



Key Risk Factors of Dementia in Elderly Populations



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ABSTRACT

Aims Dementia and cognitive impairment can arise from a combination of genetic and modifiable factors. There is substantial evidence supporting the impact of modifiable factors, highlighting the urgent need for consistent evaluation. This study aimed to provide a narrative assessment of the risk factors associated with the incidence of dementia in older adults.

Information & Methods This was a systematic review carried out in 2024. In this review, databases, including PubMed, ScienceDirect, Wiley Online Library, and ProQuest were searched for studies on risk factors associated with the incidence of dementia in the elderly. The review followed the PRISMA guidelines to systematically structure the report. The quality of the studies was evaluated using NIH criteria, and the risk of bias was assessed using the ROBINS-E tool. A total of 1,658 articles were collected in the initial search. After the screening process, 16 articles were deemed eligible.

Findings Based on the collected studies, approximately 27 risk factors were categorized into four groups, including demographic factors, lifestyle, chronic diseases, and psychological disorders. The majority of the studies reviewed focused extensively on depression, while hypertension and a history of stroke also emerged as frequently discussed subjects.

Conclusion Demographics, lifestyle, chronic diseases, and psychological disorders are risk factors for dementia among older adults.

Keywords Dementia; Elderly; Risk Factors; Psychiatric Disorders; Chronic Disease

CITATION LINKS

[1] Definitions of dementia and ... [2] Secular trends in dementia ... [3] The prevalence of ... [4] Dementia in China ... [5] Estimation of the global ... [6] Dementia caregiver burden ... [7] Health-economic burden ... [8] Quality of life assessment in ... [9] Rapidly progressive dementias-aetiologies ... [10] A transdiagnostic review of neuroimaging ... [11] Cognitive impairment ... [12] Impact of dementia on informal ... [13] Problems faced by people living ... [14] Which factors increase informal care ... [15] DETERMinants of quality of life, care ... [16] Analysis of family stigma and ... [17] Issues in dementia caregiving ... [18] Family caregiving of persons ... [19] Quality of life in dementia ... [20] The worldwide costs ... [21] World Alzheimer report ... [22] Amyloid-targeting monoclonal ... [23] Early-onset and delayed-onset ... [24] Why has therapy development ... [25] Alzheimer's disease risk reduction ... [26] Twenty-seven-year time trends in ... [27] Neurovascular alterations in ... [28] Roles of vascular risk factors ... [29] Public knowledge of the influence ... [30] Estimating the potential ... [31] Dementia prevention, intervention ... [32] The PRISMA 2020 statement ... [33] The demographic characteristics ... [34] Prevalence and risk factors of ... [35] Depression as a risk factor ... [36] Contributions of modifiable ... [37] Incidence of and risk factors ... [38] Prevalence and effect factors ... [39] The prevalence and risk ... [40] Prevalence of risk factors ... [41] Endogenous sex hormones ... [42] Clinically significant anxiety ... [43] Factors associated with dementia ... [44] Lifestyle factors and risk ... [45] Prevalence and risk factors of dementia ... [46] Risk factors for dementia in a Senegalese ... [47] Stress, depression, and risk ... [48] Risk factors for dementia in highly ... [49] Depression in older ... [50] Depression in the elderly ... [51] Depression and sleep quality in ... [52] Depression among older adults ... [53] Prognosis of depression in old age ... [54] The two-year course of late-life depression ... [55] Suicidal behaviour in older age ... [56] Four weeks of combination exercise training improved ... [57] Cognitive rehabilitation in normal aging ... [58] Prevalence, risk factors, and management ... [59] Selective changes in thin spine density ... [60] Neural plasticity in the ... [61] Why is depression more common ... [62] Why is depression more prevalent ... [63] Sex hormone fluctuation ... [64] Dementia and co-occurring ... [65] Post-stroke cognitive impairment ... [66] Hypertension and the risk of ...

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Introduction

Dementia is a disorder characterized by a gradual decline in cognitive abilities, severely impacting daily activities [1]. Worldwide data suggests that the incidence of dementia is either rising or remaining constant in the majority of countries [2]. With the aging baby boomer population, the number of seniors affected by dementia is anticipated to increase significantly [3-5]. This trend has profound health, social, and economic implications for both patients and caregivers [6,7]. Given the lack of treatments that can alter the disease's progression, it is vital to focus on reducing the risk of dementia in seniors to enhance their quality of life [8].

Dementia arises from a range of conditions that progressively damage nerve cells and affect the brain, leading to a decline in cognitive abilities that exceeds normal aging expectations [9]. Although consciousness remains intact, cognitive decline frequently precedes changes in mood, emotional regulation, behavior, and motivation [10,11]. Dementia impacts medical, psychological, social, and economic aspects, affecting not only those diagnosed but also their caregivers, families, and the broader community. Unfortunately, there is often insufficient awareness and understanding of dementia, which fosters stigma and hinders appropriate diagnosis and care [12-19].

Across the globe, the provision of dementia care has typically imposed a significant financial strain on government budgets. In 2019, global costs for dementia amounted to approximately \$1,313.4 billion, affecting 55.2 million people and costing around \$23,796 per person. Of the total, \$213.2 billion (16%) was allocated for direct medical expenses. Direct social sector costs, which include long-term care, totaled \$448.7 billion, accounting for 34% of the overall expenses. Informal care costs amounted to \$651.4 billion, representing 50%. The exorbitant expenses associated with dementia on a global scale place a significant strain on healthcare systems and families, with high-income countries bearing the highest financial burden despite the majority of dementia cases residing in low- and middle-income countries (LMICs). The substantial financial burdens of dementia affect both healthcare systems and families worldwide. While most dementia cases are found in LMICs, the highest total and per capita costs are observed in high-income countries [20]. Seventy-five percent of caregivers experience stress while balancing the care of dementia patients with their other responsibilities [21]. Currently, aducanumab is the only disease-modifying drug approved for the treatment of Alzheimer's disease (AD) [22], although its approval remains controversial. At present, no treatments exist that can delay the onset or stop the progression of other types of dementia. This is largely due to complex interactions between genes and the

environment, as well as unclear pathophysiological mechanisms, which create obstacles for targeted drug development efforts [23,24]. The conundrum of a high disease burden coupled with the absence of effective treatments underscores the imperative for primary prevention strategies [25].

Numerous studies have observed a promising decrease in dementia prevalence, indicating positive progress in this area [26], likely influenced by factors, such as higher education levels and improved management of vascular risk factors [27-30]. According to the Lancet Commission, modifiable factors contribute to approximately 40% of dementia cases globally [31], suggesting that interventions targeting these factors could help in dementia prevention. Variations in study designs and inconsistencies between studies can introduce biases, making it challenging to establish reliable evidence hierarchies across different factors. The principal aim of this review was to evaluate the potential risk factors linked to the incidence of dementia among older adults across various countries worldwide.

Information and Methods

The current systematic review followed the 2020 edition of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement [32], to examine all potential risk factors associated with the development of dementia in older adults.

Search strategy

The literature search was conducted between March and May 2024, utilizing freely accessible databases, such as PubMed, ScienceDirect, Wiley Online Library, and ProQuest. Additionally, we conducted a manual search of the bibliographies of relevant studies using Google Scholar. In each database, searches were performed across all available years during the specified timeframe, using keywords, including "Dementia," "Alzheimer," and "Vascular dementia," followed by other keywords, such as "Elderly," "Senior age," and "Aging," both individually and in combination.

Inclusion and exclusion criteria

Articles were included in this review if they were primary research articles with either a qualitative or quantitative approach, available in English, published in a peer-reviewed reputable journal, focused on older adults, and participants were classified as elderly according to the World Health Organization (WHO) criteria. The exclusion criteria were articles of other types, such as review articles, editorials, and studies, in which participants were not elderly. Additionally, the bibliographies of the examined studies were reviewed for further publication.

Data extraction

All authors independently extracted information from each article into a spreadsheet. The data collected included the name of the author(s), year of

study, country, study design, sample size, mean age of participants, types of dementia, risk factors, and main findings. Reviewers examined the articles and provided comments in the table.

Study quality assessment

The authors independently assessed the methodological quality of the eligible studies using the instrument developed by the National Institutes of Health (NIH). It consists of 14 questions that serve as criteria for categorizing the quality of the study, focusing on the core concept of internal validity. The

study quality was categorized as good (90-100%), fair (70-89%), and poor ($\leq 69\%$).

A search of the database resulted in 1,658 articles, including those identified through hand searching. After eliminating duplicate articles and reviewing titles and abstracts, 506 articles were selected for screening. Of these, 69 articles were excluded as they were review studies or case reports and irrelevant age ranges. The remaining 16 studies were included in the systematic review (Figure 1).

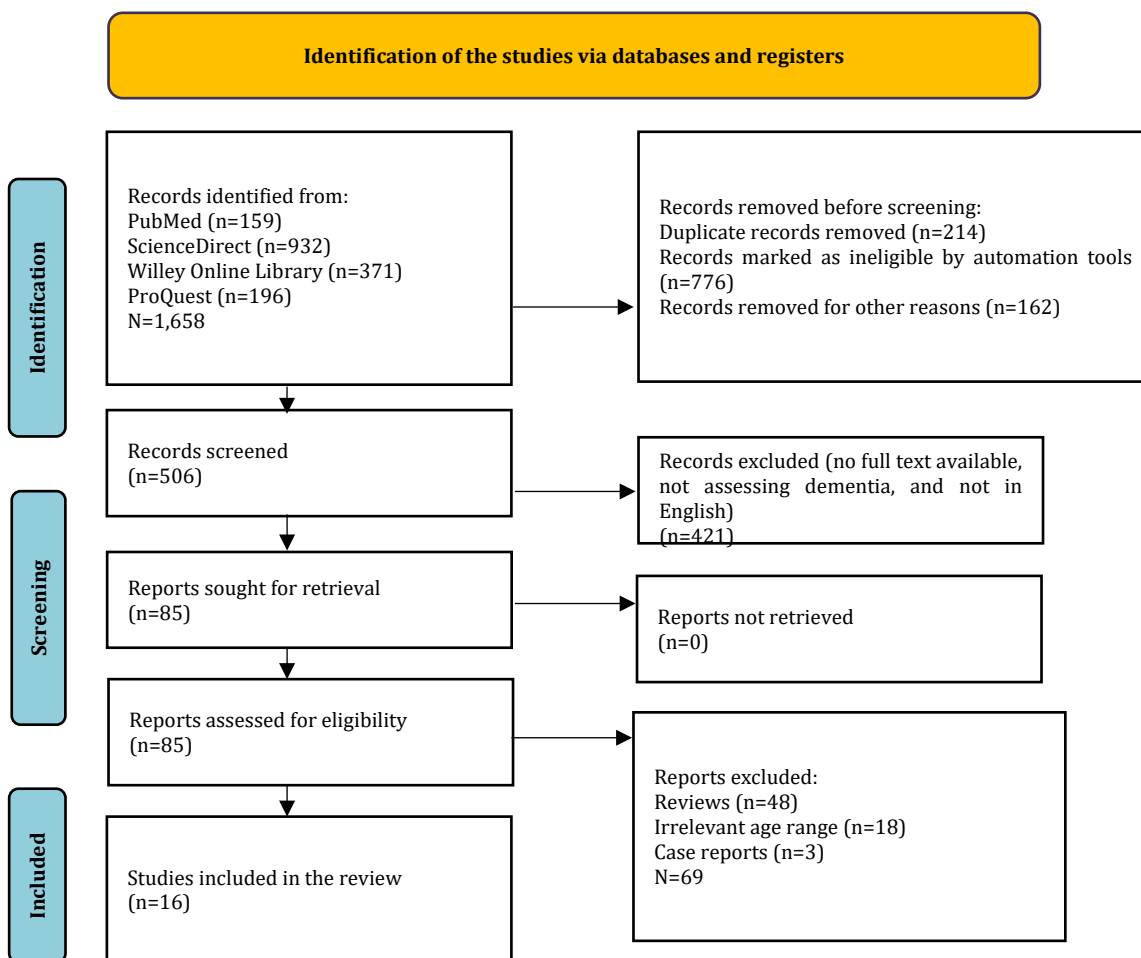


Figure 1. Flow chart of the study selection.

Findings

General characteristics of eligible studies

The current review gathered 16 studies from five different continents. Each country represented one study included in this review. The countries that contributed to the studies on dementia risk factors were grouped by continent, including Nigeria [37] and Senegal [46] from Africa, Saudi Arabia [33], Indonesia [45], China [38, 48], India [40], Turkey [39] from Asia, Greece [34], Italy [41], Spain [42], Sweden [47], Netherland [36], United Kingdom [35] from Europe, Australia [44] from Oceania, and Brazil [43] from South America.

The eligible studies included a wide range of participant groups, with sample size ranging from as few as 127 elderly individuals [34] to a several

hundreds of thousands from national survey records [47]. The number of participants was related to the used study design, which is generally observational with a cross-sectional approach [34, 38-40, 43, 45, 46, 48], along with retrospective-prospective cohort studies [33, 35-37, 41, 42] and longitudinal studies [44, 47].

Most of the studies indicated that the age of participants was over 60 years, categorizing them as elderly. However, there was one study that included participants with a mean age of 42.05 [47]. Age is an important factor when discussing risk factors for dementia, as it was a non-modifiable risk factor. In terms of gender, the number of female participants appeared to be greater than that of male participants (Table 1).

Table 1. Features of the included studies

Country, reference	Design	Sample size	Mean age (year)	Types of dementia	Risk factors	Main findings
Saudi Arabia ^[33]	Retrospective cohort	236 males, 182 females	78.8	-Mixed -Alzheimer's disease (AD) -Vascular -Parkinson's disease -Lewis body - Frontotemporal	-Age -Gender -Obesity -Hypertension -Diabetes mellitus (DM)	-Older age, female, Hypertension, DM, and obesity are strongly associated with dementia
Greece ^[34]	Cross-sectional	64 males, 63 females	71	Not specified	-Supportive environment -Educational level -Marital status -Number of children -Comorbidity -Cognitive impairment -Living area	-Positive environments, lower educational attainment, single status in seniors, and elderly individuals without children are significant factors. Comorbidity was also found to be significant -Cognitive impairment, residing in rural areas, marital status, and comorbidities
UK ^[35]	Prospective cohort	546 males, 518 females	67.9	Not specified	-Age -Gender -Depression	Depression is the most important risk factors
Netherland ^[36]	Prospective cohort	311	74.6	Not specified	-Comorbidity -Depression	Depressive symptoms 3.59 times increase the risk of dementia -The age-adjusted hazard ratio for women is 2.12
Nigeria ^[37]	Cohort	587 males, 638 females	≥65	AD	-Comorbidity -Age -Gender -Living area	-Those over 75 years old are at high risk -Living in rural areas, low economic status, and not participating in family-related social activities are risk factors
China ^[38]	Cross-sectional	704 males, 1,077 females	>60	Not specified	-Age -Marital status -Living area -Lifestyle -Obesity -Physical activities -Depression -Comorbidities	-Living in rural areas increases the risk of dementia 1.558 times more than urban areas -Those over 70 years old are at high risk of dementia -Not having a partner/being single -Low educational level -Smoking -Not consuming freshwater fish -Physical activities -Depression -Hypertension -Chronic heart disease
Turkey ^[39]	Cross-sectional	78 males, 123 females	70.8	Not specified	-Gender -Age -Occupation -Depression	-The risk of dementia is significantly higher in females, individuals over the age of 80 years, those who are unemployed, and those experiencing depression
India ^[40]	Cross-sectional	181 males, 165 females	63.97	Not specified	-Obesity -Alcohol abuse -Smoking -Depression -History of chronic diseases -Dementia in family -Having grandchildren -Diet	-Males are more at risk than females -Alcohol consumption, obesity, smoking, depression, chronic diseases, and having two or more grandchildren all increase the risk of dementia
Italy ^[41]	Cohort	377 cases with no dementia, 39 cases with dementia, 23 cases with AD, 12 cases with vascular dementia	77.6	-AD -Vascular	-Age -Age at menopausal -Sex hormones -Smoking status	-High E2 levels are Linked to AD -Free testosterone (FT) and dementia are not related -No association between sex hormones and dementia risk -No association between FT and dementia in women
Spain ^[42]	Prospective cohort	4803	>55	Not specified	-Anxiety	-Anxiety

Continue of Table 1 from the last page.

Brazil ^[43]	Cross-sectional	60 males, 227 females	≥60	Not specified	-Age -Vitamin D -Depression -Hypertension	-Vitamin D -Depression -Hypertension -Age of ≥80 years
Australia ^[44]	Longitudinal Cohort	1233 males, 1572 females	≥60	Not specified	-Alcohol intake -Physical activities -Depression -Respiration	-The peak expiratory flow -Depression score -Alcohol intake -Gardening daily
Indonesia ^[45]	Cross-sectional	900 males, 1076 females	71	AD	-Age -Educational level -History of stroke -Comorbidity	-Older age -Female gender -Low education -History of stroke
Senegal ^[46]	Cross-sectional	507	72.4	Not specified	-Age -Education -Epilepsy -Family history of dementia -Stroke history	-Age -Education -Epilepsy -Family history of dementia -Stroke
Sweden ^[47]	Longitudinal cohort	696551 males, 665997 females	42.05	-All types	-Depression -Stress	-Stress to AD -Depression to AD -Depression to all types of dementia
China ^[48]	Cross-sectional	1078 males, 246 females	72.40 in males, 70.55 in females	-AD -Vascular	-History of stroke -Fruit consumption -Parental death -Household financial status -Cardio comorbidities -Physical exercise	-Lost of parents -No fruit intake -Stroke -No physical activity

Summary of study quality appraisal

Methodologically, we identified three studies with “poor” quality, as they did not clearly explain the sampling criteria, including the calculation of the number of samples and the power description. Three other studies fell into the “fair” category, while most of the remaining studies were classified as having “good” quality (Table 2).

Risk of bias assessment

Most of the studies were categorized as having a low risk of bias, while a small proportion raised some concerns, indicating that there are items that remain uncertain. Five studies were classified in the high risk of bias category due to having more than two concerns or insufficient information (Figure 2).

Mapping risk factors for dementia

We identified approximately 27 risk factors significantly associated with the prevalence of dementia across countries representative of their respective continents. To summarize the risk factors identified, we attempted to classify them into demographic factors, chronic diseases, lifestyle factors, and psychological disorders.

Demographic factors related to dementia

In the studies reviewed, demographic factors, primarily age and gender, are discussed. Overall, the studies agree that older age increases the prevalence of dementia. The significance values for age among the studies showed a strong association ^[33, 37-39, 45, 46]. When considering gender, older women are at a higher risk of developing dementia, contributing to an increase in the number of dementia sufferers in this group ^[37]. The reviewed studies consistently indicate a universal consensus regarding the comparison between males and females, with

findings consistently showing that females are more likely to develop dementia than males. This is further supported by the high prevalence rate observed among females ^[33, 37, 45]. However, we identified one study reporting a higher incidence of dementia among males compared to females ^[40].

Educational level, occupation, and household income are closely aligned in their contribution to the prevalence of dementia. Among the studies reviewed, it was noted that among all elderly individuals with dementia, those with a low level of education exhibit a strong association ^[34, 37, 38, 45]. In the Netherlands, elderly individuals with a low economic status have four times the risk of developing dementia ^[36]. Meanwhile, a study in Turkey indicates that elderly individuals who do not work are 3.22 times more likely to experience dementia than those who are employed ^[39]. In their study of older individuals residing in well-educated communities in China, Wei *et al.* discovered a strong correlation between family financial status and the incidence of dementia, with those in poorer financial conditions nearly three times more likely to experience dementia compared to older individuals with sufficient financial resources ^[48]. Studies in India have linked the number of grandchildren to the incidence of dementia, suggesting that this is more related to the economic conditions of the family. Researchers believe that in Indian society, most people with low economic status tend to have more family members living together in one household ^[40]. A family history of dementia is a significant contributor to the incidence of dementia in the elderly. In Senegal, there is a strong correlation between a family history of dementia and dementia incidence ^[46].

Table 2. Summary of study quality assessment

Reference	Questions													
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
[33]	Y	Y	Y	NR	NR	Y	NR	N	N	N	Y	N	NR	N
[34]	Y	Y	Y	Y	NR	Y	Y	N	Y	N	N	N	Y	Y
[35]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
[36]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
[37]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
[38]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
[39]	Y	Y	Y	NR	NR	Y	N	N	Y	N	Y	N	Y	Y
[40]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
[41]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
[42]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
[43]	Y	Y	Y	Y	Y	Y	Y	Y	Y	NR	N	N	Y	Y
[44]	Y	Y	Y	Y	Y	Y	NR	NR	Y	NR	Y	N	Y	Y
[45]	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	N	Y	Y
[46]	Y	Y	Y	Y	NR	Y	Y	N	Y	Y	Y	N	Y	Y
[47]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
[48]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y

*Y=yes; NR=not reported; NA=not applicable.

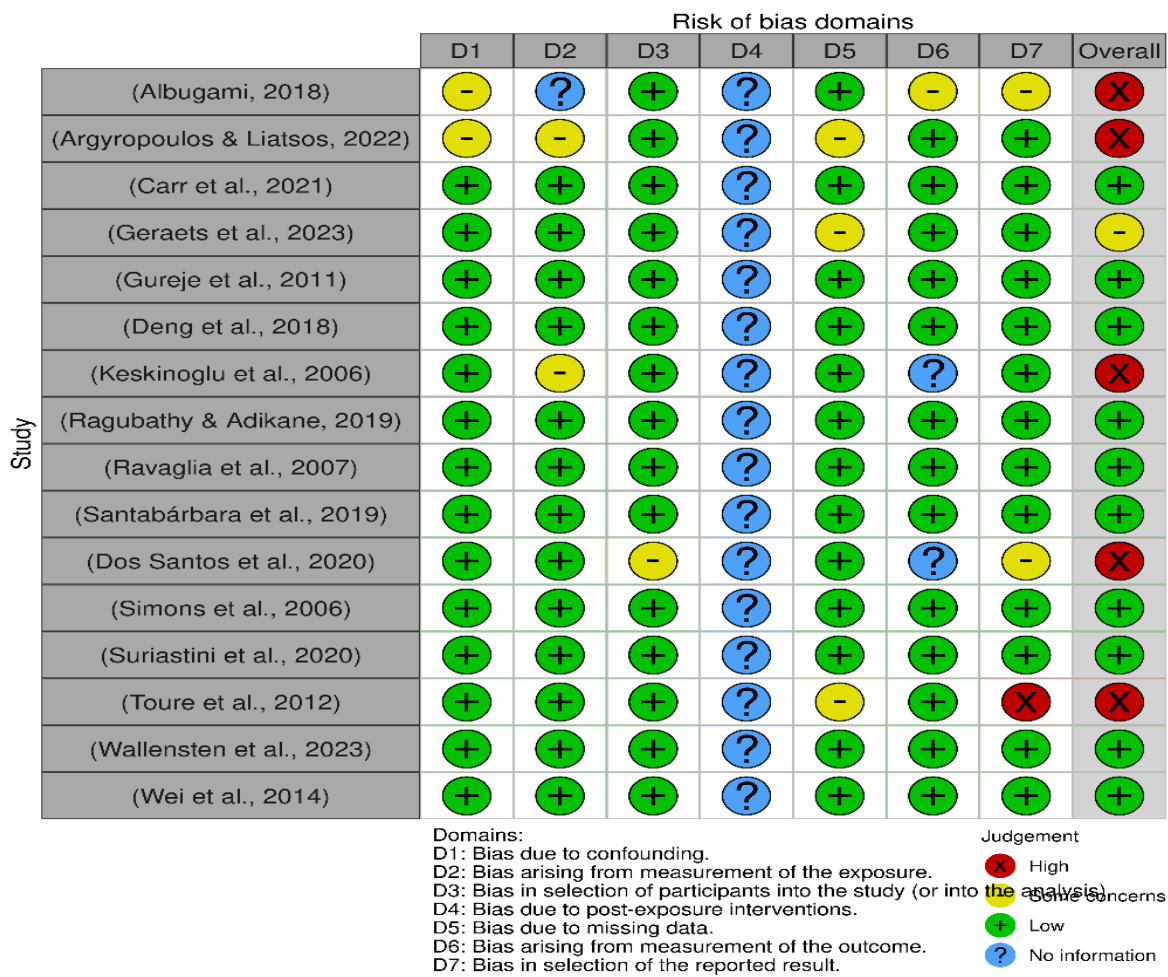


Figure 2. Risk of bias assessment.

This correlation is also observed among the elderly in India, but it occurs only between parents and their children, not between siblings [40].

Lifestyle factors related to dementia

Engaging in both physical and social activities can significantly reduce the risk of dementia among older adults. This suggests that a lack of regular physical and social activity may elevate the risk of developing dementia. Deng *et al.* illustrate the importance of

physical and social activities for the elderly, noting that those who never engage in social activities are at high risk for dementia. Similarly, those who do not participate in physical activity, housework, exercise, and playing Mahjong or chess are also associated with dementia [38]. Regarding activities, daily gardening is identified as a protective factor against the incidence of dementia, with elderly individuals who do not engage in daily gardening having a one-

fold increased chance of experiencing dementia compared to those who do [44]. A similar finding was reported by Wei *et al.*, where the elderly who do not engage in physical activity contribute to an approximately three-fold increase in the incidence of dementia [48]. In Nigeria, the elderly who do not participate in social activities are also at high risk for dementia ($p=0.04$) [37].

Elderly who actively consume alcohol and smoke are at high risk of developing dementia [38, 40, 41, 44]. In addition to these harmful habits, dietary patterns are also an important factor that needs to be considered for the elderly. For example, in China, the elderly who do not consume freshwater fish are at risk of dementia ($p=0.004$) [38]. Although the significance value is not very strong, the consumption of seafood, liver, and fats is also included in the dietary recommendations of the Chinese study [38]. Another example is that a lack of fruit in the diet of the elderly is associated with a high risk of dementia [48].

History Chronic diseases

Some of the chronic conditions experienced by older adults with dementia include hypertension, stroke, diabetes mellitus (DM), obesity, ventilation disorders, and other cardiovascular-related conditions. A history of stroke has been mentioned repeatedly in the studies reviewed to date, with high significance. Therefore, this factor may need to be a focus in future research, along with hypertension, obesity, and DM, which are closely related to these chronic conditions. Albugami *et al.* reported a strong association between hypertension and dementia, similar to other studies in Greece and China [33, 34, 38]. Dos Santos *et al.* provided evidence that older individuals with previous episodes of high blood pressure have roughly a threefold increased likelihood of developing dementia [43]. As stated by Ragubathy & Adikane, midlife and late-life hypertension are major predictors of the onset of arterial dementia in later life [40]. Meanwhile, a history of stroke appears to be a stronger risk factor for dementia compared to hypertension [45, 46].

Meanwhile, a study in China indicates that the elderly with a history of stroke have nearly four times the risk of developing dementia [48].

Another condition associated with cardiovascular disorders is a history of myocardial infarction [34]. Similar to hypertension, DM also has a strong association with dementia in the elderly, as found in studies conducted in Saudi Arabia [33], India [40], and Indonesia [45]. There is only one study that addressed a connection between seizures and dementia, and the findings indicated a robust association [46]. Obesity in the elderly must also be a concern, as some studies have shown it to be associated with dementia in this population [33, 38, 40].

Psychiatric disorders related to dementia

Impairment in this area was the strongest factor among the various factors considered. Depression is the most frequently measured condition in the

studies reviewed, and its significance remained stable across these studies. The UK study identified depression as a major factor in the incidence of dementia, associated with a threefold risk [35]. Several countries demonstrate a strong significance in this relationship, including China ($p=0.003$), Turkey ($p=0.0001$), Brazil ($p<0.001$), and Australia, which exhibit the strongest association among the other three factors ($p<0.001$). Additionally, Sweden and the Netherlands show odds ratios (OR) of 2.39 and 3.59, respectively [38, 39, 43, 44, 47]. According to Ragubathy & Adikane's research, a previous episode of clinical depression lasting roughly a decade is considered a potential factor. Nonetheless, the histories collected generally cover a period of weeks to years, which is comparatively less significant [40].

Discussion

This study aimed to provide a narrative assessment of the risk factors associated with the incidence of dementia in older adults. In summary, the studies reviewed indicate that the risk factors for dementia are diverse and intricately interconnected. We attempted to classify the identified risk factors into demographic factors, lifestyle choices, chronic illnesses, and psychological conditions. However, we encountered discrepancies among the studies, methodological shortcomings that affected the reliability of their results, and a limited overall number of available studies.

We assessed that within the category of psychological disorders, the level of depression is the strongest factor among several other conditions in this group, including anxiety and stress. Symptoms of depression in older adults manifest in diverse ways, impacting both their sense of well-being and how they are perceived by others. Key characteristics of geriatric depression include a persistent low mood and slowed psychomotor functions. Anxiety and irritability are common, along with numerous physical and psychological complaints. Patients may experience feelings of poverty and hypochondria, as well as sleep disturbances and a heightened risk of suicide attempts. This condition tends to recur and typically has a poor prognosis [49-54]. Depression among older adults can lead not only to work absenteeism but also to complete withdrawal from employment, such as retiring or closing a business. Even among unemployed individuals, a decline in hobbies and domestic activities can lead to a decrease in muscle strength in the lower extremities, which in turn can contribute to a reduction in activities of daily living (ADLs). Preventing the deterioration of ADLs can be achieved through the early detection of depression. According to recent systematic studies, the most significant risk factor for later suicidal behavior in older individuals is depression. Suicidal tendencies in older adults are closely linked to physical illnesses and impairments, stress, living alone, and poor

health, all of which are risk factors for suicide attempts [55].

We found evidence that advancing age increases the risk of dementia among seniors. The brain is susceptible to the effects of aging, undergoing various alterations in both its structure and function as individuals grow older [56, 57]. In terms of brain biology, advancing age is a significant risk factor for the onset of cognitive impairments, such as AD, the most common form of dementia, which affects approximately 55 million people globally [58]. While both normal and pathological aging brains experience brain atrophy and cognitive decline, the mechanisms driving these changes are distinct. In normal aging, cognitive decline results from disruptions in circuits and synapses, without significant neuronal loss. This contrasts with dementia and related conditions, which involve extensive neuronal death [59, 60]. In addition to age, gender also appears to be a strong contributor to dementia, as mentioned in the studies reviewed. First, there is a tendency for women to experience depression; several studies indicate that women are twice as likely to encounter depression compared to men during their lifetime [61, 62]. Secondly, the presence of sex hormone factors plays a role, as menopausal women experience an increase in estrogen during this period, which may trigger the onset of dementia [63].

Almost all people with dementia have one or more other chronic conditions [64]. Many of these conditions may cause, or at least contribute to, cognitive decline and dementia. Once a person has dementia, intellectual disability can complicate the management of these other conditions [65]. High blood pressure (hypertension) significantly influences dementia events, as it appears to increase the risk of early cognitive decline, which can progress to dementia or stroke over several years. During this asymptomatic period for most people with hypertension, elevated blood pressure can lead to mild changes, including arteriolar narrowing or microvascular alterations that cause chronic small vessel ischemia (lacunar or white matter lesions), as well as hemosiderin deposits around blood vessels, particularly in deeply penetrating arteries (microbleeds) [66].

This study faced some limitations. Firstly, very few studies were included in this review due to a lack of access to some databases, especially credible ones. Secondly, we included some studies that are of low quality and high bias; therefore, we would like to remind readers and researchers to be cautious in using the results of these studies.

However, we are quite confident that the original locations of the studies included are from highly varied countries. For greater detail and accuracy, it is important to conduct a future meta-analysis focusing on one of the most significant variables identified in the current study.

Conclusion

Demographics, lifestyle, chronic diseases, and psychological disorders are risk factors for dementia among older adults.

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