Review Article

The Bidirectional Relationship Between Dementia and Vision Loss in Older Adults

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Abstract

Background: Vision loss and dementia are common conditions among older adults that substantially impact quality of life. While several studies have explored the relationship between visual impairment and cognitive decline, the evidence is scattered and mechanisms remain unclear.

Objective: To provide a comprehensive overview of existing literature exploring the association between vision loss and dementia, highlighting potential biological pathways, diagnostic challenges, and implications for care.

Methods: This narrative review synthesizes findings from observational studies, clinical reports, and experimental research identified through targeted searches of relevant databases and reference lists.

Results: Evidence suggests a multifactorial link between vision impairment and cognitive decline, with sensory deprivation, social isolation, and increased cognitive load proposed as key mechanisms. Visual impairment may complicate dementia diagnosis and affect patient management. However, heterogeneity in study designs and measurement approaches limits definitive conclusions.

Conclusions: Understanding the interplay between vision loss and dementia is critical for developing integrated clinical assessments and interventions. Further research is needed to elucidate causal pathways and optimize care strategies for this vulnerable population.

Keywords: Vision loss, Dementia, Disability, Visual loss, Alzheimer's disease.

Introduction

Dementia encompassing Alzheimer's disease, vascular dementia, Lewy body dementia, and related neurocognitive disorders is a leading cause of disability and death in older adults worldwide. In 2021, roughly 55 million people were living with dementia globally, a figure projected to exceed 150 million by 2050 as populations age.[1] Vision impairment, affecting more than 2.2 billion people, disproportionately impacts individuals aged 50 and above and is often preventable or treatable.[2] Age is a common risk denominator for both dementia and visual loss, making their cooccurrence increasingly prevalent.

Although distinct, dementia and vision loss share overlapping clinical features such as disorientation, functional decline, and social withdrawal that can obscure diagnosis and complicate care. There is growing recognition of a bidirectional relationship: visual impairment may elevate dementia risk, and neurodegenerative diseases can impair visual processing. For example, a 2024 U.S. study estimated that up to 19% of prevalent dementia cases in older adults could be attributed to at least one untreated visual deficit (e.g., contrast sensitivity, near or distance acuity).[3]

Given the shared risk factors and overlapping manifestations, distinguishing between sensory versus cognitive contributions to functional decline is critical. Clinicians must pursue integrated assessment and intervention strategies ranging from vision screening in memory clinics to caregiver support that addresses both sensory and cognitive needs.

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The purpose of this narrative review is to synthesize existing literature on the epidemiology and mechanisms linking dementia and vision impairment, discuss diagnostic challenges, and propose clinical and public health implications. It aims to:

- Provide current epidemiological estimates and trends
- Explore how vision loss may contribute to cognitive decline and vice versa
- Highlight diagnostic complexities and suggest management strategies

Epidemiology and Co-occurrence

Prevalence of Dementia

In 2021, an estimated 55 million people globally were living with dementia, with nearly 10 million new cases diagnosed per year.[3,4] Risk increases steeply with age: dementia affects around 7% of adults over 65, rising to 20 to 40% in those over 85.[5] Women appear more frequently affected, likely due to longer life expectancy rather than sex specific pathophysiology.

Prevalence of Vision Impairment

According to the WHO, at least 2.2 billion individuals globally experience near or distance vision impairment, over 1 billion of whom have unaddressed or preventable vision loss[6]. Vision impairment rises sharply with age: in 2020, individuals aged 50+ accounted for over 70% of moderate-to-severe vision loss and 78% of global blindness cases[7]. Leading causes include uncorrected refractive error, cataracts, diabetic retinopathy, glaucoma, and agerelated macular degeneration (AMD), particularly prevalent in South Asia and other low and middleincome regions[8].

Co-Occurrence of Dementia and Vision Impairment

The overlap between vision impairment and cognitive decline is significant. A scoping review identified 37 studies and found visual impairment prevalence in people with dementia ranging widely from 0.4 to 52%, depending on setting (community, nursing home, hospital).[9] A meta-analysis of 14 prospective cohort studies involving over 6 million participants showed that those with vision impairment had a 47% higher risk of developing dementia (RR ≈ 1.47, 95% CI 1.36–1.60) and a 35% higher risk of cognitive impairment (RR ≈ 1.35, 95% CI 1.28–1.41).[10]

Pooled cross-sectional evidence, involving over 76,000 individuals, found that older adults with vision impairment had significantly higher odds of baseline cognitive impairment (OR ~1.6) and incident cognitive decline or dementia (pooled OR ~1.4).[11]

Dual sensory impairment comorbid hearing and vision loss is also strongly linked to cognitive decline. A global meta-analysis of over 5 million individuals reported a 5.5% prevalence of dual sensory impairment, with nearly 60% of these individuals exhibiting cognitive impairment. Baseline dual sensory impairment was associated with 72% increased odds of incident cognitive decline (OR ~1.72), and approximately 3.8% of dementia cases globally may be attributable to dual sensory loss.[12]

Population Attributable Fractions and Preventable Burden

A U.S.-based crosssectional study of 2,767 adults aged 71+ estimated that up to 19% of dementia cases could be attributed to vision impairments including contrast sensitivity, near and distance acuity[7]. Meanwhile, the Lancet Commission added untreated vision loss to its list of 14 modifiable dementia risk factors in 2024, attributing approximately 2% of dementia's population-level risk to untreated vision deficits.[13]

Mechanisms Linking Vision Loss To Dementia

Sensory Deprivation Hypothesis

The sensory deprivation hypothesis posits that chronic reduction in sensory input such as persistent visual impairment may lead to neuronal atrophy, neural network disruption, and eventual cognitive decline. Reduced visual stimulation over time can diminish neuroplasticity, resulting in structural brain changes beyond the visual cortex that impair higher-order cognitive function including memory and executive processes.[11]

Longitudinal data support this: in one prospective cohort (the Salisbury Eye Evaluation Study), declines in visual acuity over eight years were significantly predictive of greater declines in MMSE scores suggesting that worsening vision imposes larger effects on cognition than vice versa.[9]

Social Isolation and Depression as Mediators

Visual impairment often leads to reduced social participation and increased loneliness factors that are themselves associated with cognitive decline and elevated dementia risk. In a cohort study of over 2,600 older adults monitored up to 16 years, the link between vision loss and cognitive deterioration was partially mediated by lower levels of social activity and increased loneliness, though direct effects of impaired vision remained the dominant driver.[9]

Broader meta-analyses and longitudinal reviews confirm that both social isolation and loneliness independently predict worse cognitive performance over time not merely through depression but via reduced cognitive stimulation. In some studies, depression acts as a key intermediary between loneliness and cognitive decline, whereas social inactivity itself is a stronger mediator between isolation and cognition.[14]

Neuroimaging has also linked perceived social isolation to changes in brain structure and function especially within the defaultmode and executive control networks areas implicated in memory consolidation and cognitive flexibility.[5]

Increased Cognitive Load Hypothesis

The cognitive load hypothesis suggests that impaired vision forces the brain to expend additional resources on processing degraded sensory input, leaving fewer cognitive resources available for memory encoding, reasoning, and executive

tasks. This chronic compensatory burden may accelerate cognitive decline over time.[5]

Evidence from Longitudinal and Neuroimaging Studies

Longitudinal studies provide compelling evidence of directional relationships:

- In the 3C cohort study (over 7,700 French adults aged 65+ followed for 12 years), moderate-to-severe near vision impairment was associated with nearly double the risk of dementia within the first 4 years (HR ~2.0), especially among those with symptoms of depression. Vision decline remained a predictive marker even after adjusting for baseline cognition and cognitive engagement.[6]
- Data from the ADAMS/ADAMSbased Aging Dementia study show that vision impairment is significantly associated with transition from no cognitive impairment to cognitive impairment no dementia (CIND), although it does not necessarily accelerate later transition from CIND to full dementia suggesting vision loss may be particularly relevant during early cognitive decline phases.[5]
- In the Cardiovascular Health Study in the U.S., combined (dual) sensory impairment (vision + hearing) was linked to an ~31% increased dementia risk per additional year of dual sensory loss, and those with DSI >2 years had up to 3 times greater risk of Alzheimer's disease, reinforcing the cumulative impact of sensory deficits.[15,16]

Neurobiological evidence further underpins these mechanisms:

- Analyses of sensory deprivation suggest that chronic sensory impairment leads to gray matter reduction, disruptions in the default-mode network, and chronic neuroinflammation, all of which are implicated in neurodegenerative processes.[17]
- Functional neuroimaging of isolated older adults has linked loneliness and sensory loss to altered connectivity in neural circuits governing executive function, alertness, and social cognition highlighting how reduced sensory and social input may broadly affect brain network integrity.[5]

These mechanisms are not mutually exclusive they likely interact in complex ways to accelerate cognitive decline. Vision impairment can lead directly to neural changes, while indirectly fostering depression, loneliness, or increased cognitive burden. Together, these pathways underscore why vision loss is increasingly regarded as a modifiable risk factor for dementia and cognitive impairment a target for early intervention and cognitive preservation (Table 1).

How Dementia Affects Visual Processing

This section explores how neurodegenerative changes in dementia impact visual perception, highlighting alterations in visual-spatial processing, depth and contrast perception, object recognition, and the neurological substrates involved.

Visuospatial Deficits in Alzheimer's and Lewy Body Dementia

Dementia significantly impairs visuospatial abilities, affecting navigation, orientation, and spatial awareness. In Alzheimer's disease (AD), approximately 40–50% of patients exhibit visuospatial deficits, such as difficulty judging distances, copying complex figures, and navigating familiar environments.[15] Dementia with Lewy bodies (DLB), however, often presents with even more pronounced visual-spatial dysfunction, particularly in tasks assessing bottom-up perception and visuoconstruction.[10] For example, DLB patients frequently cannot copy interlocking pentagons on the MMSE, even with mild global cognitive impairment.[1] Studies comparing AD and DLB show that DLB patients score significantly lower on object size discrimination, form discrimination, overlap perception, and visual counting tasks deficits tightly linked to visual hallucinations and misidentifications.[12]

Impaired Depth Perception & Contrast Sensitivity

Depth perception and contrast sensitivity are particularly affected in dementia:

Contrast Sensitivity

Commonly reduced in AD, especially at lower spatial frequencies, affecting the ability to detect objects against complex backgrounds[13]. Reduced contrast sensitivity is often one of the earliest visual signs of AD [4].

Depth Perception (Stereopsis)

Impaired stereoscopic vision is reported in symptomatic AD, leading to misjudged distances contributing to falls and spatial disorientation.[15] In DLB, failure in contour integration and complex spatial tasks hint at combined dorsal-stream dysfunction (which governs spatial vision and movement perception) alongside contrast deficits.[5]

Table 1: Hypotheses & evidence

Hypothesis	*Mechanism*	*Supporting evidence*
Sensory deprivation	Neural atrophy & reduced neuroplasticity	Longitudinal VA–MMSE declines; brain volume loss studies
Social isolation & depression	Mediated by decreased interaction and emotional strain	Mediational modeling and meta-analyses
Cognitive load	Increased demand reduces cognitive reserve	Cohort studies linking sensory decline to cognition
Neuroimaging and network disruption	DMN and executive network disruption	fMRI data on isolation & sensory impairment

Visual Agnosia & Hallucinations

Neurodegeneration often disrupts both recognition ("what") and spatial ("where") visual pathways:

Visual Agnosia

AD patients can experience associative agnosia, with intact low-level perception but inability to identify objects—linked to occipito-temporal pathway degeneration.[6] In DLB and posterior cortical atrophy (PCA), deeper agnosias (object, face, or topographic) are frequent due to ventral-stream and dorsal-stream deficits.

Visual Hallucinations

Especially prominent in DLB occurring in up to 80% of cases visual hallucinations range from simple illusions to detailed scenes.[5] Neuropathological models (e.g., cortical release and activation-input-modulation) suggest that impaired input to the visual cortex (due to retinal or early visual system pathology) alongside frontal and attention network dysfunction triggers hallucinations. Neuroimaging confirms reduced occipital activation and perfusion in higher visual areas (V5/MT) during motion tasks in DLB.[2]

Neurological Pathways: Occipital, Parietal, and Dorsal/Ventral Streams

Visual-cognitive deficits in dementia stem from distinct neuroanatomical disruptions:

Occipital Lobe and Visual Cortex

DLB and PCA show hypoperfusion and hypometabolism within occipito-parietal and temporal pathways—V5/MT alterations have been documented in fMRI studies, indicating disrupted motion perception.[14]

Ventral ("What") Stream

Spanning occipital to temporal cortices, this pathway supports object and face recognition. Degeneration leads to object agnosia, prosopagnosia, and reading difficulties.[2]

Dorsal ("Where/How") Stream

Traversing occipital to parietal cortices, it regulates spatial perception and visually guided movement. Damage results in optic ataxia, simultanagnosia, and eye movement disturbances seen in AD (e.g., Balint's syndrome) and more severely in DLB and PCA.

Functional and structural imaging emphasizes that while early visual areas (V1–V2) may remain intact, higher visual association regions deteriorate in dementia particularly in DLB and PCA leading to profound processing deficits.[5]

Dementia-related visual deficits arise not only from ocular changes but primarily from neurodegenerative disruptions within the brain's visual and attentional networks. Alzheimer's disease predominantly affects higher-level visual processing via occipito-temporal and parietal degeneration, leading to contrast and object recognition deficits. In contrast, dementia with Lewy bodies and posterior cortical atrophy exhibit more pronounced occipito-parietal and dorsal-stream dysfunction, contributing to severe visuospatial impairments and frequent visual hallucinations. These distinctions inform diagnostic strategies, differentiate dementia subtypes, and highlight the importance of neuro-ophthalmological assessment in comprehensive cognitive evaluations (Table 2).

Diagnostic Challenges and Differentiation

Distinguishing genuine cognitive decline from difficulties stemming from vision loss is essential for accurate diagnosis and effective care. Here we examine how vision impairment can mimic dementia, the role of verbal versus visual cognitive testing, assessment tools adapted for sensory impairments, and a clinical case highlighting diagnostic strategies.

Why Vision Loss Can Mimic Cognitive Decline

Vision impairment may present similarly to dementia due to overlapping functional difficulties:

- Poor performance on visual tasks, such as copying figures or clock drawing, may reflect reduced acuity or contrast sensitivity rather than visuospatial deficits.
- Misinterpretations of written or visual instructions—common in tests like MMSE or MoCA—can result in low scores unrelated to cognition.
- Clinicians unaware of vision problems may misattribute missed items to memory or executive dysfunction.

An early study using an adapted vision-impaired version of the MMSE ("MMBlind") found that removing visual items-maintained accuracy in diagnosing dementia among individuals over 70 years old—highlighting how visual demand skews test outcomes if not properly adjusted.[10-12].

Table 2: Visual processing impairments in dementia

Domain	*AD*	*DLB / PCA*
Visuospatial	40–50% show deficits; problems with copying, navigation	More prominent; early MMSE pentagons failures; severe bottom-up processing impairment
Contrast sensitivity	Reduced sensitivity, especially low frequencies	Present; exacerbated by object integration deficits
Depth perception	Impaired stereopsis; misjudging distances common	Poor contour integration and spatial tasks performance
Visual agnosia	Associative agnosia, reading/face recognition issues	Multi-modal agnosias; strong prosopagnosia and object recognition failures
Visual hallucinations	~20% frequency; less elaborate than in DLB	Up to 80%; complex, recurrent; tied to occipital/parietal dysfunction

Visual Testing vs. Verbal Testing

Standard cognitive screening tools often rely on visual abilities. For those with poor vision:

- Verbal-based tests such as auditory recall, repetition, or naming tasks remain valid.
- Visual tasks (figure copying, trail-making, clock drawing) must be replaced or adapted.

For example, patients with dual sensory loss performed worse on the standard MoCA not due to cognition, but due to sensory limitations emphasizing why sensory screening should precede cognitive testing.[19]

Tools to Distinguish Cognitive vs. Sensory Deficits

Several assessment instruments have been adapted or created for visually impaired individuals:

MoCA-Blind

- Omits four vision-dependent subtests (trail-making, cube copy, clock drawing, picture naming)
- Adjusted scoring ensures meaningful interpretation: MoCA-Blind ≤18 showed 83% sensitivity and 98% specificity for dementia compared to full MoCA.[4]

Auditory MMSE (MMBlind)

- Removes visually oriented items
- Retains validity and reliability in the elderly, with unaffected sensitivity and specificity.[15]

Other Verbal Tools

- General practitioner assessment of cognition (GPCOG)—brief verbal test with optional informant interview.[15]
- COGEVIS—designed for those with severe visual impairment; scored out of 30, showed 66.7% sensitivity and 95% specificity for cognitive impairment.[1]
- Most other tests (e.g., Addenbrooke's ACE-III, RUDAS) can be adapted by removing visual components or replaced by occupational evaluations.

Management Strategies

Effectively addressing the link between vision loss and dementia requires comprehensive management that targets both sensory and cognitive domains. Below are evidence-based strategies grouped by intervention type, along with caregiver considerations.

- Vision Care
- Refractive correction & glasses

Timely prescription lenses can restore meaningful vision, reduce cognitive strain, and enhance daily function. Evidence suggests untreated visual impairment raises dementia risk, and correcting vision may mitigate decline.[20]

Cataract surgery

Multiple studies, including systematic reviews and cohort analyses, show cataract extraction is associated with a 25 to 29% lower risk of subsequent cognitive decline or dementia and short-term cognitive improvements.[20] A 2023 observational study with patients aged ≥ 75 years found that those with mild cognitive impairment (MCI) showed notable MMSE score improvements three months post-surgery (pre-op mean 25.6 → post-op 27.1; $p < .001$), while improvements were less pronounced in those with established dementia.[5]

Recommendation

Offer cataract surgery when appropriate, especially for patients with MCI or visual impairment, to enhance sensory input, cognitive performance, and possibly mood.

Adaptive Devices

High-contrast labels, magnifiers, and audio output tools benefit daily tasks. Occupational therapists often integrate sensory adaptations like color-coded tapes and tactile prompts boosting safety and engagement in dementia care.[6]

- Dementia Care
- Structured routines & sensory cues

Consistent daily routines, along with sensory reminders (e.g., bright signage, cues at mealtimes), support memory, reduce anxiety, and help orientation for individuals with visual and cognitive impairments.[5]

Multisensory and environmental stimulation

Sensory rooms or gardens incorporating light, sound, textures, and scents help regulate mood and reduce behavioral symptoms in dementia care. Occupational therapists report using these spaces to promote ADLs engagement and reduce agitation.[5,6]

Caregiver Education

Training programs, such as those from occupational therapists and dementia-focused bodies like NCCDP, emphasize techniques like Teepa Snow's positive approach, sensory awareness, and communication adaptation to visual limitation.[1]

- Integrated Interventions
- Occupational therapy (OT)

OT professionals play a central role in combining functional vision assessments, environmental modifications (lighting, contrast, tactile cues) with task adaptation. Settings may range from sensory gardens to structured memory care environments, enhancing safety, autonomy, and engagement.[5,20]

Environmental Design

Features like improved lighting, non-glare surfaces, color-contrasted door frames, and decluttered pathways not only prevent falls but also support orientation and independence.[5]

Assistive Technologies

Smart-home devices (motion-activated lighting, medication reminders), wearable sensors, and digital apps can scaffold daily routines, enhance safety, and lighten caregiver burden. Companion robots like PARO provide sensory interaction and emotional support.[5]

Caregiver Strategies

- Verbal prompting: Guide actions ("Please put your slippers on") to offset visual challenges.
- Structured routines: Same time/place for meals and activities alleviates stress from orientation issues.
- Contrast & labeling: Mark drawers and utensils with high-contrast paint/tapes to aid recognition.
- Finger foods: For individuals with motor or visual issues, small finger foods can support continuous intake.
- Sensory engagement: Personalized sensory tools (fabrics, music, scents) can soothe, stimulate, and connect caregivers with care recipients.

A holistic, multidisciplinary approach combining sensory care, dementia-oriented routines, environmental design, and caregiver empowerment maximizes benefits for older adults with vision impairment and cognitive decline. Interventions like cataract surgery and structured environments can slow cognitive deterioration, enhance safety, and support dignity (Table 3).

The Role of Education and Policy

Addressing the intertwined issues of vision loss and dementia at a population level demands robust education for professionals and caregivers, comprehensive public health policies, and targeted risk reduction strategies aligned with international guidelines.

Importance of Training (e.g., NCCDP)

Caregiver competence is pivotal. Organizations like the National Council of Certified Dementia Practitioners (NCCDP) offer specialized training that equips professionals with skills to:

- Distinguish vision-related challenges from cognitive decline
- Integrate sensory accommodations into care plans
- Apply person-centered communication with sensory limitations

These training programs enhance quality of care and reduce misdiagnosis by increasing awareness of how sensory and cognitive impairments intersect.

Public Health Policy: Early Screening & Interdisciplinary Care

A public health approach—endorsed by the WHO Global Action Plan on Dementia (2017–2025)—prioritizes early screening for both vision and cognitive impairmen.[8,15] Key policy recommendations include:

- Integrating dementia and sensory health into primary care systems
- Linking dementia prevention with noncommunicable disease (NCD) programs (e.g., hypertension, diabetes).[2,6]
- Training the health workforce in multi-domain risk identification and culturally appropriate communication.

Furthermore, WHO's Global Dementia Observatory tracks the adoption of risk reduction campaigns and sensory screening in national health planning.[15] Yet, as of 2025, only 23% of WHO member states have established national dementia policies, well below the 75% target .

Table 3: Integration summary

Domain	*Primary interventions*
Vision	Glasses, cataract surgery, adaptive devices
Dementia	Structured routines, sensory cues, caregiver training
Integrated	OT-guided home adaptations, sensory spaces, assistive tech
Caregiver tips	Verbal prompts, contrast labeling, finger foods, sensory modulation

Risk Reduction Strategies (WHO & Lancet Guidelines)

Vision loss alongside hearing loss has been recently added to the list of modifiable dementia risk factors. The 2024 Lancet Commission highlighted that untreated vision loss contributes to approximately 2% of dementia cases globally, within a broader context where up to 45% of cases are potentially preventable through lifestyle and health interventions.[2] WHO's guidelines underscore multi-pronged strategies involving:

- Lifestyle interventions: physical activity, healthy diet, smoking cessation
- Managing chronic health conditions: diabetes, hypertension, obesity, depression [11]
- Addressing sensory loss: early detection and treatment of vision and hearing impairments

Policy measures to support these guidelines include embedding dementia risk reduction into NCD and primary care strategies, launching public education campaigns, and leveraging mHealth tools like WHO's mDementia program [1,2].

To combat the growing burden of dementia, policy frameworks must:

- Prioritize education and training for those supporting older adults
- Implement early screening and interdisciplinary models of care
- Promote risk reduction across multiple domains, with vision health as a key, modifiable factor

These aligned efforts—from caregiver certification to national health policy—are essential for delaying dementia onset, reducing misdiagnosis, and enhancing quality of life (Table 4).

Future Directions

As the global population ages, understanding and addressing the interrelationship between vision loss and dementia must become a healthcare priority. Future research and clinical practice should focus on the following areas:

Need for Large-Scale Longitudinal Studies

Despite growing evidence linking visual impairment to cognitive decline, much of the data remains correlational or limited to short follow-up periods. There is a pressing need for:

Table 4: Policy recommendations

Area	*Action*
Governance	Establish national dementia plans aligned with WHO targets (now at 23%)
Health system	Integrate sensory and cognitive screening into primary and geriatric care
Workforce development	Train professionals in sensory-cognitive assessment and communication
Public campaigns	Educate through media, community outreach, and digital messaging (e.g., mDementia)
Risk reduction	Address modifiable risk factors—including vision loss—in mid- to late-life
Surveillance	Track program implementation via platforms like WHO Global Dementia Observatory

- Long-term, population-based cohort studies to establish causality and temporal patterns.
- Studies stratifying by type of dementia and specific visual disorders to identify high-risk profiles.
- Research examining intervention outcomes such as cataract surgery or vision rehabilitation on cognitive trajectories.

These studies can inform clinical guidelines, screening protocols, and public health policy on a more granular level.

Cross-Disciplinary Collaboration

An integrated approach is essential. Collaborative efforts among:

- Neurologists
- Ophthalmologists
- Geriatricians
- Occupational therapists
- Neuropsychologists

can enhance diagnostic accuracy and treatment efficacy. The emerging field of neuro-ophthalmology offers a promising bridge between brain-based and ocular impairments, and joint assessment models can lead to more holistic patient care.

Emerging Technologies

Innovative technologies are rapidly transforming screening and intervention strategies:

- AI and machine learning tools can aid early detection by analyzing retinal scans, cognitive patterns, or speech.
- AR/VR-based cognitive rehabilitation platforms allow simulation of real-life tasks with enhanced sensory cues, which may benefit patients with both vision and cognitive impairment.
- Telehealth and mobile-based assessments can improve access to at-risk populations, especially in rural or underserved areas.

These technologies must be validated across sensory and cognitive subgroups to ensure accessibility and efficacy.

Development of Joint Assessment Protocols

The absence of standardized methods to evaluate patients with dual impairments leads to underdiagnosis or misdiagnosis. Future priorities include:

- Creating integrated assessment batteries that account for visual, cognitive, and functional capacities.
- Validating tools like MoCA-Blind, COGEVIS, and auditory MMSE in larger and more diverse populations.
- Developing clinical decision frameworks that guide referrals, interventions, and follow-up based on dual-diagnosis risk.

Such frameworks will improve the specificity of dementia diagnoses and promote timely, tailored interventions.

Conclusion

In summary, vision loss and dementia are closely intertwined conditions that frequently coexist in older adults, yet they remain distinct with overlapping symptoms that often complicate diagnosis and management. Vision impairment not only increases the risk of cognitive decline but also affects daily functioning and quality of life, while dementia itself can alter how visual information is processed, leading to unique challenges. Recognizing and differentiating these conditions early is crucial, as timely interventions including vision correction, environmental adaptations, and cognitive support can slow decline and enhance well-being. Healthcare professionals must adopt an integrated, holistic approach that addresses both sensory and cognitive health, supported by interdisciplinary collaboration and caregiver education. Public health efforts focused on early screening and risk reduction, with vision health as a key component, are vital to improving outcomes on a larger scale. Ultimately, by viewing visual and cognitive health through a combined lens, clinicians can better support aging individuals, enabling them to maintain independence, dignity, and a higher quality of life. Functional outcomes for patients with anisometropia.

Ethics Approval and Consent to Participate

NA

Conflict of Interests

The authors declare that they have no competing interests.

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Authors' Contributions

The author conceptualized the study, conducted the analysis, and wrote the manuscript.

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