Neuropsychological Rehabilitation in Alzheimer's Disease: Efficacy, Approaches, Policy Implications, and Future Directions

Shreyka Mishra

Email id - shreykamishra@gmail.com

B.A. Hons (Sociology) ,Banaras Hindu University

M.A. Applied psychology ,University of Delhi South Campus

Neuropsychological Rehabilitation

Abstract

Alzheimer's disease (AD) is a progressive neurodegenerative disorder marked by cognitive decline and functional impairment. Neuropsychological rehabilitation (NR) has emerged as an important non-pharmacological approach to enhance cognitive functioning, daily activities, and quality of life. Evidence suggests that NR can produce modest improvements or stabilization in cognition, mood, and activities of daily living, particularly when combined with pharmacological treatment and caregiver support. Interventions such as cognitive training, compensatory strategies, errorless learning, and technology-assisted methods show varying effectiveness depending on disease stage and individual factors. Despite mixed findings, NR remains a promising, person-centered approach, with future directions emphasizing personalized and technology-integrated rehabilitation models.

Introduction

A person diagnosed with **Alzheimer's disease** had gradually stopped remembering her daughter's name. She would repeat the same question within minutes, misplace belongings, and occasionally accuse family members of hiding objects she herself had kept away. Conversations that once flowed effortlessly became fragmented. Her family described the experience not simply as memory loss, but as "losing her in slow motion. "During a structured neuropsychological rehabilitation session, the therapist introduced a song from her early adulthood. Within seconds, she began humming. She sang an entire verse fluently. The family witnessed something profound: although the disease had disrupted episodic memory, emotional and musical memory networks remained accessible.

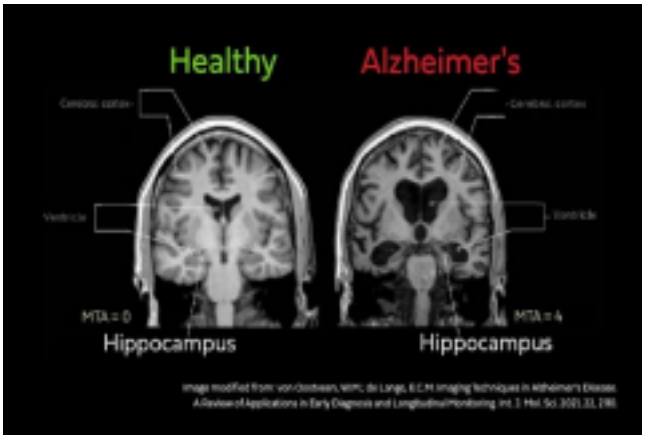
This moment captures the essence of neuropsychological rehabilitation (NR) in Alzheimer's disease (AD). Rehabilitation does not reverse neuropathology. It does not halt amyloid deposition or neurofibrillary degeneration. Yet it can strengthen preserved neural systems, support compensatory mechanisms, stabilize daily functioning, and restore emotional connection. Across the literature (Ren et al., 2024; Viola et al., 2011; Talassi et al., 2007), NR has emerged as a

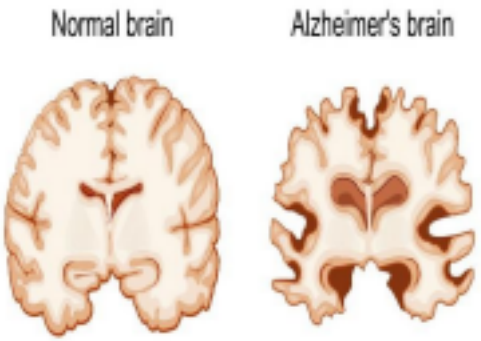
critical non-pharmacological intervention that complements medical treatment and caregiver support.

This review critically examines concepts, symptoms , factors of Alzheimer's disease, standardized neuropsychological rehabilitation which includes efficacy, approaches, technological innovations, policy implications, and future directions of neuropsychological rehabilitation in Alzheimer's disease, integrating empirical evidence with lived realities and suggesting my own rehabilitation program.

Alzheimer's Disease: Concept, Symptoms, Risk Factors and Rehabilitation

1. Concept of Alzheimer's Disease





Alzheimer's disease (AD) is a progressive neurodegenerative disorder and the most common cause of Major Neurocognitive Disorder (dementia). It is characterized by gradual impairment in memory and other cognitive functions severe enough to interfere with independence in everyday activities.

Neuropathologically, AD is defined by the accumulation of extracellular **beta-amyloid plaques** and intracellular **neurofibrillary tangles (tau pathology)**, leading to synaptic loss and cortical atrophy, particularly in the hippocampus and temporal lobes (Wang et al., 2025). These changes disrupt neural communication and progressively impair cognition.

The **DSM-5-TR (American Psychiatric Association, 2022)** classifies Alzheimer's under *Major or Mild Neurocognitive Disorder due to Alzheimer's Disease* and specifies:

DSM-5-TR Diagnostic Criteria

A. Evidence of significant cognitive decline in one or more domains:

- Complex attention
- Executive function
- Learning and memory
- Language
- Perceptual-motor
- Social cognition

B. Cognitive deficits interfere with independence in everyday activities (for Major NCD).
C. Insidious onset and gradual progression.

D. Not better explained by another neurological or psychiatric disorder.

Additionally, for **Probable Alzheimer's Disease**, there must be:

- Evidence of a causative genetic mutation OR
  - Clear history of gradual decline in memory and learning + no evidence of mixed etiology.

The **NIA-AA (National Institute on Aging–Alzheimer's Association)** criteria further emphasize biomarkers (amyloid PET, CSF tau levels) for biological confirmation.

Example-A 70-year-old retired accountant begins forgetting recent transactions and repeatedly misplaces household items. Over two years, he develops difficulty managing finances and requires assistance with medications. Neuropsychological testing confirms significant decline in episodic memory and executive function. This clinical picture fulfills DSM-5 criteria for Major Neurocognitive Disorder due to Alzheimer's disease.

2. Symptoms of Alzheimer's Disease-The symptom profile of Alzheimer's disease evolves gradually and can be understood across cognitive, behavioral, and functional domains.

Cognitive Symptoms-The earliest and most prominent symptom is impairment in episodic memory, particularly difficulty encoding new information. Patients often repeat questions, misplace items, or forget recent events while retaining distant memories. Sheng et al. (2020) describe early memory impairment as a defining clinical marker in mild Alzheimer's disease.

As the disease progresses, additional deficits emerge:

- Executive dysfunction (difficulty planning, organizing)
- Word-finding problems (anomia)
- Visuospatial disorientation
- Impaired judgment

For instance, an individual who once cooked independently may struggle to follow a familiar recipe due to sequencing difficulties, reflecting executive impairment.

Behavioral and Psychological Symptoms-Behavioral and psychological symptoms of dementia (BPSD) are common and often distressing. Ávila et al. (2008) reported increased prevalence of depressive symptoms, irritability, and apathy among individuals with mild-to-moderate AD. Yang et al. (2025) further highlight that neuropsychiatric symptoms significantly increase caregiver burden.

Patients may become suspicious, agitated, or emotionally labile. For example, a person may accuse family members of theft after misplacing belongings—an expression of memory deficits rather than intentional hostility.

Functional Impairment-Functional decline distinguishes mild from major neurocognitive disorder. According to DSM-5-TR (APA, 2022), significant interference with independence in daily activities confirms Major Neurocognitive Disorder.

Ren et al. (2024) found that deterioration in activities of daily living (ADL) strongly correlates with disease severity. Patients may forget medications, mishandle finances, or require assistance with dressing and hygiene in later stages.

Thus, Alzheimer's disease progressively affects not only cognition but also emotional stability and daily functioning.

3. Risk and Contributing Factors-Alzheimer's disease results from an interaction of biological vulnerability and environmental influences.

Biological Factors-Advancing age remains the strongest risk factor. Genetic predisposition, particularly the APOE-ε4 allele, increases susceptibility but does not guarantee disease onset. Vascular conditions such as hypertension and diabetes also contribute to cognitive decline (Meng et al., 2020).

Neuroimaging and meta-analytic studies indicate altered neural connectivity patterns in AD, supporting its neurobiological basis (Wang et al., 2025).

Psychological Factors-Chronic stress and depression may elevate risk. Rostamzadeh et al. (2020) suggest that psychological distress may accelerate cognitive vulnerability in at-risk populations. Lower cognitive reserve—often associated with limited education or reduced intellectual engagement—may also influence earlier symptom expression.

Lifestyle Factors-Physical inactivity, social isolation, and poor cardiovascular health are modifiable contributors. López-Ortiz et al. (2021) demonstrate that structured exercise interventions yield moderate improvements in cognitive and functional outcomes, suggesting protective effects.For example, an older adult who maintains regular physical activity and social engagement may experience slower progression compared to a sedentary, socially isolated peer.

Alzheimer's symptoms progress gradually and can be grouped into cognitive, behavioral, and functional categories.

Understanding Neuropsychological Rehabilitation in Alzheimer's Disease

Alzheimer's disease is characterized by progressive cognitive decline affecting episodic memory, executive function, language, visuospatial skills, and activities of daily living (ADLs). Neuropsychiatric symptoms such as depression, apathy, agitation, and irritability frequently

accompany cognitive deterioration.

Neuropsychological rehabilitation is a structured, goal-oriented intervention designed to:

- Strengthen preserved cognitive capacities
- Compensate for impaired functions
- Reduce behavioral disturbances
- Enhance ADLs
- Improve quality of life
- Support caregivers

Unlike general cognitive stimulation, neuropsychological rehabilitation is individualized and based on formal neuropsychological assessment (Shaughnessy & Weintraub, 2024). It focuses on functional adaptation rather than solely improving test scores.

The theoretical foundation of NR lies in residual neuroplasticity. Although Alzheimer's disease is degenerative, adaptive neural reorganization remains possible, especially in early stages (Mercerón-Martínez et al., 2021). Rehabilitation capitalizes on intact neural circuits, particularly procedural and implicit memory systems.

Bibliometric analysis by Jun et al. (2024) demonstrates a steady rise in rehabilitation-focused AD research between 2000 and 2023, reflecting global recognition of non-pharmacological care.

Core Approaches to Neuropsychological Rehabilitation

1. Cognitive Rehabilitation and Training

Cognitive rehabilitation includes structured exercises targeting memory, attention, language, and executive functioning.Ávila et al. (2004) reported improvements in memory performance and ADLs in a pilot rehabilitation program. Later, Ávila et al. (2008) found modest cognitive gains in mild-to-moderate AD patients, though benefits were not always sustained long-term. Similarly, Abrisqueta-Gomez et al. (2004) observed stabilization of decline compared to control groups in a longitudinal study.

Talassi et al. (2007) demonstrated improvements in individuals with mild dementia and mild cognitive impairment receiving cognitive rehabilitation. Importantly, Ren et al. (2024), in a systematic review and meta-analysis, concluded that cognitive rehabilitation significantly improves daily functioning, even when cognitive score improvements are modest.
A crucial insight from the literature is that stabilization may itself be a positive outcome. In progressive disorders, slowing decline represents meaningful clinical benefit.

Functional Illustration-Consider a person who repeatedly forgets medication timing. Instead of abstract memory drills, the therapist introduces:

- Visual medication charts
- Alarm reminders
- Association of pills with daily routines

Neuropsychological test scores may show limited change, yet medication adherence improves significantly. This aligns with Viola et al. (2011), who emphasized improvements in quality of life and ADLs over purely cognitive metrics.

2. Errorless Learning

Errorless learning prevents incorrect responses during skill acquisition, reducing the risk of encoding mistakes. Śmigórska et al. (2019) found that errorless learning is particularly effective in moderate-to-severe Alzheimer's disease. Because explicit memory systems are compromised, avoiding errors during learning strengthens procedural memory pathways.

For example, when teaching microwave use, the therapist provides immediate correct guidance rather than asking open-ended questions. Over repeated trials, the individual acquires procedural competence despite episodic memory impairment.
Evidence strength: Moderate, with consistent empirical support.

3. Reminiscence Therapy-Reminiscence therapy utilizes autobiographical memory cues such as

photographs, music, or storytelling. Cammisuli et al. (2022) found that structured reminiscence programs significantly improve mood and quality of life. Soares et al. (2025) further observed that immersive formats (e.g., virtual reality-based reminiscence) may enhance emotional engagement.

These interventions are particularly beneficial for addressing depressive symptoms and social withdrawal rather than purely cognitive deficits

4. Multidisciplinary Rehabilitation Programs

The strongest evidence supports structured multidisciplinary programs integrating:

- Cognitive rehabilitation
- Physical exercise
- Psychoeducation
- Occupational therapy
- Social engagement

Viola et al. (2011) demonstrated significant improvements in ADLs and quality of life in mild AD patients receiving multidisciplinary intervention. Bragin and Bragin (2022) proposed an integrative framework combining cognitive training, environmental adaptation, and family involvement. Ribeiro and Rocha (2024) emphasize that neuropsychology plays a central role in designing individualized intervention plans, bridging assessment and rehabilitation.
Multidisciplinary programs address Alzheimer's disease holistically—acknowledging that cognitive decline interacts with emotional, behavioral, and physical health domains.

Impact on Neuropsychiatric Symptoms and Caregiver Burden

Behavioral and psychological symptoms of dementia (BPSD) often cause more distress than cognitive deficits.

Brunelle-Hamann et al. (2015) found that cognitive rehabilitation reduced neuropsychiatric symptoms in mild-to-moderate AD. Vieira et al. (2008) reported behavioral improvements following structured programs. Dainez (2017) demonstrated benefits when neuropsychological

rehabilitation was combined with cognitive-behavioral strategies.

Importantly, several studies indicate that improvements in caregiver burden may exceed direct cognitive gains (Viola et al., 2011).

Caregiver Perspective - A caregiver may report: “He still forgets things, but he is calmer. I feel more supported.”Reduced agitation and improved structure in daily routines decrease emotional exhaustion. Rehabilitation therefore functions as both clinical intervention and psychosocial support.

Technology-Enhanced Rehabilitation -Technological innovations are expanding rehabilitation possibilities.

Stasolla et al. (2024) demonstrated positive outcomes using virtual reality storytelling platforms. Wang (2024) explored brain-computer interface (BCI) neurofeedback as a cognitive rehabilitation tool. Bulgakova et al. (2019) discussed AI-driven personalized rehabilitation systems. Liu et al. (2025) reported multimodal evidence of cognitive restoration following biophoton therapy.

However, Ahmad et al. (2024) emphasize heterogeneity in study designs and call for large-scale randomized controlled trials. Evidence strength for technology-enhanced interventions remains moderate to emerging.

Key challenges include standardization, accessibility, cost, and training requirements.

Barriers to Effective Implementation-Choi and Twamley (2013) identified engagement barriers due to apathy and reduced insight. Additional challenges include:

- Labor-intensive interventions
- Limited trained professionals
- Financial constraints
- Cultural adaptation gaps (Taiebine et al., 2025)
- Limited long-term follow-up data

In low- and middle-income countries, structured rehabilitation services are often scarce. Büyükişcan (2025) highlights the importance of conceptualizing rehabilitation across the disease continuum—from preclinical stages to dementia.

Policy Implications and Government Interventions-In India, dementia care initiatives operate under:

- National Institute of Social Defence
- Alzheimer's and Related Disorders Society of India

While these initiatives provide awareness programs and limited services, neuropsychological rehabilitation is not systematically integrated into primary healthcare.

Policy Recommendations

1. Integrate NR into national geriatric healthcare guidelines.
2. Develop standardized caregiver training programs.
3. Expand tele-neuropsychological rehabilitation services.
4. Include non-pharmacological therapies in insurance coverage.
5. Promote public-private partnerships for AI-based rehabilitation tools.
6. Incorporate NR training into psychology and medical curricula.

Jun et al. (2024) note increasing global research momentum; however, translation into policy remains inconsistent.

Research Gaps and Future Directions

Despite growing evidence, several gaps persist:

- Limited long-term (>1 year) outcome data (Ren et al., 2024).
- Need for standardized technology protocols (Wang, 2024).
- Mechanistic understanding of neural adaptation (Mercerón-Martínez et al., 2021). • Cross-cultural adaptation models (Taiebine et al., 2025).

• Scalable caregiver-led rehabilitation frameworks.

Future research should integrate neuroimaging biomarkers, culturally adapted interventions, and large community-based trials.

Structured Rehabilitation Plan for Alzheimer's Disease *(Stage-Sensitive, Home-Based, and Technology-Supported Model)*

Stage	Primary Goals	Core Interventions	Technological Support	Expected Outcomes
Mild (Early Stage)	Maintain cognition and independence ; stabilize routine	• Cognitive stimulation (20–30 min, 3–4x/week) • Delayed recall tasks • Naming & categorization • Daily orientation review • Household task involvement • Daily aerobic exercise	• Medication reminder apps • Digital calendars • Smart speakers for orientation • Tablet cognitive training apps • Fitness trackers	Stabilization of cognitive decline; improved routine adherence; preserved autonomy
Moderate (Middle Stage)	Preserve ADL; reduce behavioral symptoms; enhance safety	• Errorless learning for ADL • Step-by step task breakdown • Visual cue cards • Weekly reminiscence sessions • Supervised physical activity	• Automated medication dispensers • GPS tracking (wandering risk) • Video modeling for tasks • Motion/door sensors	Improved functional retention; reduced agitation; increased safety

Severe (Advanced Stage)	Comfort; emotional reassurance; physical maintenance	• Sensory stimulation (music, touch) • Structured daily routine • Supported minimal participation • Assisted range-of motion exercises	• Personalized digital music playlists • Adjustable lighting systems • Fall detection devices • Emergency alert systems	Reduced agitation; preserved dignity; enhanced comfort

Table 2-Caregiver Support and Sustainability Plan

Component	Frequency	Description	Technological Integration	Purpose
Psychoeducation	Monthly	Disease progression, behavioral strategies, communication skills	Online training modules; teleconsultation	Reduce caregiver burden
Stress Management	Weekly self care routine	30 minutes personal time; relaxation practices	Virtual support groups	Prevent burnout
Shared Responsibility	Ongoing	Family rotation of caregiving roles	Digital scheduling apps	Improve sustainability
Behavioral Monitoring	Weekly log	Record agitation, triggers, sleep patterns	Symptom-tracking apps	Early intervention

Table 3-Monitoring and Review Schedule

Domain	Assessment Frequency	Method	Responsible Person
Cognitive Function	Every 3–6 months	Brief screening tools	Clinician
ADL Performance	Monthly	Caregiver checklist	Primary caregiver

Behavioral Symptoms	Weekly	Observation log	Caregiver
Caregiver Stress	Monthly	Self-report scale	Caregiver / Clinician

Core Principles Underlying the Plan

1. Structure reduces anxiety.
2. Repetition strengthens preserved abilities.
3. Emotional validation reduces behavioral distress.
4. Environmental modification compensates for cognitive deficits.
5. Technology enhances safety and engagement but does not replace relational care.

Evidence Base-Research consistently demonstrates that neuropsychological rehabilitation yields the strongest improvements in ADL and quality of life, with moderate effects on cognition (Sheng et al., 2020; Cammisuli et al., 2022; Ren et al., 2024). Exercise interventions contribute to functional maintenance (López-Ortiz et al., 2021). Errorless learning enhances procedural retention (Liang et al., 2018). Technology-based approaches show promise but require contextual adaptation (Xiang & Zhang, 2023; Wu et al., 2025)

A Practical and Implementable Rehabilitation Model for Alzheimer's Disease

(Including Structured Home-Based Care and Technological Integration)

A rehabilitation model for Alzheimer's disease must be realistic, stage-sensitive, and sustainable within the patient's natural environment. The objective is not cognitive restoration, but preservation of function, reduction of distress, and maintenance of dignity. Empirical evidence consistently shows that neuropsychological rehabilitation produces its strongest effects on activities of daily living (ADL) and quality of life, with more modest effects on cognition (Sheng et al., 2020; Cammisuli et al., 2022; Ren et al., 2024). Therefore, effective models must prioritize

functional preservation, emotional regulation, caregiver support, and structured living. When feasible, technology can enhance safety and engagement, but it should remain supportive rather than central.

Early Stage Interventions (Mild Alzheimer's Disease)-In the early stage, individuals generally retain partial insight and functional independence. Rehabilitation during this phase should emphasize cognitive stimulation, routine stabilization, physical health, and compensatory technological support.

Cognitive Stimulation and Routine Engagement-Short, structured sessions (20–30 minutes, three to four times per week) may include delayed recall exercises (remembering 3–4 items after 10 minutes), naming and categorization tasks, reading short news articles followed by discussion, and simple planning exercises such as organizing a grocery list. These tasks should remain conversational rather than evaluative to avoid performance anxiety. Evidence suggests that structured cognitive interventions may modestly improve cognitive functioning and help stabilize decline (Sheng et al., 2020).

Orientation and Environmental Structuring-Orientation boards displaying date, day, weather, and daily schedule should be placed in visible areas of the home. Reviewing this information aloud each morning reinforces temporal awareness and reduces anxiety related to unpredictability. Digital calendars and voice-assisted reminders may supplement these strategies without replacing human interaction.

Physical Activity and Lifestyle Optimization-Daily aerobic activity, such as 20–30 minutes of walking or light yoga, should be incorporated consistently. Exercise interventions have demonstrated moderate benefits for cognition and ADL performance (López-Ortiz et al., 2021) and contribute to improved mood and sleep regulation. Wearable fitness devices may support motivation and monitoring when appropriate.

Functional Preservation-Patients should remain involved in familiar responsibilities—watering plants, organizing drawers, assisting with simple meal preparation—to maintain autonomy and self-worth.

Technological Compensation-At this stage, technology primarily serves as a compensatory aid. Tablet-based cognitive applications, reminder apps for medications, and smart speakers providing daily orientation cues may enhance independence. Virtual cognitive platforms have shown short term cognitive benefits in early-stage populations (Xiang & Zhang, 2023), though these should complement interpersonal engagement rather than replace it.

Moderate Stage Interventions (Moderate Alzheimer's Disease)

As memory impairment and executive dysfunction increase, rehabilitation priorities shift toward functional preservation, emotional stabilization, and environmental simplification.

Errorless Learning for ADL

Tasks should be broken into simplified, step-by-step sequences. For example, laying out clothes in dressing order or demonstrating each cooking step before the patient attempts it. Errorless learning reduces frustration and enhances procedural memory retention (Liang et al., 2018; Śmigórska et al., 2019).

Environmental Cueing and Safety

Visual prompts such as labeled drawers, picture-based medication schedules, and color-coded bathroom guides can significantly reduce cognitive load. Technology may enhance these strategies through:

- Automated medication dispensers with alarms
- Video modeling (short pre-recorded demonstrations of tasks)
- GPS tracking devices for wandering risk

At this stage, technological tools should prioritize safety and predictability rather than cognitive enhancement.

Reminiscence and Emotional Regulation

Weekly structured reminiscence sessions (20–30 minutes) using photographs, music, or digital photo albums can stabilize mood and reduce apathy (Cammisuli et al., 2022). Immersive virtual reminiscence may enhance engagement but requires careful supervision (Xiang & Zhang, 2023). Emotional validation should be prioritized over factual correction.

Behavioral Management

Caregivers should receive guidance on avoiding confrontation, using redirection techniques, validating emotional expressions, and maintaining consistent routines. Behavioral disturbances often intensify when environmental unpredictability increases.

Monitoring Technologies

Simple monitoring systems such as door alarms or motion sensors may enhance safety while reducing caregiver anxiety.

Advanced Stage Interventions (Severe Alzheimer's Disease)

In advanced stages, independence is substantially reduced. Rehabilitation goals focus on comfort, sensory engagement, and emotional reassurance rather than cognitive training.

Sensory-Based Interventions-Music therapy, tactile stimulation (holding hands, textured fabrics), and gentle aromatherapy may reduce agitation and improve affect (Bleibel et al., 2023). Personalized digital playlists delivered through headphones can enhance emotional familiarity.

Structured Routine-Predictable daily schedules provide psychological security, even when cognitive comprehension is limited. Familiarity reduces agitation and confusion.

Supported Participation-Encouraging minimal participation—holding utensils during meals, folding a napkin, responding to simple yes/no questions—helps preserve a sense of agency.

Physical Maintenance-Gentle assisted range-of-motion exercises maintain comfort and prevent

contractures.

Technological Adjuncts-In clinical settings, non-invasive brain stimulation has demonstrated moderate cognitive and behavioral benefits (Wu et al., 2025; Teselink et al., 2021), though its home-based feasibility remains limited. Adjustable lighting systems to regulate circadian rhythms may help manage sleep disturbances.

Caregiver Sustainability and Support-Rehabilitation outcomes depend significantly on caregiver stability. Psychoeducation has been shown to reduce perceived burden and improve patient outcomes (Yang et al., 2025; Rostamzadeh et al., 2020).

Psychoeducation-Monthly structured discussions should address symptom progression, behavioral management strategies, and stress recognition. Telehealth platforms may increase accessibility for families in remote areas (Abdullahi et al., 2024).

Respite and Shared Responsibility-Caregivers should have designated personal time daily (at least 30 minutes). Rotating responsibilities among family members helps prevent burnout.

Emotional Support-Community or virtual support groups provide normalization, coping validation, and peer guidance.

Monitoring and Safety Tools-Fall-detection devices, emergency alert systems, and remote health monitoring tools can reduce caregiver anxiety without excessive intrusion.

Integrating Human and Technological Approaches-Although emerging technologies such as virtual reality, neurofeedback, and AI-based personalized interventions demonstrate promising early results (Xiang & Zhang, 2023; Wu et al., 2025), long-term scalability and cost-effectiveness remain under investigation (Abdullahi et al., 2024). The strongest empirical support continues to favor structured, multidisciplinary, and caregiver-inclusive approaches that emphasize routine and environmental adaptation (Sheng et al., 2020; Cammisuli et al., 2022; Ren et al., 2024).

Technology functions most effectively when embedded within these routine-based frameworks rather than positioned as a standalone intervention.

Clinical Implications-An effective rehabilitation model integrates structured cognitive engagement, functional skill preservation, emotional validation, caregiver education, and selective technological supplementation. Emphasis should remain on improving ADL performance and quality of life, as these domains show the strongest evidence base.

When implemented consistently and adapted sensitively to disease stage, neuropsychological rehabilitation becomes not a discrete therapeutic intervention but a sustained framework for living with Alzheimer's disease. Technology can enhance accessibility, safety, and engagement; however, the core therapeutic mechanism remains relational stability, environmental structure, and preservation of dignity throughout disease progression.

Conclusion: Rehabilitation as Preservation of Dignity

Neuropsychological rehabilitation does not cure Alzheimer's disease. It does not eliminate neuropathology. Yet the evidence suggests it can:

- Improve ADLs
- Stabilize cognition temporarily
- Reduce behavioral symptoms
- Enhance caregiver well-being
- Improve quality of life

The strongest support exists for structured multidisciplinary programs (Viola et al., 2011; Ren et al., 2024).

In progressive neurodegeneration, success is measured not in restored memory—but in preserved routines, reduced distress, and sustained human connection. Neuropsychological rehabilitation represents a scientifically grounded, ethically necessary, and socially meaningful component of comprehensive Alzheimer's care.

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