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Global research trends in non-pharmacological interventions for dementia: A bibliometric analysis of psychosocial and family-based approaches

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Abstract
Background: Dementia is a major global public health concern, characterized by progressive cognitive decline and increasing dependence. While pharmacological treatments offer limited symptomatic relief, non-pharmacological interventions particularly psychosocial and family-based approaches have emerged as essential components of dementia care.
Objective: This study aims to systematically map global research trends in non-pharmacological interventions for dementia using bibliometric techniques, identifying key contributors, collaboration networks, and thematic areas.
Methods: A bibliometric analysis was conducted using the Scopus database. A structured search strategy focusing on psychosocial, psychological, and family interventions in dementia yielded 712 records. After deduplication, 655 publications were included. Data were analyzed using VOSviewer to examine co-authorship networks, institutional productivity, country contributions, and keyword co-occurrence patterns.
Results: A total of 2,457 authors contributed to the included publications, with 31 authors meeting the minimum threshold of five publications. Co-authorship analysis revealed nine clusters, indicating collaborative sub-networks within the field. Leading contributors included Cooper CA, Moniz-Cook ED, and Livingston GA. Organizational analysis identified institutions in the United Kingdom, particularly University College London and King's College London, as major contributors. Keyword analysis revealed five dominant themes: cognitive interventions, caregiver support, behavioral management, psychosocial interventions, and quality of life enhancement.
Conclusion: The field of non-pharmacological dementia interventions is rapidly expanding, with increasing emphasis on holistic and family-centered care. However, research output remains concentrated in high-income countries, highlighting the need for more inclusive and culturally relevant studies in low- and middle-income settings.

Keywords: Dementia, Non-pharmacological interventions, Psychosocial interventions, Family intervention, Bibliometric analysis, Caregiver burden

Introduction

Dementia is a progressive neurodegenerative syndrome that affects memory, cognition, behavior, and the ability to perform daily activities. It is one of the leading causes of disability and dependency among older adults worldwide. The most common form of dementia is Alzheimer's disease, followed by vascular dementia, Lewy body dementia, and frontotemporal dementia (Livingston *et al*., 2020). Beyond cognitive impairment, individuals with dementia often experience behavioral and psychological symptoms, including agitation, depression, anxiety, and psychosis, which significantly impact both patients and caregivers (Brodaty & Arasaratnam, 2012) [2]. Pharmacological treatments, such as cholinesterase inhibitors and memantine, provide only modest symptomatic relief and do not halt disease progression (Livingston *et al*., 2020). Moreover, these medications may produce adverse effects, limiting their long-term utility. As a result, there has been increasing emphasis on non-pharmacological interventions that address the psychosocial and functional aspects of dementia. Non-pharmacological interventions encompass a wide range of approaches, including cognitive stimulation therapy, behavioral therapy, reminiscence therapy, physical activity, and family-based interventions (Spector *et al*., 2001). These interventions are grounded in person-centered care principles and aim to improve quality of life, reduce behavioral symptoms, and support caregivers (Kitwood, 1997). Family caregivers play a central role in dementia care, often experiencing high levels of burden, stress, and psychological distress (Adelman *et al*., 2014) [1]. Consequently, interventions targeting caregivers such as psychoeducation, counseling, and support groups are critical components of comprehensive dementia care. In recent years, the field has witnessed rapid growth in research on psychosocial and non-pharmacological interventions. However, there remains a lack of systematic understanding of global research patterns, key contributors, and emerging trends. Bibliometric analysis provides a robust methodological approach to quantitatively assess scientific output and map the intellectual structure of a research field (Donthu *et al*., 2021) [3].

This study aims to address this gap by conducting a bibliometric analysis of non-pharmacological interventions for dementia. Specifically, the study seeks to:

- Examine publication trends and research productivity
- Identify leading authors, institutions, and countries
- Analyze collaboration networks
- Explore major research themes through keyword analysis

Methods

1. Study Design

This study employed a bibliometric research design to analyze the scientific literature on non-pharmacological interventions for dementia. Bibliometric analysis enables the quantitative evaluation of research output and the identification of patterns in authorship, collaboration, and thematic development (Donthu *et al*., 2021) [3].

2. Data Source

The Scopus database was selected as the primary data source due to its extensive coverage of peer-reviewed journals and its suitability for bibliometric analysis (Falagas *et al*., 2008) [4].

3. Search Strategy

A comprehensive search strategy was developed to capture relevant studies on non-pharmacological interventions for dementia. The search included the following terms:

Title ("Non Pharmacological Treatment" Or "Psychosocial Treatment" Or "Non Pharmacological Intervention" Or "Psychosocial Intervention" Or "Psychological Intervention" Or "Social Work Intervention" Or "Cognitive Interventions" Or "Social Interventions" Or "Family Intervention") And Title-Abs ("Dementia" Or "Alzheimer" Or "Vascular Dementia" Or "Levy Body" Or "Frontotemporal Dementia")

Result: 712 documents found

Deduplication: 57

After that got: 655 documents.

2.4 Inclusion and Exclusion Criteria

Inclusion Criteria

- Peer-reviewed journal articles
- Studies focusing on non-pharmacological interventions
- Research related to dementia and its subtypes

Exclusion Criteria

- Conference abstracts
- Non-English publications
- Studies focusing solely on pharmacological treatments.

Data Extraction and Cleaning

The initial search yielded 712 records. After removing duplicates (n = 57), a total of 655 publications were included for analysis.

6. Data Analysis

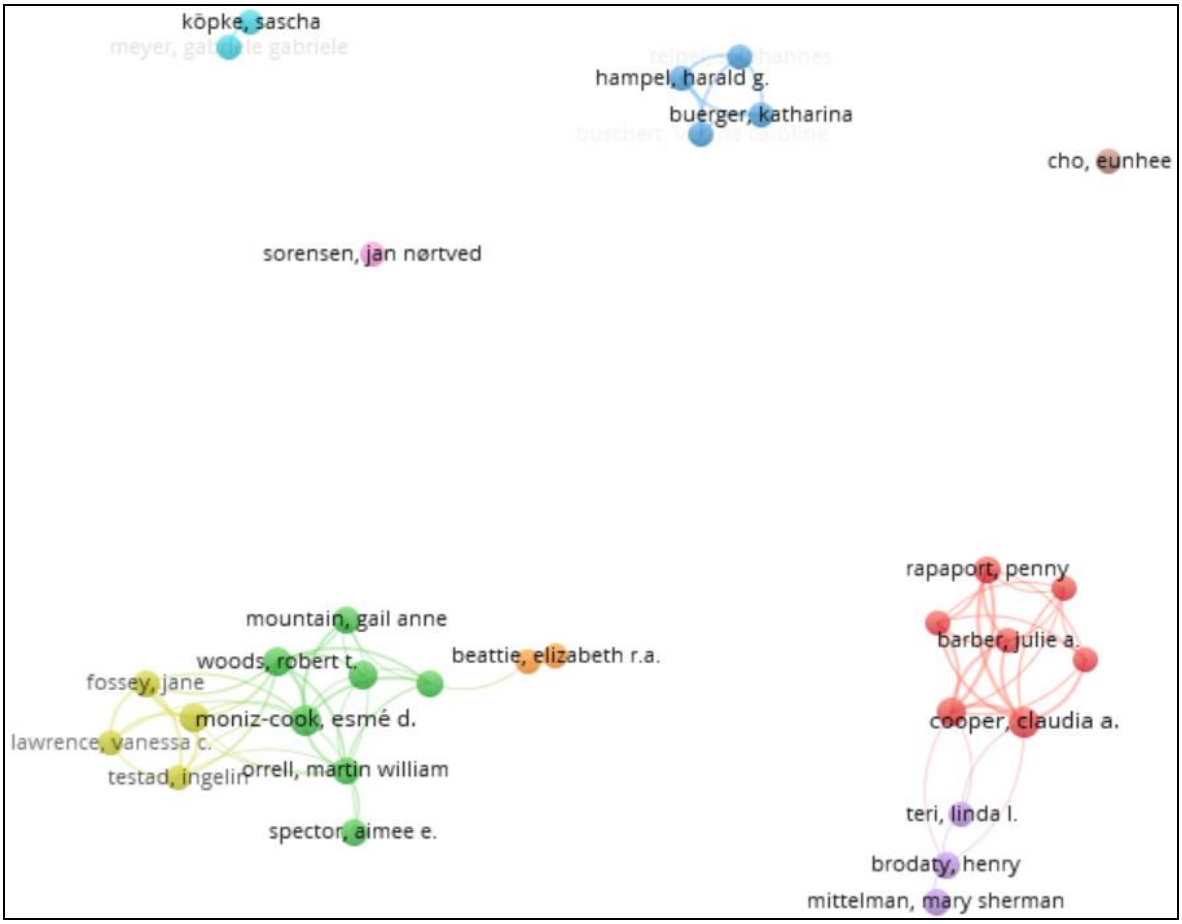
Bibliometric analysis was conducted using VOSviewer software to generate network visualizations. The following analyses were performed:

- Co-authorship analysis
- Organizational productivity analysis
- Country-level collaboration analysis
- Keyword co-occurrence analysis

Threshold criteria were set at a minimum of five publications for inclusion in network analyses.

Results

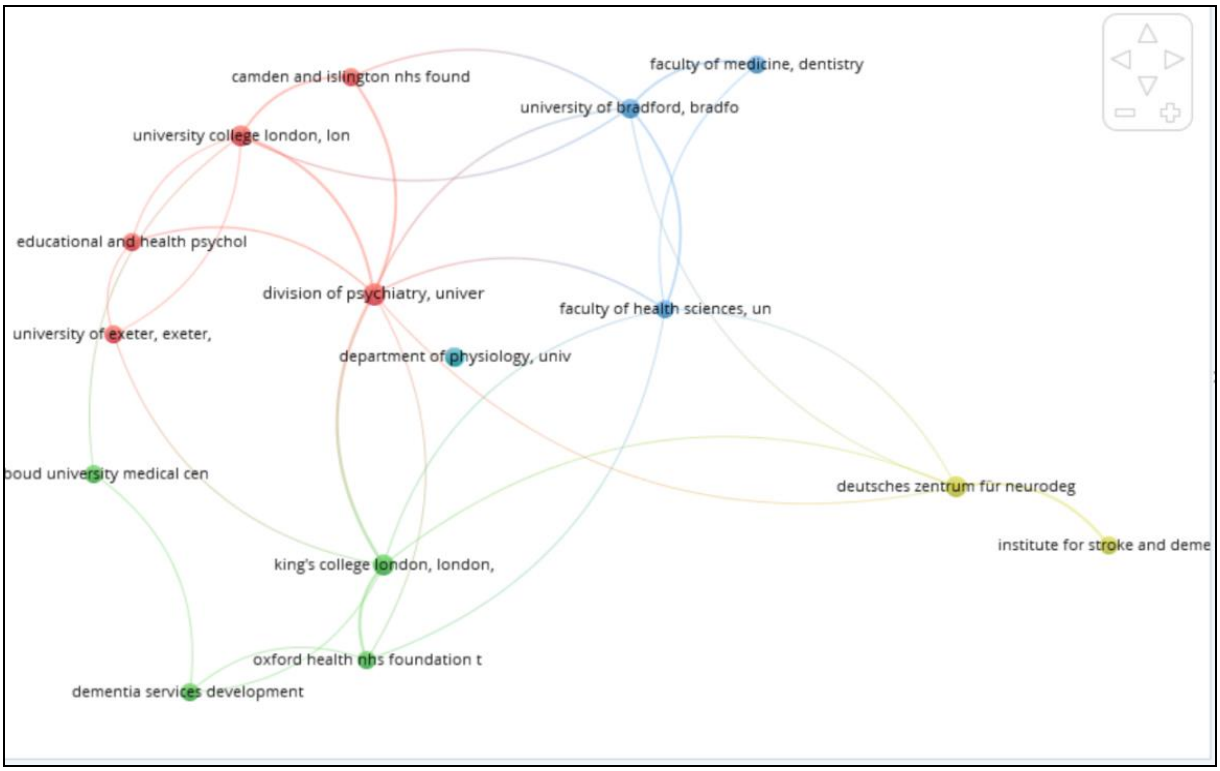
Authorship Analysis Of the 2457 authors, minimum threshold was 5 set. Hence, 31 authors met the eligibility criteria.



Author	Documents	Citations	Total Link Strength
Cooper, Claudia A.	15	750	36
Moniz-Cook, Esmé D.	15	1162	26
Woods, Robert T.	13	819	26
Dröes, Rose Marie	12	614	7
Ballard, Clive G.	11	822	19
Livingston, Gill A.	11	964	32
Orrell, Martin William	9	906	17
Fossey, Jane	8	433	21
Mountain, Gail Anne	8	443	9
Rapaport, Penny	8	245	27
Spector, Aimee E.	8	347	4
Vernooij-Dassen, Myrra J.F.J.	8	692	12
Brodaty, Henry	7	1082	5
Mittelman, Mary Sherman	7	1080	2
Beattie, Elizabeth R.A.	6	114	2
Buerger, Katharina	6	261	15
Buschert, Verena Caroline	6	400	16
Cho, Eunhee	6	62	0
Hampel, Harald G.	6	400	16
Lawrence, Vanessa C.	6	289	10
Barber, Julie A.	5	179	23
Budgett, Jessica	5	35	15
Hoe, Juanita	5	139	20
Köpke, Sascha	5	66	4
Meyer, Gabriele Gabriele	5	136	4
Moyle, Wendy	5	197	3
Sorensen, Jan Nørtved	5	208	0
Teipel, S. Johannes	5	261	15
Teri, Linda L.	5	249	3
Testad, Ingelin	5	220	16
Walters, Kate R.	5	31	13

A total of 2,457 authors contributed to the 655 publications. Of these, 31 authors met the threshold of five publications. The co-authorship network consisted of 9 clusters, 69 links, Total link strength 209, Prominent authors included Cooper CA, Moniz-Cook ED, Livingston GA, and Woods RT. These authors demonstrated strong collaborative ties and high citation impact, indicating their central role in advancing the field.

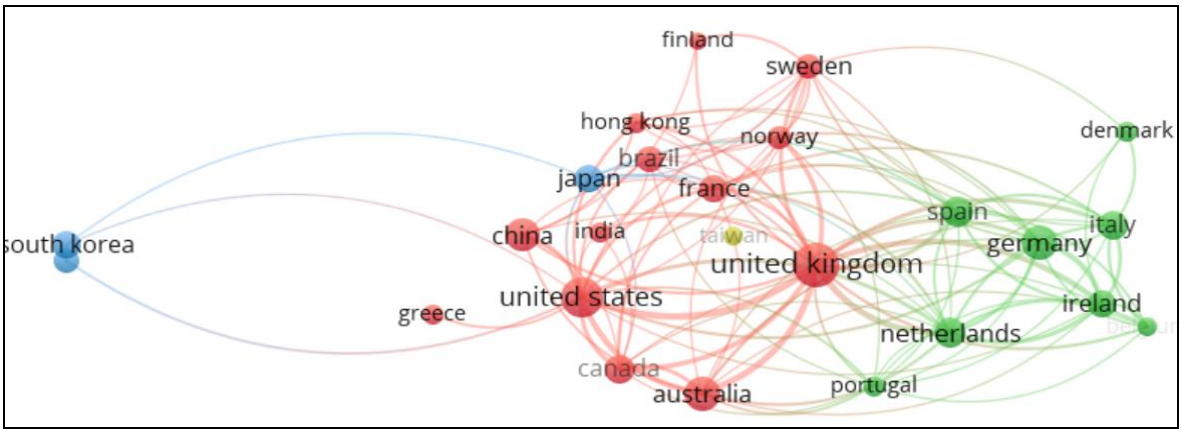
Organizational analysis



Organization	Documents	Citations	Total Link Strength
Division Of Psychiatry, University College London, London, United Kingdom	21	604	21
Deutsches Zentrum Für Neurodegenerative Erkrankungen, Bonn, Nordrhein-Westfalen, Germany	15	349	8
University College London, London, United Kingdom	13	273	12
King's College London, London, United Kingdom	11	396	13
Department Of Physiology, University Of Ilorin, Ilorin, Kwara, Nigeria	9	0	0
University Of Bradford, Bradford, West Yorkshire, United Kingdom	9	128	13
Dementia Services Development Centre, Bangor University, Bangor, Gwynedd, United Kingdom	7	577	3
Faculty Of Health Sciences, University Of Hull, Hull, East Yorkshire, United Kingdom	6	281	9
Faculty Of Medicine, Dentistry And Health, Sheffield, South Yorkshire, United Kingdom	6	114	4
Oxford Health Nhs Foundation Trust, Oxford, Oxfordshire, United Kingdom	6	425	7
Peking University Health Science Center, Beijing, China	6	212	0
Camden And Islington Nhs Foundation Trust, London, United Kingdom	5	44	9
College Of Nursing, Yonsei University, Seoul, South Korea	5	22	0
Educational And Health Psychology, University College London, London, United Kingdom	5	111	4
Faculty Of Medicine And Health, Sydney, Nsw, Australia	5	42	0
Institute For Stroke And Dementia Research, Klinikum Der Universität München, Munich, Bayern, Germany	5	261	4
Radboud University Medical Center, Nijmegen, Gelderland, Netherlands	5	306	2
University Of Exeter, Exeter, Devon, United Kingdom	5	44	3

Out of 1,650 organizations, 18 met the inclusion threshold. Leading institutions included are University College London, King's College London, University of Bradford, Oxford Health NHS Foundation Trust. These institutions are recognized for their contributions to dementia research and psychosocial intervention development (Livingston *et al*., 2018).

Country analysis

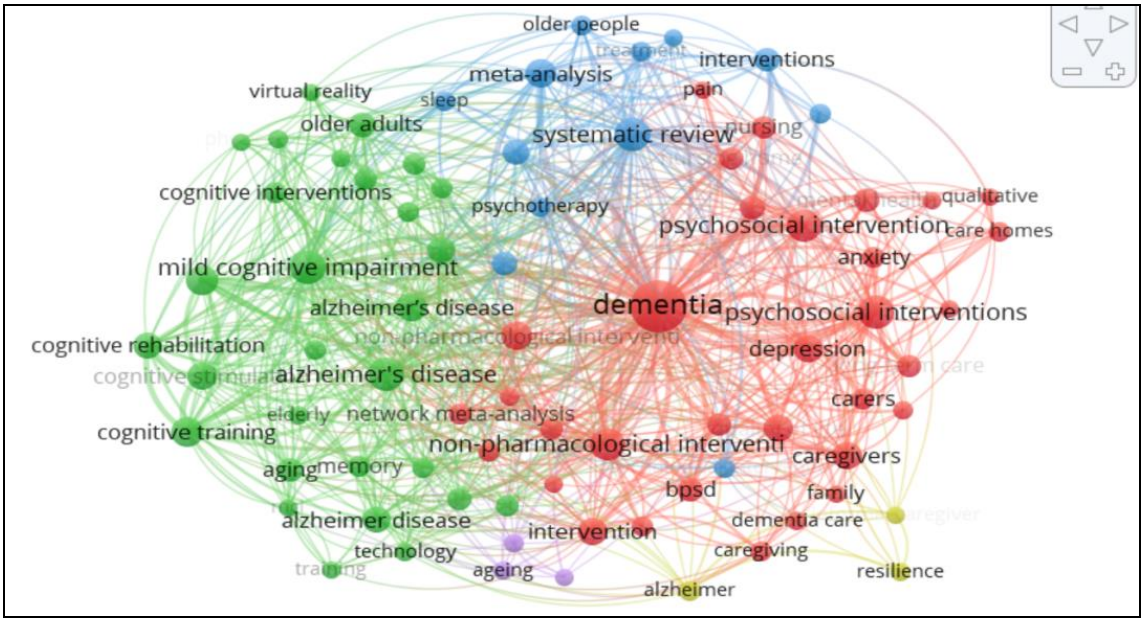


A total of 62 countries contributed to the literature on non-pharmacological interventions for dementia; however, only 25 countries met the minimum threshold for inclusion, indicating uneven global research participation. The country collaboration network comprised 4 clusters, 114 links, and a total link strength of 299, reflecting a moderately interconnected pattern of international collaboration. High-income countries, particularly the United Kingdom and the United States, dominated both research output and collaborative influence, likely due to stronger research infrastructure, funding availability, and established academic networks (Donthu *et al*., 2021) [3]. In contrast, low- and middle-income countries were underrepresented in both publication volume and collaboration strength, highlighting significant disparities in research capacity despite bearing a growing burden of dementia (World Health Organization, 2021). This imbalance suggests that much of the existing evidence may be context-specific to high-income settings, limiting its generalizability, and underscores the urgent need for more inclusive, globally representative research collaborations that incorporate diverse cultural and healthcare contexts.

Author keywords analysis

Out of a total of 1,111 keywords, 80 met the minimum threshold for inclusion, resulting in a well-defined co-occurrence network comprising 5 major thematic clusters that reflect the intellectual structure of research in non-pharmacological dementia interventions. The first cluster centers on cognitive interventions, particularly cognitive stimulation therapy and memory enhancement approaches, which are widely recognized for their effectiveness in maintaining cognitive functioning (Spector *et al*., 2001). The second cluster focuses on caregiver support, highlighting themes such as caregiver burden, stress, and psychoeducational interventions, underscoring the critical role of caregivers in dementia management (Adelman *et al*., 2014) [1]. The third cluster addresses behavioral and psychological symptoms of dementia, including agitation, depression, and other neuropsychiatric manifestations, emphasizing non-pharmacological strategies for behavioral management. The fourth cluster represents psychosocial interventions, grounded in person-centered care and social engagement principles, which prioritize dignity, identity, and relational well-being in individuals with dementia (Kitwood, 1997). Finally, the fifth cluster emphasizes

quality of life, focusing on enhancing overall well-being, functional independence, and life satisfaction among patients. Collectively, these clusters demonstrate a strong shift toward holistic, multidisciplinary, and person-centered approaches in dementia care, reflecting the growing recognition of psychosocial dimensions alongside clinical management.



Discussion

The present bibliometric analysis provides a comprehensive overview of global research trends in non-pharmacological interventions for dementia, highlighting the rapid expansion and increasing complexity of this field. The findings indicate a growing emphasis on psychosocial, cognitive, and family-based approaches, reflecting a broader paradigm shift from purely biomedical models toward holistic, person-centered care. This shift is consistent with contemporary dementia care frameworks, which prioritize quality of life, dignity, and functional independence alongside symptom management (Livingston *et al*., 2020; World Health Organization, 2021).

One of the key findings of this study is the dominance of high-income countries, particularly the United Kingdom and the United States, in terms of research productivity and collaborative influence. This pattern aligns with previous bibliometric studies, which have demonstrated that countries with well-established research infrastructure and funding mechanisms tend to lead scientific output (Donthu *et al*., 2021) [3]. Institutions such as University College London and King's College London have played a pivotal role in advancing psychosocial intervention research, particularly in areas such as cognitive stimulation therapy and caregiver support. However, this concentration of research in high-income settings raises concerns regarding the generalizability of findings, especially in low- and middle-income countries where healthcare systems, cultural contexts, and caregiving structures differ significantly (Patel *et al*., 2018) [6].

The co-authorship analysis revealed a highly collaborative research network, characterized by distinct clusters of influential authors. The presence of strong collaborative ties among leading researchers suggests that knowledge production in this field is driven by established academic networks. Such collaboration facilitates the development of standardized intervention models and enhances methodological rigor (Donthu *et al*., 2021) [3]. At the same time, the observed core-periphery structure indicates that a relatively small group of researchers contributes disproportionately to the literature, a phenomenon consistent with Lotka's Law. While this concentration of expertise can accelerate scientific progress, it may also limit diversity in perspectives and research priorities.

The keyword co-occurrence analysis further highlights the evolving thematic landscape of non-pharmacological dementia research. The prominence of cognitive interventions, particularly cognitive stimulation therapy, reflects strong empirical support for their effectiveness in improving cognitive functioning and delaying decline (Spector *et al*., 2001). Similarly, the emphasis on caregiver support underscores the recognition of caregiver burden as a critical issue in dementia care. Caregivers often experience significant psychological distress, including depression and anxiety, which can negatively impact both their well-being and the quality of care provided (Adelman *et al*., 2014) [1]. Interventions such as psychoeducation and support groups have been shown to reduce caregiver burden and improve coping strategies (Brodaty & Arasaratnam, 2012) [2].

Another important finding is the increasing focus on behavioral and psychological symptoms of dementia (BPSD), including agitation, aggression, and mood disturbances. Non-pharmacological approaches, such as behavioral therapy and environmental modifications, are increasingly recommended as first-line interventions due to their safety and effectiveness (Livingston *et al*., 2020). This aligns with global clinical guidelines, which advocate minimizing the use of pharmacological treatments for BPSD due to associated risks.

The prominence of psychosocial interventions and person-centered care within the keyword clusters reflects the enduring influence of Kitwood's theoretical framework, which emphasizes the importance of social relationships, identity, and emotional well-being in dementia care (Kitwood, 1997). This approach has been widely adopted in social work and gerontological practice, reinforcing the role

of interdisciplinary collaboration in delivering comprehensive care.

Despite these advancements, the study highlights significant gaps in the literature. The limited representation of low- and middle-income countries is particularly concerning, given that the majority of people with dementia are expected to reside in these regions in the coming decades (World Health Organization, 2021). Barriers such as limited funding, lack of trained professionals, and inadequate research infrastructure may contribute to this disparity (Patel *et al*., 2018) [6]. Addressing these challenges requires targeted investment in research capacity building and the development of culturally appropriate intervention models.

Furthermore, while the growing emphasis on non-pharmacological interventions is encouraging, there remains a need for more rigorous methodological approaches, including randomized controlled trials and longitudinal studies, to establish long-term effectiveness and scalability. Future research should also explore the integration of technology-based interventions, such as digital cognitive training and telehealth support for caregivers, which have shown promise in recent studies (Livingston *et al*., 2020).

Conclusion

The current bibliometric analysis demonstrates that research on non-pharmacological interventions for dementia is expanding rapidly, with increasing attention to psychosocial and family-centered approaches. While significant progress has been made, addressing geographical disparities and strengthening methodological rigor will be essential for advancing the field and ensuring equitable access to effective dementia care worldwide.

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