence, delaying onset, or slowing progression could alleviate demand for both formal and unpaid care, with broad implications for health, social care, housing, employment, and welfare.

Our approach

A rapid review has been conducted to assess how neurodegenerative conditions affect social care needs, including unpaid and formal services. This review represents the first phase of a broader study examining the effectiveness of prevention initiatives in mitigating these impacts and reducing reliance on social care.

Key findings

Neurodegenerative conditions have a significant impact have on social care needs and costs. Across conditions the demand for both formal and unpaid care is substantial, with unpaid care often accounting for an important proportion of the costs. Other important cost drivers are inpatient care, home-based care, and home adaptations.

Unpaid carers experience significant losses in paid employment productivity and earnings, along with financial burdens and opportunity costs associated with providing care. They also face considerable emotional and physical challenges, including reduced quality of life, social isolation, changes in relationships, emotional distress, anxiety, despair, and bereavement.

Specific care needs include home adaptations, mobility aids, and accessibility improvements. Also, importance of formal care to support with symptom management and medication management and adherence, and caregiver support.

Implications

Future efforts should focus on improving access to social care, financial assistance for carers, and policies that enhance early intervention and disease management strategies.

Introduction

Neurodegenerative conditions such as dementia, Parkinson's disease, and motor neurone disease (MND) have profound effects on individuals, their families, and the health and care system. These conditions lead to progressive cognitive and physical decline, usually requiring increasing levels of care and support. Individuals face challenges in maintaining independence, managing symptoms, and accessing appropriate services. Moreover, many families and unpaid carers experience significant emotional, physical, and financial burdens, often adjusting their lives to provide essential support. Population ageing and concomitant growth in the number of people living with dementia and other neurodegenerative conditions will increase pressure on public expenditure, as well as on the resources of individuals and families who may pay for social care or give up employment to provide unpaid support (1).

Reducing the number of people who develop neurodegenerative conditions, delaying onset, or slowing progression would affect demand for formal and unpaid care, with implications across potentially many sectors (including health, social care, housing, employment and welfare benefits). Understanding the potential impact of interventions on care needs, service configurations, workforce, costs, and the way that those costs are financed is therefore essential for policy development, local planning, and individual commissioning (2).

This review is the first phase of a broader study that focuses on how effectively primary, secondary and tertiary prevention initiatives can reduce risk, delay onset in high-risk groups, and maintain functioning and independence as symptoms of neurodegenerative conditions develop, and thereby reducing the need for social care. As the first step in this study, we have conducted a rapid review to identify the impact of neurodegenerative conditions on social care, including unpaid care and formal services.

The project aims to address inequality by focusing on high-risk groups vulnerable to inequities linked to various sociodemographic characteristics, and caregiving responsibilities. These factors influence both the risk of neurodegenerative conditions and access to appropriate social care interventions. Stakeholder consultations and discussions with our involvement group have played a critical role in identifying potential sources of inequity ensuring that a diverse range of experiences is represented in our work.

Review question

What are the impacts of different neurodegenerative conditions on the use of social care in England?

Methods

Inclusion criteria

The inclusion criteria followed the Population, Concept, and Context framework (3). Given the large body of research on this topic, we focused on reviews or observational studies of large (national level) datasets conducted since January 2014. Preliminary research included identifying neurodegenerative conditions and their prevalence in the UK. In addition to dementia-related conditions (including Alzheimer's disease and Lewy body dementia), Parkinson's disease and motor neurone disease (most common sub-type: amyotrophic lateral sclerosis) were identified as the highest prevalence neurodegenerative conditions in the UK. Therefore, our search focused on identifying the implications for use of social care (including unpaid care) for each of these conditions.

Population – Studies that assessed the impact of neurodegenerative conditions on adult social care were included. The population of interest comprised individuals with neurodegenerative conditions and their unpaid carers (the term used in this report; other terms used in the literature include informal and family carers or caregivers).

Concept – The study examined the impact of neurodegenerative conditions on social care use (including unpaid care) in England. Articles were included if they explored the need for social care, the costs associated with specific conditions, or similar aspects.

Context – The primary focus was England, but if insufficient research was available, reviews from outside the UK were considered to understand general care needs. However, caution will need to be exercised in interpreting findings from studies conducted outside England, given that care systems vary between countries.

Search Strategy

We searched the following databases: Medline via Ovid, EMBASE via Ovid, PsycInfo via Ovid, and Social Policy and Practice via Ovid. The search strategy was structured around the concepts 'neurodegenerative conditions' AND 'social care' and incorporated subject headings, text words, and search operators such as truncation and proximity. No language limits were applied. Only articles published in 2014 and after were included. The search was structured into two consecutive and complementary reviews, focusing on selection of reviews and descriptive studies of big datasets, respectively. Results from all databases were deduplicated in EndNote using the Falconer and Bramer methods (4, 5).

Study selection

All deduplicated articles were uploaded to Rayyan for screening (6). Two reviewers independently screened titles and abstracts. To ensure consistency, a random sample of 10% was screened as a pilot, and disagreements were resolved through discussion. At the full-text level, most reviews were screened by two reviewers, following the same pilot screening process. An abstract screening tool and explanatory documents were developed to maintain consistency in the selection of articles (7).

Data extraction

One reviewer extracted data from all selected reviews, and a second reviewer cross-checked a random 10% sample for accuracy and completeness.



Results: Motor neurone disease (MND) and amyotrophic lateral sclerosis (ALS)

There were seven reviews and two cross-sectional studies that focused on MND and ALS. Of these, six addressed ALS (8-13), while three focused on MND in general (14-16). Out of the nine articles, five examined the costs associated with ALS and MND, including direct and indirect costs (8, 9, 16). Two reviews focused on the impact on unpaid carers, discussing financial burdens, social isolation, and emotional distress (14, 15). One article explored key milestones in disease progression and how these influenced social care needs (10), while another assessed the information needs of both individuals with the condition and carers (11).

Costs

The study by Moore et al. showed that, in the UK, over a 3-month period, total costs per person for people with MND ranged from £53 to £39,884 GBP (at 2017 price levels), around a mean of £1,889 (95% CI £1,596-£2,214). Overnight inpatient stays contributed 35.8% of total costs, while community-based care costs made up 14.2% (16). Moreover, health and care costs increased with disease severity, as classified by Kings staging based on clinical observation of loss of independence in the bulbar, upper limb, and lower limb domains, or respiratory or swallowing failure (17). Costs ranged from £1,096 (95% CI £757-£1,240) at Kings Stage 1 (loss of independence in one domain described) to £3,311 (£2,666-£4,151) at Stage 4 (respiratory or swallowing failure), primarily driven by inpatient stays and home-based care (16).

Berry et al. reported that, in the US, the total national annual costs for people with ALS ranged from \$212 million to \$2.3 billion USD (when using different estimated national prevalence, at 2020/2021 price levels), with significant variation based on care needs and disease progression (8). The biggest drivers of direct costs from a societal perspective were inpatient and non-medical costs, including professional home health care or adaptations to the home and/or vehicle. The study reported high indirect costs associated with work absenteeism (cost of missed work at \$21 USD/hour) for people with the condition (8). Regarding health and care resource use, the review showed that there was a high proportion of people with ALS requiring outpatients' services, and hospital and A&E visits. Maresova et al. (12) reported that the average cost of care for a person with ALS in the last year of life was \$68,312 Canadian dollars (at 2015 price level). The review by García-Pérez et al. (9) found that out-of-pocket costs per month related to ALS care in South Korea were \$1,871 USD (at 2013 price level), representing 67% of the mean household income in the country.

Impact on unpaid carers

Individuals with MND and their carers face significant financial impacts when accessing care. Alternative care options outside providing full-time unpaid care are limited, even when requiring specialist support, and come with financial implications (15). Carers and individuals with MND experience changes in relationship dynamics, reduced communication with friends and family, and fewer opportunities for social interaction, leading to increased isolation (15).

Advance care planning is crucial, including preparation for end-of-life care and interventions to mitigate function loss (e.g., communication, breathing, eating, mobility) (14). However, there is significant variation in patient preferences for information timing and sources. Multi-disciplinary support was seen as useful for decision-making when the condition progressed. Also, people found that coordination, continuity of care and shared-decision making was key. Care services are essential to provide support when individuals experienced physical difficulties such as changes in speech and communication, ventilator management for breathing problems, feeding assistance, and decline in mobility and loss of function. Carers experience significant challenges, including balancing employment, emotional distress (anxiety, despair, loneliness, anger, fear), and requiring bereavement support (14).

Condition severity and progression

People with ALS reached significant disease milestones at predictable intervals, impacting their care needs and service use (10). On average, people with ALS reached significant milestones within 30 months of symptom onset. Key estimates include 8 months to diagnosis, 16 months to changes in employment status, 19 months to requiring carer support, 23 months to wheelchair use, and 29 months to initiating gastrostomy feeding. The review by Moore et al. showed that mean health utility scores, assessed via the EQ-5D-5L, declined significantly with advancing disease stages – from 0.76 at Kings Stage 1 to 0.50 at Stage 4, and from 0.71 at Stage 0 to 0.25 at Stage 4 using MiToS staging, another system to determine disease progression based on loss of independence (16).

Needs of people with ALS and carers

The review by Young et al. described emotional and psychological needs of people with ALS and their carers (13). The review reported needs related to social, emotional and spiritual support, personal care, mental health, end-of-life care and support related to capabilities of caring. Furthermore, unpaid carers experienced financial effects and impacts on their employment, and mental health problems such as anxiety and depression. People with ALS and their carers need home adaptation and adaptive equipment, and assistive technology to preserve their communication and support their social and health-related needs. People also need information as condition progresses, including information on

symptoms, practical information and managing behaviour challenges. Moreover, there is usually a need for homecare services, specifically personal care, housekeeping, gardening, meals, and help with paying bills.

It is important to consider the differences in preference around information delivery (for example, some people preferring all the information at once, and others incrementally) (13). For example, Gillespie et al. reported that individuals with ALS most frequently sought information on disease prognosis, general condition details, and decision-making around interventions (11). In contrast, carers prioritised information on available services, resources, prognosis, and carer skills. Variability exists in preferences for information type and timing between persons with ALS and their carers which is important to consider when providing adequate care (11).



Results: Parkinson's disease (PD)

There were nine reviews and five descriptive studies of large datasets that focused on PD. These articles covered a wide range of topics, including the impact of PD on social care use, direct and indirect healthcare costs, employment consequences, impact on unpaid carers, and the role of healthcare professionals, particularly nurses. The studies highlight the challenges associated with home adaptations, the high costs of care, and the substantial impact on unpaid carers, emphasising the need for tailored support and better resource allocation. Six articles explored unpaid care, of which four explored indirect costs (18-21), three assessed carer burden and general need for support services (22-24), and one focused on the emotional and psychological impact on carers (25). Ten studies focused on formal care analysis, five discussed direct healthcare costs (18-21, 26), two examined the impact and general need for care services (27, 28), and three discussed the role of care professionals, particularly nurses, in supporting individuals with Parkinson's and their carers (29-31).

Costs

Weir et al. (19) reported that the mean annual cost for people with PD in the UK was £5,022 GBP, compared to £2,001 for controls (at 2013 price levels). Controls were individuals 30 years or older without a diagnosis of PD, matched by sex at birth, year of birth (± 5 years) and the general practice where they were registered. Costs were higher than for controls across all categories examined in the study, including primary care, inpatient stays, outpatient visits, A&E, and medications. Advanced PD had annual costs of £5,491, compared to £4,422 for less severe stages. Dementia, common in PD, increased costs to £5,649 annually (19). Similarly, Chaudhuri et al. showed that advanced PD leads to significantly higher health and care costs (26). For example, they reported that the mean annual costs for advanced stages of PD were €15,628 EUR in Europe versus €5,864 for early-stage PD (at 2020 price levels) (26). Major cost drivers included hospitalisations, prescriptions, and indirect costs related to carers' employment impact (26). Similarly, late-stage PD costs in Germany averaged €38,628 annually, with hospital stays being the primary cost driver (at 2016 price levels) (20). Unpaid care costs exceeded formal healthcare expenses, averaging €10,964 quarterly.

When looking specifically at UK data, costs for late-stage PD over 3 months were €4,405 EUR, including €3,598 (81.7%) in direct costs and €807 (18.3%) in indirect costs (at 2016 price levels). Direct costs were defined as outpatient medical visits, ancillary therapy (including physiotherapy, occupational therapy, and speech training), inpatient hospitalisation, inpatient and outpatient rehabilitation clinics, medical devices and consumables, formal and unpaid care, and medication. Indirect costs included productivity loss (for

example: work absences or early retirement due to illness). The primary contributors to costs were hospitalisation (€1,070 or 24.3% of the total) and formal care (€1,225 or 27.8%), while medication costs were lower at €277 (6.3%). Unpaid care cost was estimated as €7,751 (21). Similarly, the systematic review by Gumber et al., showed that unpaid care accounts for up to 80% of total expenses, with direct healthcare costs estimated at £1,881 per year (for hospitalisations, medical appointments) and unpaid care costs and productivity loss at £12,500 per year (at 2008 price levels) (18). Employment rates declined sharply post-diagnosis, with only 6–10% of individuals employed full-time after five years. Total annual costs of PD in the UK were estimated between £450 million and £3 billion (18).

Impact on unpaid carers

Carers, primarily older female spouses, reported high burden, experienced reduced quality of life (QoL), and financial strain (18, 22). Carers of people with advanced PD provided around 8 hours of support per day, compared to 3.2 hours/day for people with early-stage PD (21, 22). Sleep disturbances were common, with carers experiencing poor sleep quality, increased sleep latency, and emotional stress (23). Mean global sleep quality score was 5.6 (95% CI: 4.8 to 6.4) on the Pittsburgh Sleep Quality Index, above the clinical cut-off of 5 for poor sleep (scores range from 0 to 21, with higher score indicating worse sleep quality). Carers reported an average sleep duration of 6.4 hours per night (23). Factors influencing carer burden included disease severity, carer frequency, and lack of external support (25). Carers also needed support for emotional, financial, and role transitions as the disease progressed (24).

Role of nurses in Parkinson's care

Nurses provide essential support, including symptom assessments, medication management, fall prevention, and palliative care. In multidisciplinary collaborations, nurses play an educational role in supporting care home staff and unpaid carers, addressing both motor and non-motor symptoms such as sleep disturbances and mental health challenges (29, 30).

Home adaptations and living in care homes

People with PD require more adaptations for personal care, increased accessibility support, and mobility aid information compared to other older people without PD. Common accessibility barriers include home environments and external surroundings like high kerbs (27, 28). People with Parkinson's are typically admitted to nursing homes earlier than comparison groups and face unique challenges when transitioning into care homes (31). However, there is a substantial knowledge gap regarding housing needs for people with PD, resulting in some care homes lacking the necessary physical adaptations and therefore being unable to provide suitable accommodation and support (27). In terms of living in care homes, Copeland et al. showed that care home staff play a crucial role in care of people with PD, such as symptom management, functionality and in administering complex medication regimens (31).

Results: Alzheimer's Disease and other dementias

There were 43 reviews that reported on the impact of Alzheimer's disease and other dementias on the need or use of social care (including unpaid care), or that explored the costs associated with these conditions, in England. Out of these, 40 focused on dementia (32-70), and three focused on Alzheimer's disease specifically (12, 71, 72).

The three reviews that focused on Alzheimer's disease examined costs. Klieb et al. reported that, for community-dwelling adults in European countries, USA and Japan, unpaid care accounted on average for 68.7% of total costs, whereas for residential care, formal care accounted for 85.9% of total costs, with costs increasing in both cases as the disease progressed (71). The review by Maresova et al. reported that monthly societal costs ranged from €1,355 for mild cases to €2,908 for severe cases per month (price levels not reported, based on a study conducted in 2016 with data from France, Germany and the UK (73)), with unpaid care contributing between 59% and 75% of these costs (12).

On the other hand, out of the 40 reviews that focused on dementia, 23 reported on unpaid care, and 16 reported on formal care. Of the 23 that reported on unpaid care, six focused on costs, ten focused on burden and general need for care, and seven focused on need for culturally sensitive care. Of the 16 that reported on formal care, four focused on costs, ten focused on burden and general need for care, and one focused on need for culturally sensitive care.

Costs

There were six reviews that focused on unpaid care costs, which were substantial. Angeles et al. reported that unpaid care accounts for 40-75% of total dementia-related costs in OECD countries, surpassing formal care and medical expenses, with disease severity, functional dependency, and behavioural and psychological symptoms the primary drivers of increased societal costs (68). As for numerical figures on costs, there were a range of values, depending on whether the focus was unpaid care costs alone, or included formal care costs too. For unpaid care, Oliva-Moreno et al. reported that the average annual costs of unpaid care in the UK were €42,956 (at 2015 price levels), with hourly costs of unpaid care of €8.24 on average (median €9.40) (57). When including formal care costs, Jönsson et al. reported that the annual costs per person range from €7,938 in Eastern Europe to €73,712 in the UK (at 2021 price levels), with higher costs in the UK mainly driven by a higher cost of unpaid care, with costs increasing with disease severity (41). Schaller et al. (59), reported that annual costs per person ranged from USD \$31,896 in community-settings to \$39,8976 in institutionalised settings in multiple countries in Europe, North America, Asia and South America (at 2013 price levels), with unpaid care and nursing home expenditures identified as primary drivers. There were significant cost differences by disease severity,

with mild, moderate, and severe costing USD \$5,971, \$8,757, and \$13,402 annual in direct medical (including inpatients and outpatients visits and medications) and non-medical costs (home help and transportation), respectively. Institutionalised care was significantly costlier, averaging \$23,752 per person, largely driven by nursing home expenses. Unpaid care costs averaged \$23,340 per person, with significant differences by disease severity (\$15,478, \$31,104 and \$38,403 for mild, moderate and severe, respectively). Finally, Tan et al. reported that productivity loss was higher for people with frontotemporal dementia than for Alzheimer's disease, because in general, people with frontotemporal dementia were younger than people with Alzheimer's and thus more likely to still be in paid employment. The review reported that total costs for frontotemporal dementia in USA averaged \$119,654 USD compared to \$64,168 for Alzheimer's disease (63) (at 2016 price levels).

On the other hand, four reviews focused on formal care costs, but only two provided figures. Leniz et al. reported that costs of care significantly increased for people as they approached the end of life (45). The same study showed that monthly direct costs rose from \$1,787-\$2,999 USD in the final year to \$4,570-\$11,921 USD in the final month (16/19 studies conducted in USA, two in Europe and one in Australia, at 2019 price levels) (45). Long-term care facility and hospice care dominate these costs, while unpaid care costs, though substantial, are underreported. Livingston et al. reported that in the UK health and social care costs were higher for people exhibiting severe agitation, ranging from £7,000 in people without clinically significant agitation to £15,000 GBP in people with severe agitation symptoms, over 3 months (at 2011 price levels) (69).

Burden and general need for care

There were ten reviews that focused on burden and general need for care, drawing on studies conducted across a range of countries. The burden of unpaid care had negative impacts on caregivers. Lindeza et al. reported that these reflected emotional and social strains such as stress, isolation, financial burdens, and challenges related to progression of conditions (47). Some of these negative impacts were higher for female caregivers. For example, Xiong et al. reported that there were higher stress levels and unique gendered challenges, such as a higher caregiving burden and significantly higher depression (66). As for general need of care, Millenaar et al. reported that there were problems in the diagnostic period, with early recognition and referrals reported as an essential area that required improvement in order to obtain appropriate help in time (51). These findings were similar to Campbell-Enns et al. (70), who showed that there were challenges associated with caregiving, such as difficulty obtaining a diagnosis, inadequate formal healthcare services, emotional stress, and financial burden (70). The findings of financial burden were similar to Neubert et al. (53), who reported that carers' employment was significantly affected by the severity of the care recipient's impairments, with more severe cognitive impairment leading to a higher likelihood of reduced work hours or ceasing employment altogether.

Ten reviews examined the burden and general need for care from 'formal' services. These fell into two broad types. The first broad type highlighted the needs of professionals. Dennehy et al. reported that there was a need for appropriate training for staff and unpaid carers to enable ageing in place, for quality of care and to reduce carer stress (35). On a similar level, focusing on the need for quality of care, O'Donnell et al. found that there were barriers to the adoption of sustainable non-pharmacological interventions, such as limited resources and inadequate awareness of drug risks, with a need for staff training and collaboration (56). The second broad type highlighted the need for greater access to care. Shiells et al. reported that there was a need to integrate palliative care from the early stages of dementia to improve people's care outcomes, because palliative care is often overlooked due to uncertain prognoses and delayed diagnoses (60). Finally, Sola-Smith et al. reported that there was a need for targeted interventions addressing cognitive decline, behavioural and psychological symptoms of dementia, caregiver support, and tailored service provision (61).

Need for culturally sensitive care

There were nine reviews that focused on need for culturally sensitive care. These reviews fell into two broad types. The first broad type highlighted the risk of stigma and distrust. Chejor et al. (32) reported that there were significant challenges, such as language barriers, stigma, and limited culturally appropriate services. Stigma was a major worry across multiple reviews. Nurunnaher et al. found that carers experienced a lack of culturally sensitive support services, and additional challenges like stigma and limited knowledge about available services (54). Similarly, Zhang reported that there were challenges accessing culturally appropriate care services due to stigma and language barriers (67). Distrust and fear of discrimination were other major worries. Chen et al. described how caregivers from minority ethnic communities face barriers such as cultural mismatches and fear of discrimination (33). Furthermore, Stenberg et al. reported that language barriers and distrust of healthcare systems were significant barriers faced by people with dementia and their family members (62).

The second broad type highlighted the needs of professionals. Duran-Kıraç et al. reported that professionals faced challenges with cultural sensitivity, language barriers, and limited knowledge of ethnic minority-specific resources (36). Along similar lines, Lillekroken et al. and Bergmann et al. found that there were barriers to accessing formal support, pointing to cultural, linguistic, and systemic obstacles, and models of care, addressing the need for culturally sensitive accessible services (46, 74). Finally, Giebel et al. reported that cultural challenges like language barriers and inadequate cultural sensitivity were barriers to accessing community-based care (38).

Conclusion

The findings from this summary of a careful review of evidence highlight the significant impact neurodegenerative conditions have on social care needs and costs. Across ALS, MND and PD, the demand for both formal and unpaid care is substantial, with unpaid care often accounting for a substantial proportion of the costs. The economic impacts include health and social care service costs, lost productivity and earnings for carers, and other opportunity costs associated with unpaid care. Additionally, unpaid carers face significant emotional and physical challenges, further underscoring the need for better support systems. Future efforts should focus on improving access to social care, financial assistance for carers, and policies that enhance early intervention and disease management strategies. This review lays the groundwork for the next phase of our study, which focuses on identifying key modifiable risk factors for dementia, Parkinson's disease, and motor neurone disease, followed by an evaluation of effective interventions aimed at delaying disease onset, preserving functioning and independence, and ultimately reducing reliance on social care. The insights gained will inform our modelling work, enabling us to project long-term care needs and financial implications while assessing the broader impact of interventions on health outcomes, quality of life, workforce requirements, service costs, unpaid care, and productivity losses in paid employment. By integrating these findings, the project will contribute to policy development, supporting the creation of a more equitable and sustainable social care system.

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Supplementary Material

Search strategy: Embase

#	Search term	No. of hits
1	(dement* or Alzheimer* or Parkinson* or Lewy or Fronto* or Huntington or Chorea or amyotrophic lateral sclerosis or ALS or motor neuron* disease or MND or progressive muscular atrophy or Gehrig or neurodegen* or neurolog*).ti,ab.	1320126
2	dementia/ or multiinfarct dementia/ or frontotemporal dementia/ or Alzheimer disease/ or Huntington chorea/ or degenerative disease/ or Parkinson disease/ or amyotrophic lateral sclerosis/ or diffuse Lewy body disease/ or chorea/ or motor neuron disease/	652091
3	1 or 2	1429624
4	((intermediate or "long term" or longterm or institution* or day or extended or respite) adj care).ti,ab.	50791
5	residential home/ or nursing home/ or respite care/ or long term care/ or home for the aged/ or geriatric nursing/ or adult day care/ or assisted living facilities/ or home for the aged/	230494
6	((("old age" or "old* people*" or "old* person*" or "old* adult*" or aged or geriatric* or retirement or nursing or care or resident* or long-term or longterm or senior* or aging or ageing or elder*) adj3 (home? or institution* or facility or facilities or hous* or center* or centre* or unit or units or establishment*)).ti,ab.	591124
7	4 or 5 or 6	769370
8	3 and 7	60762
9	(exp Meta Analysis/ or ((meta adj analy\$) or metaanalys\$).tw. or ((systematic or scoping or rapid or umbrella) adj (review\$1 or overview\$1)).tw.) or (cochrane.ab. or embase.ab. or (psychlit or psyclit).ab. or (psychinfo or psycinfo).ab. or (cinahl or cinhal).ab. or science citation index.ab. or bids.ab. or cancerlit.ab.) or (reference lists.ab. or bibliograph\$.ab. or hand-search\$.ab. or relevant journals.ab. or manual search\$.ab.) or ((selection criteria.ab. or data extraction.ab.) and review.pt.)	740947
10	Letter.pt. or editorial.pt. or (animal/ not (animal/ and human/))	3308005
11	9 not 10	722966
12	8 and 11	2265



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