International Journal of Endorsing
HEALTH SCIENCE RESEARCH

IJEHSR

Review Article

To what extent does Dementia have a toll on the Quality of Life: Critically evaluating the physical, emotional, and social dimensions.

Fawaz Bilal Shaikh
Urmston Grammar School, Manchester-England.

Doi: 10.29052/IJEHSR.v13.i2.2025.120-130
Corresponding Author Email: fawazbilal@outlook.com
Received 02/02/2025
Accepted 13/04/2025
First Published 01/06/2025

OPEN ACCESS

Abstract

Background: Dementia is a progressive neurodegenerative condition whose global prevalence is rising in tandem with an aging population. It imposes significant personal, societal, and economic burdens, affecting not only those diagnosed but also their caregivers and communities. This narrative review critically evaluates the impact of dementia on quality of life, with a specific focus on the physical, emotional, and social dimensions affecting patients and caregivers across different stages of the disease.

Methodology: A comprehensive review of 25 peer-reviewed articles and authoritative reports published between January 2011 and January 2025 was conducted. Databases searched included PubMed, Scopus, and Web of Science. Studies were selected based on their relevance to dementia subtypes, symptomatology, and quality-of-life outcomes, with emphasis on high methodological rigor and recent findings.

Results: Dementia significantly impairs physical functioning through mobility decline, comorbid conditions, and loss of independence, factors that also burden caregivers. Emotionally, it leads to high rates of depression, anxiety, and identity erosion in patients, while caregivers experience chronic stress and grief. Socially, stigma, isolation, and inadequate community infrastructure exacerbate marginalization. These domains are interconnected, with deterioration in one often accelerating decline in others. Stage-specific challenges and sociocultural disparities further influence outcomes.

Conclusion: Improving the quality of life in dementia requires a holistic, multidimensional approach. Interventions must address physical, emotional, and social needs concurrently while adapting to disease stage and cultural context. Personalized care, caregiver support systems, stigma reduction, and equitable access to services are essential to mitigating the wide-ranging impact of dementia.

Keywords

Dementia, Quality of Life, Caregiving, Neurodegeneration, Emotional Distress.

Check for updates

Introduction

The Global Burden of Dementia

Dementia refers to a progressive neurodegenerative syndrome characterized by cognitive decline that interferes with independent daily functioning[1,2]. Core symptoms include memory loss, impaired communication, language difficulties, and challenges in performing routine activities. Dementia predominantly affects the elderly, with a typical onset age of around 65 years in both sexes. It is now recognized as a leading cause of mortality among individuals over the age of 80.

Globally, demographic trends suggest a growing aging population, contributing to a surge in dementia cases. Epidemiological data reveal that 13% of the world's population was aged 60 years or older as of 2020, a figure projected to rise to 22% by 2050[3]. This shift has profound implications for healthcare systems, particularly in high-income countries such as the United Kingdom, where dementia prevalence is expected to increase substantially in the coming decades. With rising prevalence comes increased financial and societal burden. In the UK alone, annual dementia-related expenditure is currently estimated at £28 million, projected to reach £65 million by 2050[4]. Despite this growing crisis, diagnosis remains suboptimal, and there are no approved curative treatments. Emphasizing early and accurate diagnosis is critical not to reduce prevalence directly, but to improve management and delay disease progression in future generations.

Risk Factors and Prevalence Trends

Dementia development is multifactorial, influenced by a complex interplay of biological, lifestyle, and environmental factors. Age remains the single most significant risk factor, though genetic predisposition, sedentary lifestyle, cardiovascular comorbidities, and poor nutrition also contribute to disease onset. According to the World Health Organization, approximately 55 million people worldwide are currently living with dementia, and this figure may increase to 139 million by 2050 in the absence of effective preventive strategies[5].

On the other hand, several protective factors have been identified. These include:

- Higher levels of formal education
- Regular physical activity
- Healthy dietary habits
- Active social engagement
- Bilingualism and lifelong learning

These elements are believed to enhance cognitive reserve, thereby delaying symptom onset or mitigating disease severity. Early identification, particularly during the pre-symptomatic phase, enables timely lifestyle interventions that may slow progression.

Clinical Symptomatology of Dementia

The symptom profile of dementia can be broadly classified into five domains:

- Cognitive impairments include short-term memory loss, disorientation, and impaired problem-solving.
- Behavioral symptoms may include aggression, suspicion, or social withdrawal.
- Psychiatric disturbances, such as depression, anxiety, and hallucinations, add to the psychological burden on both patients and caregivers.
- Functional decline leads to difficulty performing ADLs, such as dressing, cooking, or financial management.
- Physical symptoms including sleep disturbances, unrecognized pain, and motor coordination problems often emerge later in the disease trajectory.

These symptoms frequently overlap, and their under recognition contributes to delayed diagnosis and suboptimal management[6-8]. Furthermore, certain symptoms are more prominent in specific dementia subtypes for example, visual hallucinations in Lewy body dementia or stepwise decline in vascular dementia.

Etiology & Dementia Subtypes

Dementia encompasses several distinct subtypes, each with unique pathophysiological mechanisms and clinical features. The most prevalent types are outlined below:

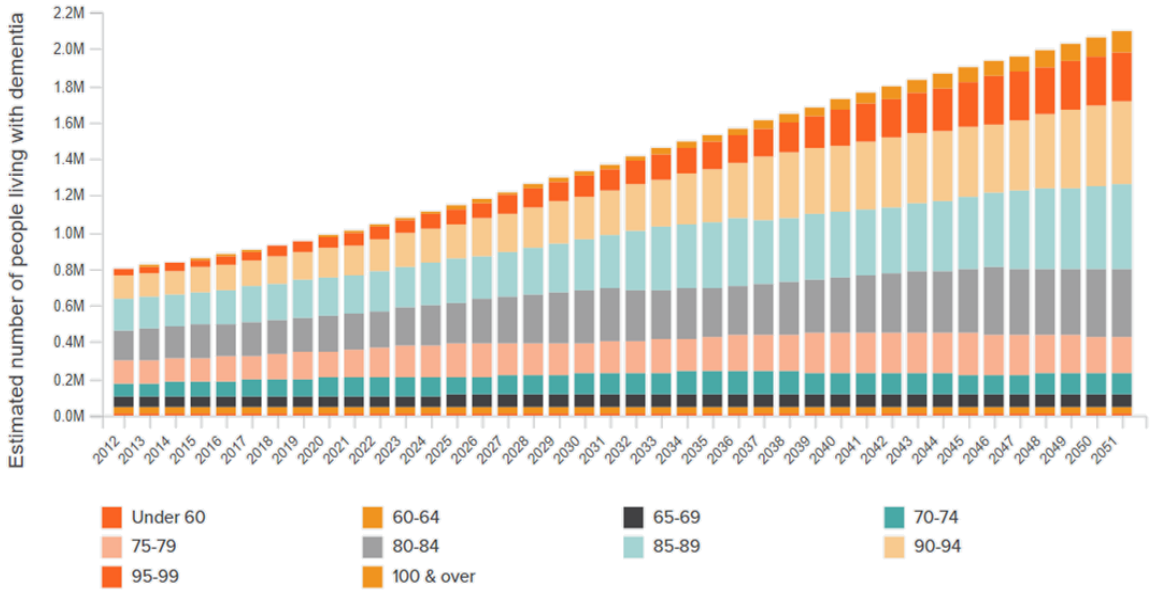

Figure 1: Age demographic in the UK and projections for the number of people living with dementia. Source: Prince et al., 2014[9]

Mild cognitive impairment (MCI) is an important diagnostic consideration. While not a form of dementia, it represents an intermediate stage between normal aging and dementia. Individuals with MCI are at three times greater risk of developing Alzheimer's disease compared to those with normal cognitive function[10].

Table 1: Common Dementia Subtypes: Prevalence, Core Clinical Features, and Diagnostic Challenges.

Dementia Subtype	Prevalence	Clinical Presentation / Symptoms	References
Alzheimer's Disease	~60–70%	Memory deficits; decline in at least one other cognitive domain (e.g., language, executive function); behavioral changes (apathy, agitation)	10,11
Vascular Dementia	~15–20%	Cognitive deficits due to cerebrovascular events; temporal lobe involvement; motor-sensory sparing	1
Frontotemporal Dementia	~5–10%	Prominent language deficits; relatively spared memory and visuospatial skills	12
Lewy Body Dementia	~10–15%	Fluctuating cognition; memory impairment; spontaneous parkinsonism; visual hallucinations	13,14
Parkinson's Disease Dementia	~3–4%	Cognitive symptoms develop after Parkinsonism onset; impaired executive function and visuospatial skills; hallucinations in later stages	15

Methodology

This narrative review was conducted to critically examine the impact of dementia on the quality of life, with specific attention to physical, emotional, and social dimensions. The methodology followed a structured approach to ensure comprehensiveness, transparency, and academic rigor.

Search Strategy

A literature search was conducted across three major electronic databases: PubMed, Scopus, and Web of Science. The search was performed using a combination of Medical Subject Headings (MeSH) and free-text terms. Search terms included:

- "dementia," "Alzheimer's disease," "vascular dementia," "Lewy body dementia," "frontotemporal dementia,"
- "quality of life," "caregiver burden," "emotional well-being," "social isolation,"
- "mobility," "activities of daily living," and "psychosocial impact."

Boolean operators ("AND", "OR") were used to refine the results. The last search was completed in January 2025.

Inclusion Criteria

Studies were selected based on the following predefined criteria:

- Publication Date: Articles published between January 2011 and January 2025.
- Study Type: Peer-reviewed original research, systematic reviews, and meta-analyses.
- Focus: Studies examining the clinical presentation, prevalence, risk factors, diagnosis, and impact of dementia on quality of life.
- Population: Human studies focusing on older adults with dementia or their caregivers.
- Language: Only studies published in English were included.

Preference was given to studies with:

- Large sample sizes,
- High methodological quality (e.g., randomized trials, cohort studies),
- Relevance to physical, emotional, or social dimensions of dementia.

Exclusion Criteria

The following studies were excluded:

- Non-peer-reviewed articles (e.g., editorials, opinion pieces).
- Animal or in vitro research.
- Studies not directly related to dementia subtypes or their impact on quality of life.
- Publications prior to the year 2000.
- Duplicate studies or those with overlapping datasets.

Study Selection and Screening Process

A total of 287 articles were initially identified across the databases. After removal of duplicates, titles and abstracts were screened for relevance. Full texts of 54 potentially eligible articles were reviewed. Based on the inclusion and exclusion criteria, 25 articles were finally included in this review.

Data Extraction and Synthesis

Data were extracted manually and synthesized thematically according to the three key dimensions under review:

- Physical Dimension (e.g., daily living, comorbidities, caregiver physical burden)
- Emotional Dimension (e.g., psychological symptoms, caregiver distress)
- Social Dimension (e.g., stigma, isolation, community support)

Discussion

The Physical Dimension of Dementia

- **Impact on Activities of Daily Living and Independence**

Dementia profoundly affects physical functioning, leading to progressive deterioration in activities of daily living (ADLs) and independence. As the disease advances, patients frequently experience mobility impairments, muscle weakness, and balance issues, making it increasingly difficult to manage basic tasks such as eating, dressing, and personal hygiene[8]. This gradual loss of autonomy

often results in an increased reliance on caregivers, which can significantly compromise the patient's perceived quality of life.

Mobility issues are particularly pronounced, with many patients exhibiting gait disturbances and a heightened risk of falls and injuries[16]. These challenges are often compounded by sleep disorders, including insomnia and nocturnal wandering, which reduce restorative rest and elevate daytime fatigue[17,18]. Furthermore, unrecognized and untreated pain stemming from communication impairments frequently worsens physical decline and quality of life[19,20].

As patients become less physically self-sufficient, caregivers are burdened with additional responsibilities. This not only contributes to caregiver strain but may also lead to burnout, underscoring the urgent need for structured support interventions[2,21]. However, early implementation of physical therapy programs can preserve mobility, delay functional decline, and enhance the well-being of both patients and caregivers[22,23].

- **Comorbidities and Physical Health Challenges**

Dementia is commonly accompanied by comorbid conditions that exacerbate physical decline. Among the most prevalent are cardiovascular diseases, diabetes, and chronic obstructive pulmonary disease (COPD) each of which can accelerate cognitive and physical deterioration[24]. For instance, cardiovascular dysfunction can reduce cerebral perfusion, thereby amplifying both cognitive deficits and motor symptoms, while diabetes-induced neuropathy may further hinder mobility and balance[25].

Another critical issue is frailty, characterized by reduced physiological resilience, fatigue, and muscle weakness. Frailty heightens the risk of adverse outcomes such as falls, fractures, and hospitalizations, significantly diminishing overall quality of life in dementia populations[12].

- **Role of Caregivers in Managing Physical Decline**

Caregivers play a pivotal role in managing the physical deterioration associated with dementia. As motor coordination and independence decline, caregivers provide essential assistance with both basic ADLs and more complex tasks such as medication management and mobility support[21].

Moreover, caregivers serve a preventive function by implementing fall-reduction strategies, including environmental modifications, supervised mobility, and assistive device usage[26]. Contemporary resources, including those provided by organizations like the Alzheimer's Association, offer valuable guidance on managing physical symptoms and maximizing patient autonomy.

Neuroplasticity-based interventions, as described by Doidge in The Brain That Changes Itself, propose that targeted physical activities and sensorimotor stimulation may help preserve physical capabilities even in individuals with neurodegeneration[27]. While promising, such approaches must be facilitated by adequately trained caregivers.

However, the physical toll of caregiving is substantial. Many caregivers report musculoskeletal injuries resulting from patient handling, along with chronic fatigue due to sleep disruptions and emotional burden[2,28]. These dual pressures necessitate a systemic response to support caregivers' health and sustainability in their role.

The Emotional Dimension of Dementia

- **Psychological Symptoms in Patients**

Dementia is strongly associated with a wide spectrum of emotional and psychological symptoms. The most common include depression (30–50%), anxiety, and chronic confusion, typically arising from neurodegeneration in brain regions responsible for emotion and cognition[29]. Anxiety manifests as agitation, restlessness, and fear of abandonment, particularly in moderate to severe stages[30], while confusion leads to disorientation

and distress, especially when patients are unable to recognize familiar people or places[31].

The neurological basis of emotional dysregulation creates feedback loops. As Doidge suggests, confusion driven by cognitive decline may generate anxiety, which in turn exacerbates neurodegeneration through chronic stress[27].

Current management guidelines recommend prioritizing non-pharmacological interventions such as music and sensory therapy, cognitive stimulation, routine preservation, and environmental adjustments[32].

- **Identity Loss and Emotional Deterioration**

A hallmark of emotional suffering in dementia is the loss of identity and autonomy. According to Kitwood[33], patients experience a gradual erosion of personal history and self-concept, exemplified by their inability to recognize photographs or complete familiar tasks[13].

Additionally, well-intentioned caregiving practices can unintentionally strip patients of independence. Overriding personal preferences in daily routines, often seen in institutional care, leads to feelings of helplessness and infantilization.

Research supports person-centered care, which incorporates individual life narratives and promotes choice and dignity even in advanced stages. Such approaches have been shown to mitigate emotional decline and improve quality of life.

- **Emotional Burden on Caregivers**

Family caregivers often endure significant emotional stress, grief, and role conflict. Depression and anxiety rates among dementia caregivers range from 40% to 70%, often surpassing those seen in other caregiving groups[28].

As Schulz and Sherwood emphasize, caregivers face three dominant stressors: managing complex care demands, witnessing the psychological transformation of a loved one, and experiencing progressive social isolation[34].

The emotional trajectory typically involves initial denial, adaptation, and eventual chronic sorrow as the patient deteriorates[35]. This grieving process is prolonged and differs from conventional grief because of its gradual, anticipatory nature.

- **Coping Strategies and Support Mechanisms**

Effective coping mechanisms are crucial to caregiver resilience. Psychoeducational programs have been shown to enhance caregiving competencies and reduce psychological distress by combining practical knowledge with emotional support[36].

Respite care offering temporary relief through professional services is particularly effective at preventing burnout and preserving caregivers' personal well-being[37].

Peer support groups, as described by Chien et al.,[38] provide emotionally validating environments where caregivers can exchange practical solutions and share burdens. These forums often prove more relatable than general mental health services.

Furthermore, Boots et al. emphasize that flexibility in caregiver support systems is vital. As dementia progresses, caregiver needs evolve, necessitating adaptable tools and continuous reassessment[39].

The Social Dimension of Dementia

- **Stigma and Misconceptions**

Social stigma surrounding dementia remains pervasive and damaging. Corrigan's work highlights how public stigma, self-stigma, and structural stigma all contribute to marginalization and delayed help-seeking[40]. Many people incorrectly attribute dementia to "normal aging," which diminishes the urgency for intervention.

The Alzheimer's Society notes that internalized stigma prompts patients and caregivers to withdraw from social interactions and conceal diagnoses, leading to further isolation and deteriorating mental health[41].

Systemic failures, including inadequate accommodation in workplaces and harmful media portrayals, exacerbate this issue[42]. However, promising strategies such as contact-based educational programs and stigma-sensitive language guidelines have demonstrated effectiveness in shifting public attitudes[43].

- **Social Isolation and Loneliness**

Dementia significantly increases the risk of social isolation, a result of both neurocognitive impairments and environmental exclusion.

Language and memory deficits often make meaningful conversation challenging[44], while social withdrawal by friends and family due to discomfort or misunderstanding amplifies loneliness[14].

According to the Alzheimer's Society, over 60% of dementia patients experience loneliness within two years of diagnosis[45]. This loneliness has been shown to worsen behavioral symptoms and hasten cognitive decline.

Interventions such as sensory-based social programs and public training on dementia-friendly communication have proven effective at breaking the isolation cycle, according to Holwerda[30].

- **Community-Based Social Interventions**

Inclusive community models have emerged as valuable tools to counteract social exclusion. Brooker's person-centered care model emphasizes the significance of programs that honor patients' personal histories and preferences[46].

Examples include memory cafés, adapted recreational activities, and dementia-friendly community events all of which promote autonomy and reduce stigma[47].

Technology is also playing a growing role. As Astell shows, digital platforms and intergenerational programs (e.g., music or art-based engagement) can bridge generational gaps and offer meaningful social contact for individuals with mobility constraints[46].

Critical Evaluation of Dementia's Impact on Quality of Life

- **Interconnected Nature of Physical, Emotional, and Social Dimensions**

The effects of dementia on quality of life are multidimensional and mutually reinforcing. Physical limitations such as mobility issues or ADL dependence often led to social withdrawal, either due to embarrassment or logistical challenges[47]. This social isolation, in turn, intensifies emotional symptoms, including depression and anxiety, which further reduces engagement in physical activities and healthcare routines, worsening physical health.

Emotional distress has been shown to amplify physical suffering. For instance, depression in dementia is associated with increased pain sensitivity and slower physical recovery, adding to the patient's functional decline[45]. Likewise, social stigma and exclusion deepen emotional hardship, reinforcing feelings of helplessness, loneliness, and worthlessness[45].

Importantly, intervention in one domain often yields positive effects in others. Gitlin's findings suggest that structured physical activity not only enhances motor function but also elevates mood and encourages social participation[32]. Conversely, strengthening social support systems helps mitigate psychological stress while improving patient engagement in physical care.

- **Stage-Specific Challenges: Early-Stage vs. Late-Stage Dementia**

The impact of dementia varies significantly across its stages, with distinct needs and challenges emerging over time. In early-stage dementia, patients often retain enough cognitive capacity to recognize their decline, leading to distress, embarrassment, and attempts to hide symptoms[13]. Social withdrawal is common during this stage as patients try to avoid judgment, and although physical changes may be mild (e.g., slight coordination difficulties), the emotional burden can be profound.

In late-stage dementia, cognitive deterioration becomes severe, with many patients losing verbal

communication abilities and requiring full-time assistance with all ADLs[48]. Emotional expression diminishes as awareness declines, although behavioral disturbances like agitation and aggression often escalate. Physical functioning further deteriorates, leading to frailty, immobility, and bed confinement. Social interactions typically shift toward non-verbal modalities, such as touch, rhythm, and sensory stimuli.

Recognizing these differences is vital. Early-stage patients benefit from cognitive interventions, peer support, and efforts to preserve independence. Late-stage care, by contrast, must focus on comfort, dignity, and sensory-based engagement[24].

- **Cultural and Socioeconomic Influences on Dementia Experience**

Cultural values and socioeconomic status play a crucial role in shaping how dementia is experienced, diagnosed, and managed. In collectivist societies, strong family caregiving networks often delay institutionalization, preserving familial support but potentially increasing caregiver burden due to a lack of formal services[49]. In contrast, individualist cultures may provide better access to professional care but face higher risks of patient isolation and fragmented social ties.

Language barriers and culturally insensitive health systems often lead to diagnostic delays of 2–3 years in ethnic minorities compared to majority populations[48]. These disparities may result in missed opportunities for early intervention and support.

Socioeconomic constraints further deepen these inequalities. Families with lower incomes face limited access to specialist care, home modifications, and respite services[49]. In contrast, higher education levels have been linked to increased cognitive reserve, which can temporarily mask symptoms and delay diagnosis[50]. While beneficial in terms of daily functioning, this phenomenon may cause diagnosis only at advanced stages, when therapeutic options are more limited[51].

Implications for Patients, Caregivers, and Society

- **Personalized, Holistic Patient Care**

The evidence emphasizes the need to move away from a generic or purely medicalized approach. Individuals with dementia benefit most from personalized care that emphasizes remaining strengths rather than focusing solely on cognitive deficits. Interventions such as structured routines, memory aids, and the inclusion of life history into care plans have been shown to preserve autonomy and reduce distress.

There is also an urgent need to improve early detection, particularly in high-functioning individuals whose cognitive reserve may conceal symptoms during routine assessments. Enhanced diagnostic tools and awareness campaigns can facilitate timely interventions.

- **Supporting and Empowering Caregivers**

Family caregivers form the backbone of dementia care, but they face disproportionate risks of burnout, chronic illness, and emotional strain. Studies report that over 60% of caregivers develop their own long-term health conditions due to unrelenting stress[52].

Practical interventions including respite care, peer support networks, and online training programs can significantly enhance caregiver resilience. Caregiver education should include modules on communication strategies, emotional coping, and crisis management.

Support systems must be dynamic, evolving in line with the patient's disease progression and caregiver needs.

- **Societal and Policy-Level Changes**

Society must actively work to combat stigma and foster inclusivity. This includes public awareness campaigns that showcase people with dementia living meaningful lives, and dementia-friendly

community planning (e.g., signage improvements, quiet zones, staff training in public spaces).

Policy recommendations should focus on:

- Targeted early screening, especially in disadvantaged populations.
- Affordable access to diagnosis, assistive technology, and care services.
- Culturally appropriate care models tailored to local belief systems and caregiving norms.

Conclusion

Dementia is a complex condition that affects not only memory but also physical, emotional, and social well-being in interconnected ways, with each dimension influencing the others. This review underscores the need for integrated, stage-specific care ranging from early interventions that preserve independence to advanced care focused on comfort and connection tailored to the evolving needs of individuals. Importantly, the experience of dementia is not uniform; cultural, socioeconomic, and systemic factors create disparities in both burden and access to care. Addressing these inequities and fostering inclusive, compassionate support systems can significantly enhance the quality of life for those living with dementia and their caregivers. Ultimately, while dementia itself is irreversible, its broader impact is shaped by how society chooses to respond.

Conflicts of Interest

The author(s) have no conflicts of interest.

Acknowledgement

I confirm that this article is my original work, conducted independently as a student of Urmston Grammar School. I would like to express my sincere gratitude to Mrs. Jones for her invaluable guidance, thoughtful feedback, and unwavering support throughout the research and writing process.

Funding

None.

References

1. Chertkow H, Feldman HH, Jacova C, Massoud F. Definitions of dementia and predementia states in Alzheimer's disease and vascular cognitive impairment: consensus from the Canadian conference on diagnosis of dementia. Alzheimers Res Ther. 2013;5(Suppl 1):S2.
2. Schulz R, Martire LM. Family caregiving of persons with dementia: prevalence, health effects, and support strategies. Am J Geriatr Psychiatry. 2004;12(3):240–249.
3. Kanasi E, Ayilavarapu S, Jones J. The aging population: demographics and the biology of aging. Periodontol 2000. 2016;72(1):13–18.
4. Prince M, Knapp M, Guerchet M, McCrone P, Prina M, Comas-Herrera M, Wittenberg R, Adelaja B, Hu B, King B, Rehill D, Salimkumar D. Dementia UK: Second Edition – Overview. London: Alzheimer's Society; 2014.
5. World Health Organization. Global status report on the public health response to dementia. Geneva: WHO; 2023.
6. Bartels SJ, Dums AR, Oxman TE, Schneider LS, Areán PA, Alexopoulos GS, Jeste DV. Evidence-based practices in geriatric mental health care. Psychiatr Serv. 2002 Nov;53(11):1419–1431. doi:10.1176/appi.ps.53.11.1419
7. Fick DM, Agostini JV, Inouye SK. Delirium superimposed on dementia: a systematic review. J Am Geriatr Soc. 2002;50(10):1723–1732. doi:10.1046/j.1532-5415.2002.50468.x
8. Scherder EJ, Sergeant JA, Swaab DF. Pain processing in dementia and its relation to neuropathology. Lancet Neurol. 2003;2(11):677–686. doi:10.1016/S1474-4422(03)00556-8
9. Prince M, Knapp M, Guerchet M, McCrone P, Prina M, Comas-Herrera M, Wittenberg R, Adelaja B, Hu B, King B, Rehill D, Salimkumar D. Dementia UK: Update [Doctoral dissertation]. London: King's College London; 2014. (Authorship as listed in source).
10. Hugo J, Ganguli M. Dementia and cognitive impairment: epidemiology, diagnosis, and treatment. Clin Geriatr Med. 2014;30(3):421–442. doi:10.1016/j.cger.2014.04.001
11. Alzheimer's Society. Dementia Attitudes Monitor. London: Alzheimer's Society; 2019.
12. Kelaiditi E, Cesari M, Canevelli M, Van Kan GA, Ousset PJ, Gillette-Guyonnet S, Ritz P, Duveau F,

Soto ME, Provencher V, Nourhashemi F. Cognitive frailty: rational and definition from an (I.A.N.A./I.A.G.G.) international consensus group. J Nutr Health Aging. 2013;17(9):726–734. doi:10.1007/s12603-013-0367-2

13. Caddell LS, Clare L. The impact of dementia on self and identity: a systematic review. Clin Psychol Rev. 2010;30(1):113–126. doi:10.1016/j.cpr.2009.10.003
14. Sabat SR. Capacity for decision-making in Alzheimer's disease: selfhood, positioning and semiotic people. Aust N Z J Psychiatry. 2005;39(11-12):1030–1035. doi:10.1080/j.1440-1614.2005.01722.x
15. Kales HC, Gitlin LN, Lyketsos CG. Assessment and management of behavioral and psychological symptoms of dementia. BMJ. 2015;350:h369. doi:10.1136/bmj.h369
16. Allan LM, Ballard CG, Rowan EN, Kenny RA. Incidence and prediction of falls in dementia: a prospective study in older people. PLoS One. 2009;4(5):e5521. doi:10.1371/journal.pone.0005521
17. Bliwise DL, Mercaldo ND, Avidan AY, Boeve BF, Greer SA, Kukull WA. Sleep in dementia: a review. J Clin Sleep Med. 2011;7(2):177–186.
18. McCurry SM, Logsdon RG, Teri L, Vitiello MV. Sleep disturbances in dementia caregivers. Aging Ment Health. 2005;9(4):354–360. doi:10.1080/13607860500131047
19. Achterberg WP, Pieper MJ, van Dalen-Kok AH, De Waal MW, Husebo BS, Lautenbacher S, Kunz M, Scherder EJ, Corbett A. Pain management in patients with dementia. Clin Interv Aging. 2013;8:1471–1482. doi:10.2147/CIA.S36739
20. Herr K, Coyne PJ, Key T, Manworren R, McCaffery M, Merkel S, Pelosi-Kelly J, Wild L. Pain assessment in the nonverbal patient: position statement with clinical practice recommendations. Pain Manag Nurs. 2006;7(2):44–52. doi:10.1016/j.pmn.2006.02.003
21. Gitlin LN, Winter L, Dennis MP, Hodgson N, Hauck WW. A biobehavioral home-based intervention and the well-being of patients with dementia and their caregivers: the COPE randomized trial. JAMA. 2010;304(9):983–991. doi:10.1001/jama.2010.1253
22. Forbes D, Forbes SC, Blake CM, Thiessen EJ, Forbes S. Exercise programs for people with dementia. Cochrane Database Syst Rev. 2015;(4):CD006489. doi:10.1002/14651858.CD006489.pub4
23. Gitlin LN, Hauck WW, Dennis MP, Winter L, Hodgson N, Schinfeld S. Long-term effect on mortality of a home intervention that reduces functional difficulties in older adults: results from a randomized trial. J Am Geriatr Soc. 2009;57(3):476–481. doi:10.1111/j.1532-5415.2008.02147.x
24. Livingston G, Huntley J, Sommerlad A, Ames D, Ballard C, Banerjee S, Brayne C, Burns A, Cohen-Mansfield J, Cooper C, Costafreda SG, Dias A, Fox N, Gitlin LN, Howard R, Kales HC, Kivimäki M, Larson EB, Ogunniyi A, Orgeta V, Ritchie K, Rockwood K, Sampson EL, Samus Q, Schneider LS, Selbæk G, Teri L, Mukadam N. Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. Lancet. 2020;396(10248):413–446. doi:10.1016/S0140-6736(20)30367-6
25. Biessels GJ, Whitmer RA. Cognitive dysfunction in diabetes: how to implement emerging guidelines. Diabetologia. 2020;63(1):3–9. doi:10.1007/s00125-019-04977-9
26. Pynoos J, Steinman BA, Nguyen AQ. Environmental assessment and modification as fall-prevention strategies for older adults. Clin Geriatr Med. 2010;26(4):633–644. doi:10.1016/j.cger.2010.07.001
27. Doidge N. The Brain That Changes Itself: Stories of personal triumph from the frontiers of brain science. New York: Viking; 2007. p.203–217.
28. Pinquart M, Sörensen S. Differences between caregivers and noncaregivers in psychological health and physical health: a meta-analysis. Psychol Aging. 2003;18(2):250–267. doi:10.1037/0882-7974.18.2.250
29. Enache D, Winblad B, Aarsland D. Depression in dementia: epidemiology, mechanisms, and treatment. Curr Opin Psychiatry. 2011;24(6):461–472.
30. Holwerda TJ, Deeg DJ, Beekman AT, Van Tilburg TG, Stek ML, Jonker C, Schoevers RA. Feelings of loneliness, but not social isolation, predict dementia onset: results from the Amsterdam Study of the Elderly (AMSTEL). J Neurol Neurosurg Psychiatry. 2014;85(2):135–142.
31. Cerejeira J, Lagarto L, Mukaetova-Ladinska EB. Behavioral and psychological symptoms of

dementia. Front Neurol. 2012;3:73. doi:10.3389/fneur.2012.00073
32. NHS. Non-pharmacological interventions for dementia [Internet]. Available from: https://www.nhs.uk/conditions/dementia/treatment/
33. Kitwood T. Dementia Reconsidered: The Person Comes First. Buckingham: Open University Press; 1997. p.45–63.
34. Schulz R, Sherwood PR. Physical and mental health effects of family caregiving. Am J Nurs. 2008;108(9 Suppl):23–27. doi:10.1097/01.NAJ.0000336406.45248.4c
35. Alzheimer's Society. Dementia: The True Cost – Fixing the Care Crisis. London: Alzheimer's Society; 2022.
36. Brodaty H, Green A, Koschera A. Meta-analysis of psychosocial interventions for caregivers of people with dementia. J Am Geriatr Soc. 2003;51(5):657–664. doi:10.1034/j.1600-0579.2003.00210.x
37. Gitlin LN, Winter L, Dennis MP, Corcoran M, Schinfeld S, Hauck WW. A randomized trial of a multicomponent home intervention to reduce functional difficulties in older adults. J Am Geriatr Soc. 2006;54(5):809–816. doi:10.1111/j.1532-5415.2006.00703.x
38. Chien LY, Chu H, Guo JL, Liao YM, Chang LI, Chen CH, Chou KR. Caregiver support groups in patients with dementia: a meta-analysis. Int J Geriatr Psychiatry. 2011;26(10):1089–1098. doi:10.1002/gps.2660
39. Boots LM, de Vugt ME, Kempen GIJM, Verhey FRJ. Effectiveness of a blended care self-management program for caregivers of people with early-stage dementia (Partner in Balance): randomized controlled trial. J Med Internet Res. 2018;20(7):e10017. doi:10.2196/10017
40. Corrigan PW, Druss BG, Perlick DA. The impact of mental illness stigma on seeking and participating in mental health care. Psychol Sci Public Interest. 2014;15(2):37–70. doi:10.1177/1529100614531398
41. Alzheimer's Society. Dementia Attitudes Monitor. London: Alzheimer's Society; 2019.
42. Herrmann LK, Welter E, Leverenz J, Lerner AJ, Udelson N, Kanetsky C, Sajatovic M. A systematic review of dementia-related stigma research: can we move the stigma dial? Am J Geriatr Psychiatry. 2018;26(3):316–331. doi:10.1016/j.jagp.2017.09.006
43. Phillipson L, Hall D, Cridland E, Fleming R, Brennan-Horley C, Guggisberg N, Frost D, Hasan H. Involvement of people with dementia in raising awareness and changing attitudes in a dementia friendly community pilot project. Dementia (London). 2019;18(7-8):2679–2694. doi:10.1177/1471301218754455
44. Victor CR, Rippon I, Nelis SM, Martyr A, Litherland R, Pickett J, Hart N, Henley J, Matthews F, Clare L, IDEAL Programme Team. Prevalence and determinants of loneliness in people living with dementia: Findings from the IDEAL programme. Int J Geriatr Psychiatry. 2020;35(8):851–858. doi:10.1002/gps.5305
45. Alzheimer's Society. Dementia and loneliness: A call to action. London: Alzheimer's Society; 2021.
46. Brooker D. Person-centred dementia care: making services better. Nurs Older People. 2007;19(5):22–23. doi:10.7748/nop.19.5.22.s21
47. Brodaty H, Donkin M. Family caregivers of people with dementia. Dialogues Clin Neurosci. 2009;11(2):217–228. doi:10.31887/DCNS.2009.11.2/hbrodaty
48. Mitchell AJ, Vaze A, Rao S. Clinical diagnosis of depression in primary care: a meta-analysis. Lancet. 2009;374(9690):609–619. doi:10.1016/S0140-6736(09)60879-5
49. Dilworth-Anderson P, Brummett BH, Goodwin P, Williams SW, Williams RB, Siegler IC. Effect of race on cultural justifications for caregiving. J Gerontol B Psychol Sci Soc Sci. 2005;60(5):S257–262. doi:10.1093/geronb/60.5.s257
50. Cooper R, Kuh D, Hardy R, Mortality Review Group; FALCon and HALCyon Study Teams. Objectively measured physical capability levels and mortality: systematic review and meta-analysis. BMJ. 2010;341:c4467. doi:10.1136/bmj.c4467
51. Prince M, Ali GC, Guerchet M, Prina AM, Albanese E, Wu YT. Recent global trends in the prevalence and incidence of dementia, and survival with dementia. Alzheimers Res Ther. 2016;8(1):23. doi:10.1186/s13195-016-0188-8
52. Stern Y, Arenaza - Urquijo EM, Bartrés - Faz D, Belleville S, Cantilon M, Chetelat G, Ewers M, Franzmeier N, Kempermann G, Kremen WS, Okonkwo O. Whitepaper: defining and investigating cognitive reserve, brain reserve, and brain maintenance. Alzheimers Dement. 2020;16(9):1305–1311. doi:10.1016/j.jalz.2018.07.219